



## **SRI VENKATESWARA COLLEGE**

### **University of Delhi**

*NAAC Accredited "A" Grade (2016), DBT Star College Status (2016)*

*NIRF Rank # 14 (2020), NIRF #11(2021)*

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## **CRITERIA 6**

### **SUPPORTING DOCUMENT**

**6.2.2 The functioning of the institutional bodies is effective and efficient as visible from policies, administrative setup, appointment and service rules, procedures, etc.**

#### ***6.2.2.2 Policies and Procedures***



**SRI VENKATESWARA COLLEGE**  
**(University of Delhi)**



**POLICIES AND PROCEDURES FOR MAINTAINING AND  
UTILIZING PHYSICAL, ACADEMIC AND SUPPORT  
FACILITIES**

*IQAC*  
*Sri Venkateswara College*  
*University of Delhi*

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Sri Venkateswara College,

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## **1. Maintenance of Physical and Academic facilities**

Sri Venkateswara College has well defined policies and procedures to ensure optimal allocation and utilization of the available financial resources for the maintenance of different physical facilities existing in the college.

Foremost, the college constitutes various dedicated staff council committees such as Library Committee, Sports Committee, ICT Committee, Garden Committee, Time-table Committee, Purchase Committee and Development Fund Committee for a period of two years. These committees meet regularly and ensure that the respective facilities are maintained and the financial resources received for augmentation and maintenance of the facilities are optimally utilized for the benefit of the students and faculty of Sri Venkateswara College. Suitable budget is allocated every year for the maintenance of various facilities. In addition to this, there is dedicated staff that includes a Caretaker, Lab Assistants and Computer in-charges for the maintenance and upkeep of the classrooms, laboratories and ICT facility in the college.

The college adheres to the provisions and regulations provided in General Financial Rules (GFRs) issued by the Govt. of India for the expenditure and utilization of financial resources (**Annexure 1**). All purchases and procurement of goods in the college are done through Government E-Marketplace (GeM) laid down by the Govt. of India, as per notification issued by the University of Delhi (**Annexure 2**).

## 2. Maintenance of Laboratories



- (i) Utilization of lab space for regular classes is proposed by Teacher in Charges in consultation with faculty members of the Department and the Time-Table Committee.
- (ii) Instruments purchased at different times are recorded in a specified book, maintained by the lab staff under the supervision of TICs of the departments. New instruments are purchased from time to time as per the requirement of a lab following the provisions provided in GFR.
- (iii) Guidelines for procedures and policies for purchase of instruments are provided to all the departments by the Purchase Committee.
- (iv) Some instruments are purchased in multiple numbers in order to provide hands on experience to the maximum number of students.
- (v) Instruction manuals and Standard Operating Procedures (SOPs) for proper use of laboratory equipment are provided to the students and are also displayed in the laboratories. The college also organizes and conducts workshops for the lab staff to provide them hands-on training related to the operation of instruments, preparation of chemicals, record maintenance and safety disposal methods. **(Annexure 3)**
- (vi) The lab staff and the teachers in the concerned departments ensure that the students follow the Good Lab Practices (GLP) and defined protocols to dispose of the different kinds of waste for their own safety and also maintenance of the lab. **(Annexure 4)**
- (vii) The instruments and equipment that require periodic calibration or regular servicing are maintained by the Lab staff. If the instrument is declared unserviceable, it is written off following

due process and then disposed of with the due permissions.

(viii) Safety measures and important instructions pertaining to the use of equipment inside the laboratories are displayed. Fire extinguishers are placed outside laboratories for emergencies.

### 3. Maintenance of Library Facilities



- (i) Procedures and policies for maintaining and utilizing the library resources are under the purview of the Library Committee. Meetings are held regularly to implement new rules and regulations and the same is notified to all the Departments and other users of the facility by notices/website.
- (ii) The books are issued to the students and the faculty members against their identity card and proper record is maintained by the Library Staff.
- (iii) To ensure the return of books, 'No Dues' from the library is mandatory for the students before appearing in exam and issuance of admit cards.
- (iv) For the purchase of new books, journals etc. funds are annually allocated to the Library committee and all the departments of the college. The teacher in charge of the departments approves for the purchase of new books with the consultation of other faculty members. Weeding out of old books, titles etc. is done from time to time under the purview of the Library Committee.
- (v) The footfall of the students and faculty in the library is maintained on a daily basis through an entry register maintained by the Library Staff.
- (vi) Library at Sri Venkateswara College has access to over 40000 e-books, and 6000 E-journals through DULS and NLIST. The login details and password to access the e-resources have been provided to the faculty members of the college.
- (vii) The details and other information related to the library are accessible on the college website [http://svc.ac.in/SVC\\_MAIN/Library/library.php](http://svc.ac.in/SVC_MAIN/Library/library.php).

#### 4. Maintenance of Sports Facilities



(i) Sri Venkateswara College has a well-developed sports facility for both outdoor as well as indoor game activities. For the maintenance of the same, there is a Sports Committee that looks into the purchase of sports kits and also augmentation and maintenance of the existing sports facilities.

(ii) Purchase and policies related to sports are taken up by the Sports committee of the College. Notices regarding the purchases related to sports, sports events are displayed on the noticeboard and college website.

(iii) Proper records/registers related to stocks of sports gears and kits, issue and return of the sports kits etc. are maintained and reviewed from time to time by the Committee.

(iv) Students are allowed to use the sports ground for training purposes and conduct of sports events with prior permission from the administration.

(vi) There is a dedicated Sports Room to keep the sports kits, trophies and other records related to the sports.

(v) Basic first aid facilities are available and accessible in the Medical room for the students and faculty in case of minor injuries caused during the conduct of sport events.

## 5. Maintenance of ICT Facilities



- (i) Sri Venkateswara College has an ICT Committee that is responsible for maintaining the ICT facility in the College. All purchases and policies for the augmentation and maintenance of ICT facilities are recommended by the ICT Committee.
- (ii) The maintenance and servicing of the desktops, laptops, LCD Projectors and other ICT facilities is regularly carried out. There is a dedicated staff to look after the ICT facilities.
- (iii) The rules and regulations for maintaining discipline in ICT labs and use of computers are displayed in the labs. All the computers are password protected and are used only for academic purposes. Software outside the course curriculum is not allowed to be downloaded. Computers are shut down after use.
- (iv) In the time of the pandemic to support online teaching, the ICT committee of the college provided individual login ID and passwords to all the faculty members and students for easy access to platforms like Microsoft teams.

## 6. Maintenance of Classrooms and Seminar Rooms



(i) At the beginning of every semester the Time table committee ensures that the allocation and optimal utilization of all the classrooms are done. The classrooms are allocated based on the batch sizes of different courses.

(ii) The classrooms are furnished with LCD projectors that are maintained by the ICT facility of the college.

(iii) Proper instructions are displayed outside classrooms to maintain silence in the corridors and to avoid loitering. Electrical equipment like fans and lights are switched off after use and classrooms/labs are locked in the evening. Students are oriented to take care of the college property.

(iv) The Development Fund Committee of the college plays an active role to maintain the infrastructure of the college including classrooms. At the departmental level, TICs submit their requirements regarding classroom furniture or any other facility to DFC which further recommends it to the Purchase Committee.

(v) Beyond the subcommittees the college has appointed a Caretaker for supervision and maintenance of essential facilities and assets in the college. The college has also appointed a full-time electrician for fixing electrical line and panel faults, maintenance of air conditioners, audio-visual systems for events/performances etc.

(vi) Regular cleaning and sanitization of the classrooms are done by people hired on contractual basis through Sulabh International. The college has signed a MOU with the Sulabh International for maintaining cleanliness in the campus.



## 7. Maintenance of Other Physical Facilities



**Garden:** The Garden and Sustainable Development Committee is responsible for maintenance of gardens and a Botanical Garden in the campus. Maintenance includes watering, manuring, weeding, grass cutting, pruning, landscaping, etc. The tree census and numbering of the trees in the campus is done from time to time. The botanical garden is also maintained by dedicated staff for academic purposes.

**Canteen:** The college canteen of SVC caters hygienic food to staff and students. The food menu, rates and maintenance of the canteen are looked after by the Canteen Committee. Adherence to norms for cleanliness, quality and hygiene of food is also monitored by the Canteen Committee. In addition, there is a kiosk-*Maggi Point* in the premises of the college.

**Washrooms:** Cleanliness/sanitation of the entire premises including washrooms is maintained by service providers, Sulabh International, hired by inviting tenders online. There are sanitary pads vending machines in the girls' common room and in the washroom. The dustbins for waste collection are placed at all strategic points. The waste collected from different areas of the campus like labs, canteen, hostels and washrooms are segregated and then accordingly disposed of. The biodegradable waste is collected and segregated for composting. During the time of the

pandemic sanitizers have been installed at strategic locations in the premises and the labs are being regularly sanitized immediately after conduct of practical and students use.

**Hostel Facility:** The college has two hostels one each for boys and girls which offer housing options for outstation students. The Hostels are managed by a committee that comprises the principal as the Chairperson, wardens, few other faculty members and student representatives. The committee decides and makes recommendations on admission to Hostels, discipline of resident students and maintenance and development of Hostel facilities. In addition to the committee, the maintenance of accounts and routine activities are supervised by the Hostel Junior Assistants cum Caretakers. The Hostel committee also gets a prospectus made every year that contains details of the hostel facilities and also the rules and regulations that govern the hostel residents. (Annexure 5)

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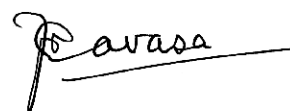
# **GENERAL FINANCIAL RULES 2017**



**Government of India  
Ministry of Finance  
Department of Expenditure**

# P R E F A C E

1. General Financial Rules (GFRs) are a compilation of rules and orders of Government of India to be followed by all while dealing with matters involving public finances. These rules and orders are treated as executive instructions to be observed by all Departments and Organisations under the Government and specified Bodies except otherwise provided for in these Rules.
2. General Financial Rules were issued for the first time in 1947 bringing together in one place all existing orders and instructions pertaining to financial matters. These have subsequently been modified and issued as GFRs 1963 and GFRs 2005.
3. In the last few years, Government has made many innovative changes in the way it conducts its business. Reforms in Government budgeting like removal of distinction in non-plan and plan expenditure, merger of Railway Budget with General Budget, focusing on outcomes through an improved Outcome Budget document, all needed to be reflected in the GFRs. Increased focus on Public Finance Management System (PFMS), reliance on the Direct Benefit Transfer (DBT) Scheme to ensure efficient delivery of entitlements, introduction of new e-sites like Central Public Procurement Portal, Government e-Marketing (GeM) Portal, Non-Tax Revenue Portal have also necessitated revision of the existing GFRs to keep them in tune with the changing business environment. The objective was to make the GFRs facilitate efficiency rather than create impediments in smooth and timely implementation while following principles of accountability and procedures of financial discipline and administrative due diligence. The Expenditure Management Commission set up in 2014 to recommend ways in which efficiency of public expenditure could be increased has also made several recommendations especially with respect to Autonomous Bodies. New rules on non-tax revenues, user charges, e-receipts portal have been added in addition to the manner in which Autonomous Bodies are run.
4. The PAC in April 2015, Group of Secretaries in February 2016 and EMC in March 2016 has recommended setting up a Task Force to review the GFRs so as to frame comprehensive rules to address the issues as highlighted in the above para.
5. GFRs, 2017 have evolved as a result of wide consultations with Central Government Ministries and Departments, some State Governments and other stakeholders at the Task Force stage and thereafter. The Discussion Draft was also uploaded on the MoF's website. Secretaries of each Department/ Ministry of Government of India were asked to give their views for additions/ modifications, keeping in view their specific requirements of their domain. Detailed deliberations were also carried out within the Ministry. C&AG's comments on the draft GFRs have also been taken into consideration.
6. The aim of any rule is to provide a framework within which an organization manages its business in a financially prudent manner without compromising its flexibility to deal with varied situations. The GFRs 2005 have been very comprehensively reviewed with the aim of promoting simplicity and transparency in the Government financial system and procedures. It is expected that the new GFRs 2017 will enable an improved, efficient and effective framework of fiscal management while providing the necessary flexibility to facilitate timely delivery of services.
7. Department of Expenditure would like to place on record the exceptional work done by the Task Force on Review of GFRs, the office of the C&AG, the office of the CGA, Budget Division of Department of Economic Affairs, the Ministries and Departments for their valuable inputs and its own officers for assiduously and meticulously completing this vital and challenging exercise in a time bound manner.



**(ASHOK LAVASA)**  
**Finance Secretary &**  
**Secretary (Expenditure)**  
**Department of Expenditure**  
**Ministry of Finance**





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## INTRODUCTION

**Rule 1 Short Title and Commencement:** These rules may be called General Financial Rules, 2017 and they shall come into force at once and shall be applicable to all Central Government Ministries/Departments, attached and subordinate bodies. The provisions contained in GFRs are deemed to be applicable to Autonomous Bodies except to the extent the bye-laws of an Autonomous Body provides for separate Financial Rules which have been approved by the Government.

**Rule 2 Definition :** In these rules, unless the context otherwise requires-

- (i) **"Accounts Officer"** means the Head of an Office of Accounts or the Head of a Pay and Accounts Office set up under the scheme of departmentalization of accounts;
- (ii) **"Administrator"** means Administrator of a Union Territory, by whatever name designated;
- (iii) **"Appropriation"** means the assignment, to meet specified expenditure, of funds included in a primary unit of appropriation;
- (iv) **"Audit Officer"** means the Head of an Office of Audit;
- (v) **"Competent Authority"** means, in respect of the power to be exercised under any of these Rules, the President or such other authority to which the power is delegated by or under these Rules, Delegation of Financial Power Rules or any other general or special orders issued by the Government of India;
- (vi) **"Comptroller and Auditor General"** means the Comptroller and Auditor General of India;
- (vii) **"Consolidated Fund"** means the Consolidated Fund of India referred to in Article 266 (1) of the Constitution;
- (viii) **"Constitution"** means the Constitution of India;
- (ix) **"Contingency Fund"** means the Contingency Fund of India established under the Contingency Fund of India Act, 1950, in terms of Article 267 (1) of the Constitution;
- (x) **"Controlling Officer"** means an officer entrusted by a Department of the Central Government with the

responsibility of controlling the incurring of expenditure and/or the collection of revenue. The term shall include a Head of Department and also an Administrator;

- (xi) **"Department of the Government of India"** means any of the Ministries, Departments, Secretariats and Offices as notified from time to time and listed in the First Schedule to the Government of India (Allocation of Business Rules);
- (xii) **"Drawing and Disbursing Officer"** means a Head of Office and also any other Gazetted Officer so designated by a Department of the Central Government, a Head of Department or an Administrator, to draw bills and make payments on behalf of the Central Government. The term shall also include a Head of Department or an Administrator where he himself discharges such function;
- (xiii) **"Ministry of Finance"** means the Ministry of Finance of the Central Government;
- (xiv) **"Financial Year"** means the year beginning on the 1st of April and ending on the 31st of March following;
- (xv) **"Government"** means the Central Government;
- (xvi) **"Government Account"** means the account relating to the Consolidated Fund, the Contingency Fund and the Public Account; as defined in these rules;
- (xvii) **"Head of the Department"** means an authority or person (not below the rank of a Deputy Secretary to the Government of India), declared by the concerned Department in the Government of India as a Head of Department in relation to an identifiable establishment or establishments to exercise the delegated financial powers under these Rules;
- (xviii) **"Head of Office"** means (a) a Gazetted Officer declared as such in the Delegation of Financial Powers Rules and (b) any other authority declared as such under any general or special orders of the competent



- authority;
- (xix) **“Local Body”** means an authority legally entitled or specially empowered by Government to administer a local fund;
- (xx) **“Local Fund”** means a local fund as defined in Rule 652 of the Treasury Rules;
- (xxi) **“Non-recurring expenditure”** means expenditure other than recurring expenditure;
- (xxii) **“President”** means the President of India;
- (xxiii) **“Primary unit of appropriation”** means a primary unit of appropriation referred to in Rule 8 of the Delegation of Financial Powers Rules;
- (xxiv) **“Public Account”** means the Public Account of India referred to in Article 266 (2) of the Constitution;
- (xxv) **“Public Works”** means civil/ electrical works including public buildings, public services, transport infrastructure etc., both original and repair works and any other project, including infrastructure which is for the use of general public;
- (xxvi) **“Re-appropriation”** means the transfer of funds from one primary unit of appropriation to another such unit;
- (xxvii) **“Recurring expenditure”** means the expenditure which is incurred at periodical intervals for the same purpose. Expenditures other than recurring expenditure are non-recurring expenditure;
- (xxviii) **“Reserve Bank”** means the Reserve Bank of India or any office or agency of the Reserve Bank of India and includes any Bank acting as the agent of the Reserve Bank of India in accordance with the provisions of the Reserve Bank of India Act, 1934 (Act II of 1934);
- (xxix) **“Subordinate authority”** means a Department of the Central Government or any authority subordinate to the President;
- (xxx) **“Treasury Rules”** means the Treasury Rules of the Central Government;

- (xxxii) **CAPEX model:** In the CAPEX Model, Capital expenditures is used by the buyer to straightway purchase goods followed by procurement of consumables, arranging comprehensive maintenance contract after warranty period and finally disposing the product after useful life;
- (xxxiii) **OPEX model:** In the OPEX model, the Seller provides the goods, maintains it and also provides the consumables as required and finally takes back the goods after useful / contracted life. The expenditure is made by the Buyer in a staggered manner as per the terms and conditions of the contract.

**Rule 3 Interdepartmental consultations:** When the subject of a case concerns more than one Department, no order shall be issued until all such Departments have concurred, or, failing such concurrence, a decision has been taken by or under the authority of the Cabinet. In this regard it is clarified that every case in which a decision, if taken in one Department, is likely to affect the transaction of business allotted to another Department, shall also be deemed to be a case which concerns more than one Department.

**Rule 4 Departmental Regulations of financial character:** All Departmental regulations, in so far as they embody orders or instructions of a financial character or have important financial bearing, must invariably be made by, or with the approval of the Ministry of Finance.

**Rule 5 Removal of Doubts:** Where a doubt arises as to the interpretation of any of the provisions of these Rules, the matter shall be referred to the Ministry of Finance for decision.

**Rule 6 Modifications:**

- (1) The systems and procedures established by these Rules are subject to general or special instructions/orders, which the Ministry of Finance may issue from time to time.
- (2) The systems and procedures established by these Rules may be modified by any other authority only with the express approval of the Ministry of Finance.



## GENERAL SYSTEM OF FINANCIAL MANAGEMENT

- Rule 7** All moneys received by or on behalf of the Government either as dues of Government or for deposit, remittance or otherwise, shall be brought into Government Account without delay, in accordance with such general or special rules as may be issued under Articles 150 and 283 (1) of the Constitution.
- Rule 8 (1)**
- (i) Under Article 284 of the Constitution all moneys received by or deposited with any officer employed in connection with the affairs of the Union in his capacity as such, other than revenues or public moneys raised or received by Government, shall be paid into the Public Account.
  - (ii) All moneys received by or deposited with the Supreme Court of India or with any other Court, other than a High Court, within a Union Territory, shall also be dealt with in accordance with Clause (i) of sub-rule (1).
- Rule 8 (2)** The Head of Account to which such moneys shall be credited and the withdrawal of moneys therefrom shall be governed by the relevant provisions of Government Accounting Rules 1990 and the Central Government Account (Receipts and Payments) Rules, 1983 or such other general or special orders as may be issued in this behalf.
- Rule 9** It is the duty of the Department of the Central Government concerned to ensure that the receipts and dues of the Government are correctly and promptly assessed, collected and duly credited to the Consolidated Fund or Public Account as the case may be.
- Rule 10** The Controlling Officer shall arrange to obtain from his subordinate officers monthly accounts and returns in suitable form claiming credit for the amounts paid into the treasury or bank as the case may be, or otherwise accounted for, and compare them with the statements of credits furnished by the Accounts Officer to see that the amounts reported as collected have been duly credited. Accordingly, each Accounts Officer will send an extract from his accounts showing the amounts brought to credit in the accounts in each month to the Controlling Officer concerned.
- Rule 11 (1)** Detailed rules and procedure regarding assessment, collection, allocation, remission and abandonment of revenue and other receipts shall be laid down in the regulations of the Department responsible for the same
- Rule 11 (2)** In Departments in which officers are required to receive moneys on behalf of Government and issue receipts therefor in Form GAR-6 the departmental regulations should provide for the maintenance of a proper account of the receipt and issue of the receipt books, the number of receipt books to be issued at a time to each officer and a check with the officer's accounts of the used books when returned.
- Rule 12** Amounts due to Government shall not be left outstanding without sufficient reasons. Where such amounts appear to be irrecoverable, the orders of the competent authority shall be obtained for their adjustment.
- Rule 13** Unless specially authorized by any rule or order made by competent authority, no sums shall be credited as revenue by debit to a suspense head. The credit must follow and not precede actual realization.
- Rule 14** Subject to any general or special orders issued by a Department of the Central Government, an Administrator or a Head of a Department responsible for the collection of revenue shall keep the Finance Ministry fully informed of the progress of collection of revenue under his control and of all important variations in such collections as compared with the Budget Estimates.
- Rule 15 (1) Rents of buildings and lands.** When the maintenance of any rentable building is entrusted to a civil department, other than the Central Public Works Department, the Administrator or the Head of the Department concerned shall be responsible for the due recovery of the rent thereof.
- Rule 15 (2)** The procedure for the assessment and recovery of rent of any building hired out will be regulated generally by the rules applicable to buildings under the direct charge of the Central Public Works Department.
- Rule 15 (3)** The detailed rules and procedure, regarding the demand and recovery of rent of Government buildings and lands, are contained in the departmental regulations of the departments in charge of those buildings.
- Rule 16 (1) Fines .** Every authority having the power to impose and/ or realize a fine shall ensure that the money is realized, duly checked and deposited into a treasury or bank as the case may be.



**Rule 16 (2)** Every authority having the power to refund fines shall ensure that the refunds are checked and no double refunds of amounts of fines collected or refunds of fines not actually paid into a treasury or bank as the case may be, are made

**Rule 17 Miscellaneous Demands.** Accounts Officers shall watch the realization of miscellaneous demands of Government, not falling under the ordinary revenue administration, such as contributions from State Governments, Local Funds, contractors and others towards establishment charges.

**Rule 18 Remission of Revenue.** A claim to revenue shall not be remitted or abandoned save with the sanction of the competent authority.

**Rule 19 (1)** Subject to any general or special orders issued by the Government Departments of the Central Government, Administrators and Heads of Departments, other than those in the Department of Posts, shall submit annually on the 1st of June to the Audit Officer and the Accounts Officer concerned, statements showing the remissions of revenue and abandonment of claims to revenue sanctioned during the preceding year by competent authorities in exercise of the discretionary powers vested in them otherwise than by law or rule having the force of law, provided that individual remissions below Rupees one thousand need not be included in the statements.

**Rule 19 (2)** For inclusion in the statements referred to in Rule 19 (1) above, remissions and abandonments should be classified broadly with reference to the grounds on which they were sanctioned and a total figure should be given for each class. A brief explanation of the circumstances leading to the remission should be added in the case of each class.

**Rule 20** Departments of the Central Government and Administrators may make rules defining remissions and abandonments of revenue for the purpose of Rule 19 above.

#### **I. GENERAL PRINCIPLES RELATING TO EXPENDITURE AND PAYMENT OF MONEY**

**Rule 21 Standards of financial propriety.** Every officer incurring or authorizing expenditure from public moneys should be guided by high standards of financial propriety. Every

officer should also enforce financial order and strict economy and see that all relevant financial rules and regulations are observed, by his own office and by subordinate disbursing officers. Among the principles on which emphasis is generally laid are the following :-

- (i) Every officer is expected to exercise the same vigilance in respect of expenditure incurred from public moneys as a person of ordinary prudence would exercise in respect of expenditure of his own money.
- (ii) The expenditure should not be prima facie more than the occasion demands.
- (iii) No authority should exercise its powers of sanctioning expenditure to pass an order which will be directly or indirectly to its own advantage.
- (iv) Expenditure from public moneys should not be incurred for the benefit of a particular person or a section of the people, unless –
  - (a) a claim for the amount could be enforced in a Court of Law, or
  - (b) the expenditure is in pursuance of a recognized policy or custom.

**Rule 22 Expenditure from Public Funds.** No authority may incur any expenditure or enter into any liability involving expenditure or transfer of moneys for investment or deposit from public funds (Consolidated Fund / Contingency Fund and the Public Accounts) unless the same has been sanctioned by a competent authority

**Rule 23 Delegation of Financial Powers.** The financial powers of the Government have been delegated to various subordinate authorities vide Delegation of Financial Powers Rules as amended from time to time. The financial powers of the Government, which have not been delegated to a subordinate authority, shall vest in the Finance Ministry.

**Rule 24 Consultation with Financial Advisers.** All draft memoranda for Expenditure Finance Committee or Public Investment Bureau or Committee on Establishment Expenditure and Cabinet Committee for Economic Affairs or Cabinet shall be circulated by the Ministry or Department concerned after consultation with the concerned Financial Adviser of the





Ministry or Department. A confirmation to this effect shall be included in the draft memorandum at the circulation stage.

**Rule 25 (1) Provision of funds for sanction.** All sanctions to the expenditure shall indicate the details of the provisions in the relevant grant or appropriation wherefrom such expenditure is to be met.

**Rule 25 (2)** All proposals for sanction to expenditure, shall indicate whether such expenditure can be met by valid appropriation or re-appropriation.

**Rule 25 (3)** In cases where it becomes necessary to issue a sanction to expenditure before funds are communicated, the sanction should specify that such expenditure is subjected to funds being communicated in the budget of the year.

**Rule 26 Responsibility of Controlling Officer in respect of Budget allocation.** The duties and responsibilities of a controlling officer in respect of funds placed at his disposal are to ensure :

- (i) that the expenditure does not exceed the budget allocation.
- (ii) that the expenditure is incurred for the purpose for which funds have been provided.
- (iii) that the expenditure is incurred in public interest.
- (iv) that adequate control mechanism is functioning in his Department for prevention, detection of errors and irregularities in the financial proceedings of his subordinate offices and to guard against waste and loss of public money,

**Rule 27 (1) Date of effect of sanction.** Subject to fulfilment of the provisions as contained in the Delegation of Financial Powers Rules, all rules, sanctions or orders shall come into force from the date of issue unless any other date from which they shall come into force is specified therein.

**Rule 27 (2) Date of creation to be indicated in sanctions for temporary posts.** Orders sanctioning the creation of a temporary post should, in addition to the sanctioned duration, invariably specify the date from which it is to be created

**Rule 28** Powers in regard to certain special matters.— Except in pursuance of the general delegation made by, or with the approval of

the President, a subordinate authority shall not, without the previous consent of the Finance Ministry, issue an order which -

- (i) involves any grant of land, or assignment of revenue, or concession, grant, lease or licence of mineral or forest rights, or rights to water, power or any easement or privilege of such concessions, or
- (ii) involves relinquishment of revenue in any way

**Rule 29 Procedure for communication of sanctions.** All financial sanctions and orders issued by a competent authority shall be communicated to the Audit Officer and the Accounts Officer. The procedure to be followed for communication of financial sanctions and orders will be as under :-

- (i) All financial sanctions issued by a Department of the Central Government which relate to a matter concerning the Department proper and on the basis of which payment is to be made or authorized by the Accounts Officer, should be addressed to him.
- (ii) All other sanctions should be accorded in the form of an Order, which need not be addressed to any authority, but a copy thereof should be endorsed to the Accounts Officer concerned.
- (iii) In the case of non-recurring contingent and miscellaneous expenditure, the sanctioning authority may, where required, accord sanction by signing or countersigning the bill or voucher, whether before or after the money is drawn, instead of by a separate sanction.
- (iv) All financial sanctions and orders issued by a Department of the Central Government with the concurrence of the Internal Finance Wing or Finance Ministry, as applicable, should be communicated to the Accounts Officer in accordance with the procedure laid down in the Delegation of Financial Powers Rules, and orders issued thereunder from time to time.
- (v) All financial sanctions and orders issued by a Department with the concurrence of the Ministry of Home Affairs or Comptroller and Auditor General of India or Department of





Personnel should specify that the sanction or orders are issued with the concurrence of that Department along with the number and date of relevant communication of that Department wherein the concurrence was conveyed.

- (vi) All orders conveying sanctions to expenditure of a definite amount or upto a specific limit should express both in words and figures the amount of expenditure sanctioned.
- (vii) Sanctions accorded by a Head of Department may be communicated to the Accounts Officer by an authorized Gazetted Officer of his Office duly signed by him for the Head of Department or conveyed in the name of the Head of the Department.
- (viii) All orders conveying sanctions to the grant of additions to pay such as Special Allowance, Personal Pay, etc., should contain a brief summary of the reasons for the grant of such additions to pay so as to enable the Accounts Officer to see that it is correctly termed as Special Allowance, Personal Pay, etc., as the case may be.
- (ix) Orders issued by a Department of a Union Territory Government where Audit and Accounts (a) have not been separated shall be communicated direct to the Audit authority; (b) have been separated, copies shall be endorsed to the Audit authorities.

In case of sanctions in respect of matters, where reference was made to the Central Government under the Rules of Business framed under Section 46 of the Government of Union Territory Act, 1963, the following clause shall be added in the sanction endorsed to Audit:-

"A reference had been made in this case to the Central Government and the above order/letter conforms to the decision of the Central Government vide Government of India, Ministry/Department of.....Letter No.....dated.....".

- (x) Copies of all General Financial Orders issued by a Department of the Central Government with the

concurrence of the Comptroller and Auditor General of India shall be supplied to the Comptroller and Auditor General of India.

- (xi) Copies of all sanctions or orders other than the following types should be endorsed to the Audit Officers:-
  - (a) Sanctions relating to grant to advances to Central Government employees.
  - (b) Sanctions relating to appointment or promotion or transfer of Gazetted and non-Gazetted Officers.
  - (c) All sanctions relating to creation or continuation or abolition of posts.
  - (d) Sanctions for handing over charge and taking over charge, etc.
  - (e) Sanctions relating to payment or withdrawal of General Provident Fund advances to Government servants.
  - (f) Sanctions of contingent expenditure incurred under the powers of Head of Offices.
  - (g) Other sanctions of routine nature issued by Heads of Subordinate Officers (other than those issued by Ministries or Departments proper and under powers of a Head of Department).
- (xii) Sanctions accorded by competent authority to grants of land and alienation of land revenue, other than those in which assignments of land revenue are treated as cash payment, shall be communicated to the Audit and/ or the Accounts Officer, as the case may be, in a consolidated monthly return giving the necessary details.

**Rule 30 Lapse of Sanctions.** A sanction for any fresh charge shall, unless it is specifically renewed, lapse if no payment in whole or in part has been made during a period of twelve months from the date of issue of such sanction. Provided that -

- (i) when the period of currency of the sanction is prescribed in the departmental regulations or is specified in the sanction itself, it shall lapse on the expiry of such periods; or
- (ii) when there is a specific provision in a



sanction that the expenditure would be met from the Budget provision of a specified financial year, it shall lapse at the close of that financial year; or

- (iii) in the case of purchase of stores, a sanction shall not lapse, if tenders have been accepted (in the case of local or direct purchase of stores) or the indent has been placed (in the case of Central Purchases) on the Central Purchase Organization within the period of one year of the date of issue of that sanction, even if the actual payment in whole or in part has not been made during the said period.

**Rule 31** Notwithstanding anything contained in Rule 30, a sanction in respect of an addition to a permanent establishment, made from year to year under a general scheme by a competent authority, or in respect of an allowance sanctioned for a post or for a class of Government servants, but not drawn by the officer(s) concerned, shall not lapse.

**Rule 32 Remission of disallowances by Audit and writing off of overpayment made to Government servants.** The remission of disallowances by Audit and writing off of overpayments made to Government servants by competent authorities shall be in accordance with the provisions of the Delegation of Financial Powers Rules, and instructions issued thereunder.

## II. DEFALCATION AND LOSSES

**Rule 33 (1) Report of Losses.** Any loss or shortage of public moneys, departmental revenue or receipts, stamps, opium, stores or other property held by, or on behalf of, Government irrespective of the cause of loss and manner of detection, shall be immediately reported by the subordinate authority concerned to the next higher authority as well as to the Statutory Audit Officer and to the concerned Principal Accounts Officer, even when such loss has been made good by the party responsible for it. However the following losses need not be reported:

- (i) Cases involving losses of revenue due to
  - (a) mistakes in assessments which are discovered too late to permit a supplementary claim being made,

- (b) under assessments which are due to interpretation of the law by the local authority being overruled by higher authority after the expiry of the time-limit prescribed under the law, and

- (c) refunds allowed on the ground that the claims were time-barred:

- (ii) Petty losses of value not exceeding Rupees ten thousand.

**Rule 33 (2)** Cases involving serious irregularities shall be brought to the notice of Financial Adviser or Chief Accounting Authority of the Ministry or Department concerned and the Controller General of Accounts, Ministry of Finance.

**Rule 33 (3)** Report of loss contemplated in sub-rule (1) & (2) shall be made at two stages.—

- (i) An initial report should be made as soon as a suspicion arises that a loss has taken place.
- (ii) The final report should be sent to authorities indicated in sub rule (1) & (2) after investigation indicating nature and extent of loss, errors or neglect of rules by which the loss has been caused and the prospects of recovery.

**Rule 33 (4)** The complete report contemplated in sub-rule 3, shall reach through proper channels to the Head of the Department, who shall finally dispose of the same under the powers delegated to him under the Delegation of Financial Power Rules. The reports, which he cannot finally dispose of under the delegated powers, shall be submitted to the Finance Ministry.

**Rule 33 (5)** An amount lost through misappropriation, defalcation, embezzlement, etc., may be redrawn on a simple receipt pending investigation, recovery or write-off with the approval of the authority competent to write-off the loss in question.

**Rule 33 (6)** In cases of loss to Government on account of culpability of Government servants, the loss should be borne by the Central Government Department or State Government concerned with the transaction. Similarly, if any recoveries are made from the erring Government officials in cash, the receipt will be credited to the Central Government Department or the State Government who sustained the loss.

**Rule 33 (7)** All cases involving loss of Government



money arising from erroneous or irregular issue of cheques or irregular accounting of receipts will be reported to the Controller General of Accounts along with the circumstances leading to the loss, so that he can take steps to remedy defects in rules or procedures, if any, connected therewith.

**Rule 34 Loss of Government Property due to fire, theft, fraud.** Departmental Officers shall, in addition to taking action as prescribed in Rule 33, follow the provisions indicated below in cases involving material loss or destruction of Government property as a result of fire, theft, fraud, etc.

All losses above the value of Rupees Fifty thousand due to suspected fire, theft, fraud, etc., shall be invariably reported to the Police for investigation as early as possible.

Once the matter is reported to the Police Authorities, all concerned should assist the Police in their investigation. A formal investigation report should be obtained from the Police Authorities in all cases, which are referred to them.

**Rule 35 Loss of immovable property by fire, flood etc.** All loss of immovable property exceeding Rupees fifty thousand, such as buildings, communications, or other works, caused by fire, flood, cyclone, earthquake or any other natural cause, shall be reported at once by the subordinate authority concerned to Government through the usual channel. All other losses should be immediately brought to the notice of the next higher authority.

**Rule 36 Report to Audit and Accounts Officers.** After a full enquiry as to the cause and the extent of the loss has been made, the detailed report should be sent by the subordinate authority concerned to Government through the proper channel; a copy of the report or an abstract thereof being simultaneously forwarded to the Audit officer and Pay and Accounts Officer

**Rule 37 Responsibility of losses.** An officer shall be held personally responsible for any loss sustained by the Government through fraud or negligence on his part. He will also be held personally responsible for any loss arising from fraud or negligence of any other officer to the extent to which it may be shown that he contributed to the loss by his own action or negligence.

The departmental proceedings for

assessment of responsibility for the loss shall be conducted according to the instructions contained in Appendix 1 and those issued by the Ministry of Personnel from time to time.

**Rule 38 Prompt disposal of cases of loss.** Action at each stage of detection, reporting, write off, final disposal, in cases of losses including action against delinquents and remedial measures should be completed promptly with special attention to action against delinquents and remedial measures, taken to strengthen the control system

### III. SUBMISSION OF RECORDS AND INFORMATION

**Rule 39 Demand for information by Audit or Accounts Officer.** A subordinate authority shall afford all reasonable facilities to the Audit Officer and Pay and Accounts Officer for the discharge of his functions, and furnish fullest possible information required by him for the preparation of any official account or report, payments and internal audit.

**Rule 40** A subordinate authority shall not withhold any information, books or other documents required by the Audit Officer or Accounts Officer.

**Rule 41** If the contents of any file are categorized as 'Secret' or 'Top Secret' the file maybe sent personally to the Head of the Audit Office specifying this fact, who will then deal with it in accordance with the standing instructions for handling and custody of such classified documents.



## BUDGET FORMULATION AND IMPLEMENTATION

**Rule 42 Financial Year.** Financial year of the Government shall commence on the 1st day of April of each year and end on the 31st day of March of the following year.

**Rule 43 (1) Presentation of Budget to Parliament.** In accordance with the provisions of Article 112 (1) of the Constitution, the Finance Minister shall arrange to lay before both the Houses of Parliament, an Annual Financial Statement also known as the 'Budget' showing the estimated receipts and expenditure of the Central Government in respect of a financial year, before the commencement of that year.

**Rule 43 (2)** The receipts and expenditure of the Railways being a departmental commercial organization form part of the Government's receipts and expenditure and are included in the Annual Financial Statement. With the merger of Railway Budget with the General Budget, the Demands for Grants and the Statement of Budget Estimates of Railways shall also be part of the General Budget with effect from 2017-18.

**Rule 43 (3)** The provisions for preparation, formulation and submission of budget to the Parliament are contained in Articles 112 to 116 of the Constitution of India.

**Rule 43 (4)** The Ministry of Finance, Budget Division, shall issue guidelines for preparation of budget estimates from time to time. All the Ministries/Departments shall comply in full with these guidelines.

**Rule 44** The budget shall contain the following :-

- (i) Estimates of all revenues expected to be raised during the financial year to which the budget relates ;
- (ii) Estimates of all expenditure for each programme, scheme and project in that financial year;
- (iii) Estimates of all interest and debt servicing charges and any repayments on loans in that financial year;
- (iv) Any other information as may be prescribed.

**Rule 45 Receipt Estimates.** The detailed estimates of receipts shall be prepared by the estimating authorities separately for each Major Head of Account in the prescribed form. For each Major Head, the estimating authority shall give the break-up of the Minor/Subhead/ Detailed wise estimate along with actuals of the past three years. While doing the head

wise classification, it may be ensured that item wise break-up of all major items of tax and non-tax revenues are clearly identified and depicted in the receipt estimates. This is required to highlight all individual items of significance. Any major variation in estimates with reference to past actuals or/and Budget Estimates shall be supported by cogent reasons. The accounting heads under which major tax and non-tax revenues are collected shall be prescribed by the administrative Ministry in consultation with the Budget Division in the Finance Ministry.

**Rule 46 Non-Tax Revenues.** While the tax revenues, non-debt capital receipts including disinvestments and borrowings are managed by the various Departments of the Ministry of Finance, the non-tax revenues are collected through all Ministries/Departments and other autonomous bodies and implementing agencies and comprise an important source of revenue for the Government.

**Rule 47 User Charges.** 'User Charges' is an important component of the non-tax revenues. Each Ministry/Department may undertake an exercise to identify the 'user charges' levied by it and publish the same on its website.

- (i) While fixing the rates of user charges, the Ministries/Departments must ensure that the user charges recover the current cost of providing services with reasonable return on capital investment.
- (ii) Any deviation from these principles shall be specifically recorded with reasons justifying the setting of user charges lower than the cost recovery norms, if any.
- (iii) The rates of user charges should be linked with appropriate price indices and reviewed at least every three years.
- (iv) In order to enable ease of revision of user charges, the rate of user charges shall be fixed, wherever possible through Rules or executive orders and not through a statute.

**Rule 48 Dividends and Profits.** Dividends and profits including the transfer of surplus from Reserve Bank of India is a major component of the non-tax revenues. The payment of dividends/profits etc. by the Central Public Sector Enterprises shall not be delayed and



must be paid within an appropriate time frame immediately after the decision on dividend is taken in the AGM. Ministries or Departments shall monitor timely payments of dividends and profits. The dividend shall be payable as per the guidelines issued by DIPAM in this regards.

**Rule 49 Receipts Portal.** The Government has provided a public portal for online collection of various non-tax revenues including various fees and user charges through e-Receipts. All Ministries/Departments, shall take prompt measures for migration to e-Receipts, to ensure customer convenience and immediate credit of receipts to the Government account.

**Rule 50 (1) Expenditure estimates.** The expenditure estimates shall show separately the sums required to meet the expenditure Charged on the Consolidated Fund under Article 112 (3) of the Constitution and sums required to meet other expenditure for which a vote of the Lok Sabha is required under Article 113(2) of the Constitution.

**Rule 50 (2)** The estimates shall also distinguish provisions for expenditure on revenue account from capital account, including on loans by the Government and for repayment of loans, treasury bills, cash management bills and ways and means advances.

**Rule 50 (3)** The detailed estimates of expenditure shall be prepared by the estimating authorities up to the final unit of appropriation (Object head) under the prescribed Major and Minor Heads of Accounts for both Revenue and Capital expenditure. Estimates shall include suitable provision for liabilities of the previous years that is to be discharged during the year.

**Rule 50 (4)** The estimates of scheme related and other expenditures shall be processed in consultation with the Budget Division, Ministry of Finance in accordance with the instructions issued by it.

**Rule 50 (5)** The Revised and Budget Estimates of both Revenue and Capital expenditure after being scrutinized by the Financial Advisers and approved by the Secretary of the Administrative Ministry or Department concerned shall be forwarded to the Budget Division in the Ministry of Finance in such manner and forms as may be prescribed by it from time to time.

**Rule 51 (1) Demands for Grants.** The estimates for

expenditure for which vote of Lok Sabha is required shall be in the form of Demand for Grants.

**Rule 51 (2)** Generally, one Demand for Grant is presented in respect of each Ministry or Department. However, in respect of large Ministries or Departments, more than one Demand may be presented. Each Demand normally includes provisions required for a service, i.e. provisions on account of revenue expenditure, capital expenditure, grants to the State and Union Territory Governments and also Loans and Advances relating to the service.

**Rule 51 (3)** The Demand for Grants shall be presented to Parliament at two levels. The main Demand for Grants shall be presented to Parliament by the Ministry of Finance, Budget Division along with the Annual Financial Statement while the Detailed Demands for Grants, for consideration by the "Departmentally Related Standing Committee" (DRSC) of the Parliament, are laid on the Table of the Lok Sabha by the concerned Ministries/ Departments, as per dates approved from time to time.

**Rule 52 (1) Form of Annual Financial Statement and Demands for Grant.** The form of the Annual Financial Statement and Demands for Grants shall be laid down by the Finance Ministry and no alteration of arrangement or classification shall be made without the approval of that Ministry.

**Rule 52 (2)** The heads under which provision for expenditure shall be made in the Demands for Grants or Appropriation shall be prescribed by the Finance Ministry in consultation with the Administrative Ministry or Department. The authorized heads for expenditure in a year shall be as shown in the Detailed Demands for Grants passed by Parliament and no change shall be made therein without the formal approval of the Finance Ministry.

**Rule 52 (3)** The major head wise provisions in the Detailed Demands for Grants shall match with the provision made in the Demands for Grants presented by Budget Division, as the appropriations are sought on the basis of Demands for Grants.

**NOTE:** Detailed instructions for preparation of the budget are available in Appendix 2, 3 and 4.

**Rule 53 (1) Acceptance and inclusion of**





**estimates.** The estimates of receipts and expenditure of each Ministry/Department shall be scrutinized in the Budget Division of the Ministry of Finance. Secretary (Expenditure) may hold meetings with Secretaries or Financial Advisers of Administrative Ministries or Departments to discuss the totality of the requirements of funds for various programmes and schemes, along with receipts of the Ministries or Departments.

**Rule 53 (2)** The estimates initially submitted by the Departments may undergo some changes as a result of scrutiny in the Budget Division, Ministry of Finance and deliberations in the pre-budget meetings between the Secretary (Expenditure) and the Secretary or Financial Adviser of the Department concerned. The final estimates arrived at on the basis of scrutiny and pre-budget meetings shall be incorporated in the Budget documents.

**Rule 54 Outcome Budget.** After finalization of the estimates for budgetary allocations, the Department of Expenditure in consultation with NITI Aayog and the concerned Ministries shall prepare an Outcome Budget statement linking outlays against each scheme/project with the outputs/deliverables and medium term outcomes. The outputs/deliverables shall be mandatorily given in measurable/quantitative terms on the basis of parameters and deliverables decided in advance, on the basis of projections made in the Medium Term Expenditure Framework (MTEF) Statement. Allocations for each scheme/project shall be against a firm set of deliverables which shall be adhered to. The performance against specified outcomes would form the basis of deciding on the continuation of the scheme and the quantum of budget allocation.

**Rule 55 Vote on Account.** If the Appropriation Bill seeking authorization of the Parliament to make expenditure in consonance with the Budget proposal is likely to be passed after the start of the financial year to which it corresponds then pending the completion of the procedure prescribed in Article 113 of the Constitution for the passing of the Budget, the Finance Ministry may need to obtain a 'Vote on Account' to cover expenditure for a brief period in accordance with the provisions of Article 116 of the Constitution. Funds made available under Vote on Account are not to be utilized for expenditure on a 'New Service'.

**Rule 56 Communication and distribution of grants and appropriations.** After the Appropriation Bill relating to Budget is passed, the Ministry of Finance shall communicate the same to the Ministries / Departments which, in turn, shall distribute the same to their subordinate formations. The distribution so made shall also be communicated to the respective Pay and Accounts Officers who shall exercise check against the allocation to each subordinate authority.

## II. CONTROL OF EXPENDITURE AGAINST BUDGET

**Rule 57 (1) Responsibility for control of Expenditure.** The Departments of the Central Government shall be responsible for the control of expenditure against the sanctioned grants and appropriations placed at their disposal. The control shall be exercised through the Heads of Departments and other Controlling Officers, if any, and Disbursing Officers subordinate to them.

**Rule 57 (2)** A Grant or Appropriation can be utilised only to cover the charges (including liabilities, if any, of the past year) which are to be paid during the financial year of the Grant or Appropriation and adjusted in the account of the year. No charges against a Grant or Appropriation can be authorized after the expiry of the financial year.

**Rule 57 (3)** No expenditure shall be incurred which may have the effect of exceeding the total grant or appropriation authorized by Parliament by law for a financial year, except after obtaining a supplementary grant or appropriation or an advance from the Contingency Fund. Since voted and charged portions as also the revenue and capital sections of a Grant/Appropriation are distinct and re-appropriation inter se is not permissible, an excess in any one portion or section is treated as an excess in the Grant/Appropriation.

**Rule 57 (4)** To have effective control over expenditure by the Departments, Controlling and Disbursing Officers subordinate to them shall follow the procedure as given below :-

- (i) For drawal of money the Drawing and Disbursing Officer shall (a) Prepare and present bills for "charged" and "voted" expenditure



- separately. (b) Enter on each bill the complete accounts classifications from major head down to the object head of account. When a single bill includes charges falling under two or more object heads, the charges shall be distributed accurately over the respective heads. (c) Enter on each bill the progressive total of expenditure up-to-date under the primary unit of appropriation to which the bill relates, including the amount of the bill on which the entry is made.
- (ii) All drawing and disbursing officers shall maintain separate registers in Form GFR 5, physically or electronically for allocation under each minor or sub-head of account with which they are concerned.
- (iii) On the third day of each month, a copy of the entries made in this register during the preceding month shall be sent by the officer maintaining it, to the Head of the Department or other designated Controlling Officer. This statement shall also include adjustment of an inward claim, etc., communicated by Pay and Accounts Officer directly to the DDO (and not to his Grant Controlling Officer). If there are no entries in the register in any month, a 'nil' statement shall be sent.
- (iv) The Controlling Officer will maintain a broadsheet in Form GFR 6 to monitor the receipt of the return prescribed in the foregoing sub-clause
- (v). On receipt of the returns from Disbursing Officers, the Controlling Officer shall examine them and satisfy himself :-
- that the accounts classification has been properly given;
  - that progressive expenditure has been properly noted and the available balances worked out correctly;
  - that expenditure up-to-date is within the grant or appropriation; and
  - that the returns have been signed by Disbursing Officers. Where the Controlling Officer finds defects in any of these respects, he shall take steps to rectify the defect.
- (vi) When all the returns from the Disbursing Officers for a particular month have been received and found to be in order, the Controlling Officer shall compile a statement in Form GFR 7, in which he shall incorporate -
- the totals of the figures supplied by Disbursing Officers;
  - the totals taken from his own registers in Form GFR 5;
  - the totals of such adjustments under the various detailed heads as communicated to him by the Accounts Officer on account of transfer entries and expenditure debited to the grant as a result of settlement of inward account claims and not reckoned by his DDOs.
- (vii). If any adjustment communicated by the Accounts Officer affects the appropriation at the disposal of a subordinate Disbursing Officer, the fact that the adjustment has been made shall be communicated by the Controlling Officer to the Disbursing Officer concerned.
- (viii). On receipt of all the necessary returns, the Head of the Department shall prepare a consolidated account in Form GFR 8, showing the complete expenditure from the grant or appropriation at his disposal upto the end of the preceding month.
- Rule 57 (5)** The Head of the Department and the Accounts Officer shall be jointly responsible for the monthly reconciliation of the figures given in the accounts maintained by the Head of the Department with those appearing in the Accounts Officer's books. The procedure for reconciliation shall be as follows :-
- DDOs shall maintain a Bill Register in Form TR 28-A, and note all bills presented for payment to the PAO in the register. As soon as cheques for the bills presented for payment are received, and/or status of e-payments are verified from the reports available with DDO on PFMS portal these shall be noted in the appropriate column of the Bill Register and the DDOs shall





ensure that the amounts of cheques tally with the net amount of the bills presented. In case any retrenchment is made by the PAO, a note of such retrenchments shall be kept against the bill in the remarks column in TR 28-A.

- (ii) The PAOs shall furnish to each of the DDOs including Cheque –drawing DDOs, an extract from the expenditure control register or from the Compilation Sheet every month indicating the expenditure relating to grants controlled by him classified under the various major-minor detailed head of accounts. The statements for May to March shall also contain Progressive Figures.
- (iii). On receipt of these extracts from the PAOs, the DDOs shall tally the figures received, excluding book adjustments, with the expenditure worked out for the month in the GFR 5 register. Discrepancies, if any, between the two sets of figures shall be promptly investigated by the DDO in consultation with the PAO. He shall also note in the GFR 5 register particulars of book adjustments advised by the PAO through the monthly statement. Thereafter, the DDO shall furnish to the PAO a certificate of agreement of the figures as per his books with those indicated by the PAOs by the last day of the month following the month of accounts.
- (iv). The Principal Accounts Officer (or PAO wherever payments, relating to a grant are handled wholly by a PAO) of each Ministry, shall send a monthly statement showing the expenditure vis-à-vis the Budget provision under the various heads of accounts, in the prescribed pro forma, to the Heads of Departments responsible for overall control of expenditure against grant of the Ministry as a whole. The figures so communicated by the Principal Accounts Officer (or the PAO concerned) shall be compared by the Heads of Departments with those consolidated in Form GFR 8 and differences, if any, shall be taken up by the Heads of Departments with the

Principal Accounts Officers (or the PAO concerned) for reconciliation. The Head of the Department shall furnish a quarterly certificate to the Principal Accounts Officer certifying the correctness of the figures for the quarter by the 15th of the second following month after the end of quarters April-June, July-September, October-December and January-March.

**Rule 57 (6)** The Departments of the Central Government shall obtain from their Heads of Departments and other offices under them the departmental figures of expenditure in Form GFR 8 by the 15th of the month following the month to which the returns relate. The figures relating to Revenue and Capital expenditure shall be separately shown in these returns. The information so obtained shall be posted in register(s) kept for watching the flow of expenditure against the sanctioned grant or appropriation. Progressive totals of expenditure shall be worked out for the purpose. If the departmental figures obtained in Form GFR 8 and posted in the register(s), require correction in a subsequent month, Heads of Departments or other offices shall make such corrections by making plus or minus entries in the progressive totals. In case the Accounts Office figures which subsequently become available are found to be higher than departmental figures, the former shall be assumed to be the correct figures, as appropriation accounts are prepared on the basis of the figures booked in the accounts.

**Rule 57 (7)** The Departments of Central Government shall also obtain from the Heads of Departments and other authorities under them, statements showing the details of the physical progress of the schemes for which they are responsible. This statement shall show the name of the scheme, the Budget provision for each scheme, the progressive expenditure on each scheme, the progress of the scheme in physical terms and the detailed reasons for any shortfalls or excess, both against physical and financial targets.

**Rule 57 (8)** A Broadsheet in Form GFR 9 shall be maintained by the Departments of Central Government or each Head of Department and other authorities directly under them, to watch the prompt receipt of the various returns mentioned above from month to



month and to take necessary measures for rectifying any defaults noticed.

**Rule 58 Maintenance of Liability Register for effecting proper control over expenditure.** In order to maintain proper control over expenditure, a Controlling Officer shall obtain from the spending authorities liability statements in Form GFR 3-A every month, starting from the month of October in each financial year. The Controlling Officer shall also maintain a Liability Register in Form GFR 3.

**Rule 59 Personal attention of the Head of Department /Controlling Officer required to estimate savings or excesses.** A Head of Department or Controlling Officer shall be in a position to estimate the likelihood of savings or excesses every month and to regularize them in accordance with the instructions laid down in Rule 62.

**Rule 60 Control of expenditure against grant/appropriation and ultimate responsibility of the authority administering it.** The Accounts Officer shall report to the Head of the Department concerned immediately on the first appearance of any disproportionate expenditure, particularly in respect of recurring items of expenditure under any grant or appropriation or a primary unit of appropriation thereof. However, the authority administering a grant/appropriation is ultimately responsible for the control of expenditure against the grant/appropriation and not the Accounts Officer.

**Rule 61 Excess Expenditure.**

1. The Accounts Officer shall not allow any payment against sanctions in excess of the Budget provisions unless there is specific approval of the Chief Accounting Authority.
2. The Financial Advisers and Chief Accounting Authority, before according concurrence for excess under any Head, shall ensure availability of funds through Reappropriation/ Supplementary Demands for Grants. (Refer Appendix 10)

**Rule 62 (1) Surrender of savings.** Departments of the Central Government shall surrender to the Finance Ministry, by the dates prescribed by that Ministry before the close of the

financial year, all the anticipated savings noticed in the Grants or Appropriations controlled by them. The Finance Ministry shall communicate the acceptance of such surrenders as are accepted by it to the Accounts Officer, before the close of the year. The funds provided during the financial year and not utilized before the close of that financial year shall stand lapsed at the close of the financial year.

**Rule 62 (2)** The savings as well as provisions that cannot be profitably utilised shall be surrendered to Government immediately they are foreseen without waiting till the end of the year. No savings shall be held in reserve for possible future excesses.

**Rule 62 (3)** Rush of expenditure, particularly in the closing months of the Financial year, shall be regarded as a breach of financial propriety and shall be avoided. The Financial Advisers of the Ministries/Departments shall ensure adherence to the stipulated Monthly Expenditure Plan and the guidelines issued in this regard by the Budget Division, Department of Economic Affairs, from time to time.

**Rule 62 (4)** The Financial Advisers of the Ministries/ Departments shall ensure adherence to the stipulated Quarterly Expenditure Plan and the guidelines issued in this regard by Ministry of Finance from time to time.

**Rule 63 Expenditure on New Service.** No expenditure shall be incurred during a financial year on a "New Service" not contemplated in the Annual Budget for the year except after obtaining a supplementary grant or appropriation or an advance from the Contingency Fund during that year. The guidelines to determine cases of "New Service"/"New Instrument of Service" are contained in Annexure-1 to Appendix -3.

**Rule 64 (1) Additional Allotment for excess expenditure.** A subordinate authority incurring the expenditure shall be responsible for seeing that the allotment placed at its disposal is not exceeded. Where any excess over the allotment is apprehended, the subordinate authority shall obtain additional allotment before incurring the excess expenditure. For this purpose, the authorities incurring expenditure shall maintain a 'Liability Register' in Form GFR 3.

**Rule 64 (2)** A Disbursing Officer may not, on his own authority, authorize any payment in excess of



the funds placed at his disposal. If the Disbursing Officer is called upon to honour a claim, which is certain to produce an excess over the allotment or appropriation at his disposal, he shall take the orders of the administrative authority to which he is subordinate before authorizing payment of the claim in question. The administrative authority shall then arrange to provide funds either by reappropriation or by obtaining a Supplementary Grant or Appropriation or an advance from the Contingency Fund. Instructions contained in Note below Appendix 10 may also be kept in view.

- Rule 65 (1) Re-appropriation of Funds.** Subject to the provisions of Rule 10 of the Delegation of Financial Powers Rules, and also subject to such other general or specific restrictions as may be imposed by the Finance Ministry in this behalf, re-appropriation of funds from one primary unit of appropriation to another such unit within a grant or appropriation, may be sanctioned by a competent authority at any time before the close of the financial year to which such grant or appropriation relates. The Primary unit in this regard shall be the final unit of appropriation i.e. the Object head of account.
- Rule 65 (2)** Re-appropriation of funds shall be made only when it is known or anticipated that the appropriation for the unit from which funds are to be transferred shall not be utilized in full or that savings can be effected in the appropriation for the said unit.
- Rule 65 (3)** Funds shall not be re-appropriated from a unit with the intention of restoring the diverted appropriation to that unit when savings become available under other units later in the year.
- Rule 65 (4)** An application for re-appropriation of funds shall ordinarily be supported by a statement in Form GFR 1 or any other special form authorized by departmental regulations showing how the excess is proposed to be met. In all orders, sanctioning reappropriation, the reasons for saving and excess of Rupees 1 lakh or over and the primary units (secondary units, wherever necessary), affected shall be invariably stated. The authority sanctioning the reappropriation shall endorse a copy of the order to the Accounts Officer.
- Rule 66 Supplementary Grants.** If savings are not available within the Grant to which the payment is required to be debited, or if the expenditure is on "New Service" or "New

Instrument of Service" not provided in the budget, necessary Supplementary Grant or Appropriation in accordance with Article 115 (1) of the Constitution shall be obtained before payment is authorized (Refer to Appendix 5).

- Rule 67 (1) Advance from Contingency Fund.** When a need arises to incur unforeseen expenditure in excess of the sanctioned grant or appropriation or on a new service not provided in Budget and there is not sufficient time for the voting of the Supplementary Demand and the passing of the connected appropriation bill before close of the financial year, an advance from the Contingency Fund set up under Article 267 (1) of the Constitution shall be obtained before incurring the expenditure.
- Rule 67 (2)** An advance from the Contingency Fund shall also be obtained to meet expenditure in excess of the provisions for the service included in an Appropriation (Vote on Account) Act.
- Rule 67 (3)** The application for an advance from the Contingency Fund shall indicate inter alia the particulars of the additional expenditure involved and the sanction to the advance has also to indicate the sub-head and the primary unit of the Grant to which the expenditure appropriately relates. In case, however, any difficulty is felt, the matter shall be referred to the Finance Ministry for clarification.
- Rule 67 (4)** The procedure for obtaining an advance from the Contingency Fund and recoupment of the Fund shall be as laid down in the Contingency Fund of India Rules, 1952, as amended from time to time. For ready reference, rules have been placed at Appendix - 6 to this volume.
- Rule 68 Inevitable Payments.**
- Subject to the provisions of Article 114 (3) of the Constitution, money indisputably payable by Government shall not ordinarily be left unpaid.
  - Suitable provision for anticipated liabilities shall invariably be made in Demands for Grants to be placed before Parliament.
- Rule 69** For easy reference an extract relating to procedures followed in the Accounts Office for check against provision of funds as a part of pre-check of bills has been placed at Appendix 10.
- Rule 70 Duties and Responsibilities of the Chief**



**Accounting Authority.** The Secretary of a Ministry/Department who is the Chief Accounting Authority of the Ministry/Department shall: —

- (i) be responsible and accountable for financial management of his Ministry or Department.
- (ii) ensure that the public funds appropriated to the Ministry or Department are used for the purpose for which they were meant.
- (iii) be responsible for the effective, efficient, economical and transparent use of the resources of the Ministry or Department in achieving the stated project objectives of that Ministry or Department, whilst complying with performance standards.
- (iv) appear before the Committee on Public Accounts and any other Parliamentary Committee for examination.
- (v) review and monitor regularly the performance of the programmes and projects assigned to his Ministry to determine whether stated objectives are achieved.
- (vi) be responsible for preparation of expenditure and other statements relating to his Ministry or Department as required by regulations, guidelines or directives issued by Ministry of Finance.
- (vii) shall ensure that his Ministry or Department maintains full and proper records of financial transactions and adopts systems and procedures that shall at all times afford internal controls.
- (viii) shall ensure that his Ministry or Department follows the Government procurement procedure for execution of works, as well as for procurement of services and supplies, and implements it in a fair, equitable, transparent, competitive and cost-effective manner;
- (ix) shall take effective and appropriate steps to ensure his Ministry or Department : -
  - (a) collects all moneys due to the Government and
  - (b) avoids unauthorized, irregular and wasteful expenditure.



## GOVERNMENT ACCOUNTS

**Rule 71 Preparation and presentation of Accounts.** Accounts of the Union Government shall be prepared every year showing the receipts and disbursements for the year, surplus or deficit generated during the year and changes in Government liabilities and assets. The accounts shall be prepared by Comptroller General of Accounts, certified by the Comptroller and Auditor General of India and along with the report of the Comptroller and Auditor General of India on these accounts, shall be submitted to the President of India, preferably within six months of close of the Financial Year, who shall cause them to be laid before each House of Parliament.

**Rule 72 Form of Accounts.** By virtue of the provisions of Article 150 of the Constitution, the Accounts of the Union Government shall be kept in such form as the President may, on the advice of the Comptroller and Auditor General of India, prescribe.

The Controller General of Accounts in the Ministry of Finance (Department of Expenditure) is responsible for prescribing the form of accounts of the Union and States, and to frame, or revise, rules and manuals relating thereto on behalf of the President of India in terms of Article 150 of the Constitution of India, on the advice of the Comptroller and Auditor General of India.

**Rule 73 Principles of Accounting.** The main principles according to which the accounts of the Government of India shall be maintained are contained in Government Accounting Rules, 1990; Accounting Rules for Treasuries; and Account Code Volume-III. Detailed rules and instructions relating to the forms of the initial and subsidiary accounts to be kept and rendered by officers of the Department of Posts and other technical departments are laid down in the respective Accounts Manuals or in the departmental regulations relating to the Departments concerned.

**Rule 74 Cash based Accounting.** Government accounts shall be prepared on cash basis. With the exception of such book adjustments as may be authorised by Government Accounting Rules, 1990 or by any general or special order issued by the Central Government on the advice of the

Comptroller and Auditor General of India, the transactions in Government accounts shall represent the actual cash receipts and disbursements during a financial year as distinguished from amounts due to or by Government during the same period.

**Rule 75 Period of Accounts.** The annual accounts of the Central Government shall record transactions which take place during a financial year running from the 1st April to the 31st March thereof.

**Rule 76 Currency in which Accounts are kept.** The accounts of Government shall be maintained in Indian Rupees. All foreign currency transactions and foreign aid shall be brought into account after conversion into Indian Rupees.

**Rule 77 Main Divisions and structure of Accounts.** The accounts of Government shall be kept in three parts, Consolidated Fund (Part-I), Contingency Fund (Part-II) and Public Account (Part-III).

Part-I – Consolidated Fund is divided into two Divisions, namely, 'Revenue' and 'Capital' divisions. The Revenue Division comprises the following sections:

'Receipt Heads (Revenue Account)' dealing with the proceeds of taxation and other receipts classified as revenue and the section 'Expenditure Heads (Revenue Account)' dealing with the revenue expenditure met therefrom. The Capital Division comprises three sections, viz., 'Receipt Heads (Capital Account)', 'Expenditure Heads (Capital Account)' and 'Public Debt, Loans and Advances, etc.'. These sections are in turn divided into sectors such as 'General Services', 'Social and Community Services', 'Economic Services', etc., under which specific functions or services are grouped corresponding to the sectors of classification and which are represented by Major Heads (comprising Sub-Major Heads wherever necessary).

In Part-II – Contingency Fund- are recorded transactions connected with the Contingency Fund set up by the Government of India under Article 267 of the Constitution or Section 48 of Government of Union Territories Act, 1963. There shall be a single Major Head to record the transactions thereunder, which will be followed by Minor, Sub and/or Detailed Heads.





In Part-III – Public Account- transactions relating to debt (other than those included in Part-I), reserve funds, deposits, advances, suspense, remittances and cash balances shall be recorded.

**Rule 78 Classification of transactions in Government Accounts.** As a general rule, classification of transactions in Government Accounts, shall have closer reference to functions, programmes and activities of the Government and the object of revenue or expenditure, rather than the department in which the revenue or expenditure occurs.

Major Heads (comprising Sub-Major Heads wherever necessary) are divided into Minor Heads. Minor Heads may have a number of subordinate heads, generally known as Sub Heads. The Sub Heads are further divided into Detailed Heads followed by Object Heads.

The Major Heads of account, falling within the sectors for expenditure heads, generally correspond to functions of Government, while the Minor Heads identify the programmes undertaken to achieve the objectives of the functions represented by the Major Head. The Sub Head represents schemes, the Detailed Head denotes sub scheme and Object Head represent the primary unit of appropriation showing the economic nature of expenditure such as salaries and wages, office expenses, travel expenses, professional services, grants-in-aid, etc. The above six tiers are represented by a unique 15 digit numeric code.

**Rule 79 Authority to open a new Head of Account.** The List of Major and Minor Heads of Accounts of Union and States is maintained by the Ministry of Finance (Department of Expenditure – Controller General of Accounts) which is authorised to open a new head of account on the advice of the Comptroller and Auditor General of India under the powers flowing from Article 150 of the Constitution. It contains General Directions for opening Heads of Accounts and a complete list of the Sectors, Major, Sub-Major and Minor Heads of Accounts and also some Sub/detailed heads, authorised to be so opened.

Ministries/Departments may open Sub-Heads and Detailed Heads as required by

them in consultation with the Budget Division of the Ministry of Finance. Their Principal Accounts Offices may open Sub/Detailed Heads required under the Minor Heads falling within the Public Account of India subject to the above stipulations.

The Object Heads have been prescribed under Government of India's Orders below Rule 8 of Delegation of Financial Power Rules. The power to amend or modify these Object heads and to open new Object Heads rest with Department of Expenditure of Ministry of Finance on the advice of the Comptroller and Auditor General of India.

**Rule 80 Conformity of budget heads with rules of classification.** Budget Heads exhibited in estimates of receipts and expenditure framed by the Government or in any appropriation order shall conform to the prescribed rules of classification.

**Rule 81 Responsibility of Departmental officers.** Every officer responsible for the collection of Government dues or expenditure of Government money shall see that proper accounts of the receipts and expenditure, as the case may be, are maintained in such form as may have been prescribed for the financial transactions of Government with which he is concerned and tender accurately and promptly all such accounts and returns relating to them as may be required by Government, Controlling Officer or Accounts Officer, as the case may be.

**Rule 82 Classification should be recorded in all the bills and challans by Drawing Officers.** Suitable classification shall be recorded by Drawing Officers on all bills drawn by them. Similarly, classification on challans crediting Government money into the Bank shall be indicated or recorded by Departmental Officers responsible for the collection of Government dues, etc. In cases of doubt regarding the Head under which a transaction should be accounted, the matter shall be referred to the Principal Accounts Officer of the Ministry/ Department concerned for clarification of the Ministry of Finance and the Controller General of Accounts, wherever necessary.

**Rule 83 Charged or Voted Expenditure.** The expenditure covered under Article 112 (3) of the Constitution of India is charged on



the Consolidated Fund of India and is not subject to vote by the legislature. All other expenditure met out of the Consolidated Fund of India is treated as Voted expenditure. Charged or Voted Expenditure shall be shown separately in the accounts as well as in the Budget documents.

**Rule 84 Capital or Revenue Expenditure.**

Significant expenditure incurred with the object of acquiring tangible assets of a permanent nature (for use in the organisation and not for sale in the ordinary course of business) or enhancing the utility of existing assets, shall broadly be defined as Capital expenditure.

Subsequent charges on maintenance, repair, upkeep and working expenses, which are required to maintain the assets in a running order as also all other expenses incurred for the day to day running of the organisation, including establishment and administrative expenses shall be classified as Revenue expenditure. Capital and Revenue expenditure shall be shown separately in the Accounts.

**Rule 85 Banking Arrangements.** The Reserve Bank of India (RBI) shall be the banker to the Government. It shall maintain cash balance of the Government and provide banking facilities to the Ministries and subordinate or attached offices either directly through its own offices or through its agent banks. For this purpose, RBI shall, in consultation with the Controller General of Accounts, nominate a bank to function as Accredited Bank of a Ministry or Department. Pay & Accounts offices and Cheque Drawing and Disbursing Officer shall have assignment accounts with the identified branches of the Accredited Bank of the Ministry. All payments shall be made through these identified bank branches. These branches shall also collect departmental and other receipts. Tax revenues of the Government shall be collected by the RBI through its own offices or through the nominated branches of its agent banks.

Note: Detailed procedure to be followed for remittance of Government receipts into Government cash balance and reimbursement of payments made on behalf of Government by the banks are

laid down in the Memoranda of Instructions issued by the Reserve Bank of India.

**Rule 86 Public Financial Management System (PFMS).—**

- (1) Public Financial Management System (PFMS), an integrated Financial Management System of Controller General of Accounts, Government of India, shall be used for sanction preparation, bill processing, payment, receipt management, Direct Benefit Transfer, fund flow management and financial reporting.
- (2) All the ministries sanctioning grant-in-aid shall register all implementing agencies till last level of implementation on PFMS to track fund flow and unspent balances.
- (3) All the payment, to the extent possible, shall be released 'just-in-time' by the Ministries through PFMS.
- (4) Detailed Demand for Grants (DDG), as approved, must be uploaded on PFMS at the start of each Financial Year.
- (5) All the re-appropriation orders, surrender order shall be generated through PFMS system.
- (6) All grantee institutions shall submit Utilisation Certificates on PFMS.

**Rule 87 Direct Benefit Transfer.**

- (1) Transfer of benefits should be done directly to beneficiaries under various Government Schemes and Programmes using Information and Communication Technology (ICT). Necessary process reengineering to minimise intermediary levels and to reduce delay in payments to intended beneficiaries with the objective of minimising pilferage and duplication should be done for all Government Schemes and Programmes. The process for implementation of DBT as prescribed should be adopted.
- (2) DBT should include in-kind and cash transfers to beneficiaries as well as transfers/honorariums given to various enablers of government schemes like community workers, etc. for successful implementation of the schemes.





- (3) Transfer of cash benefits from Ministries/Departments should be done (a) directly to beneficiaries from Ministries/Departments; (b) through State Treasury Account; or (c) through any Implementing Agency as appointed by Centre/State Governments.
- (4) In-kind Transfer to Individual Beneficiary/ Household/Service provider includes schemes or components of schemes where in-kind benefits are given by the Government or through any Implementing Agency as appointed by Centre/State Governments to Individual Beneficiary/Household/Service providers.
- (5) Ministries/Departments will use PFMS platform for processing of payments for cash / in kind transfers to individual beneficiaries as per framework laid down by Department of Expenditure, Ministry of Finance.
- (6) Implementing Agencies shall generate Electronic Utilisation Certificate (E-UCs) on PFMS portal and submit them online. E-UCs shall be used to certify that money was actually utilized for the purpose for which it was sanctioned to eliminate the need for physical generation of UCs.
- (7) Transaction charges for the financial intermediaries facilitating DBT payments shall be paid as stipulated by Ministry of Finance.

## II. ANNUAL ACCOUNTS

**Rule 88 Appropriation Accounts.** Appropriation Accounts of Central Ministries (other than Ministry of Railways) and of Central Civil Departments (excluding Department of Posts and Defence Services) shall be prepared by the Principal Accounts Officers of the respective Ministries and Departments (under the guidance and supervision of the Controller General of Accounts) and signed by their respective Chief Accounting Authorities i.e., the Secretaries in the concerned Ministries or Departments. Union Government Appropriation Accounts (Civil) required to

be submitted to Parliament, shall be prepared annually by the Controller General of Accounts by consolidating the aforesaid Appropriation Accounts.

Appropriation Accounts pertaining to Departments of Posts and Defence Services shall be prepared and signed by the Secretaries to the Government of India in the Department of Posts and Ministry of Defence respectively and that of Ministry of Railways by the Chairman, Railway Board.

**Rule 89 Finance Accounts.** Annual accounts of the Government of India (including transactions of Department of Posts and Ministries of Defence and Railways and transactions under Public Account of India of Union Territory Governments), showing under the respective Heads the annual receipts and disbursements and statement of balances for the purpose of the Union, called Finance Accounts, shall be prepared and signed by the Controller General of Accounts countersigned by the Secretary (Expenditure), Ministry of Finance.

**Rule 90 Presentation of Annual accounts.** The Appropriation and Finance accounts mentioned above, shall be prepared by the respective authorities on the dates mutually agreed upon with the Comptroller and Auditor General of India, in the forms prescribed by the President on the advice of the Comptroller and Auditor General of India and sent to the latter for recording his/her certificate. The certified Annual Accounts and the Reports relating to the accounts shall be submitted by the Comptroller and Auditor General of India to the President in accordance with the provisions of Section 11 of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971 and Clause (1) of Article 151 of the Constitution of India.

**Rule 91** Administrative Ministries / PSUs / Subordinate / Statutory / Autonomous Bodies may have financial stakes in Public Private Partnerships (PPP)/ Production Sharing Contracts (PSCs)/ Joint Ventures (JV's)/ Subsidiary companies etc. In such case details of the financial stakes of the Government or other entities mentioned above, should be disclosed in the Annual Report of the Administrative Ministry.



## III. PROFORMA ACCOUNTS

**Rule 92** **Subsidiary Accounts of Government Departments undertaking commercial activities.** Where the operations of certain Government Departments working on a commercial or quasi-commercial basis e.g., an industrial factory or a store cannot be suitably brought within the cash based Government accounting system, the Head of the units shall be required to maintain such subsidiary proforma accounts in commercial form as may be agreed between Government and Comptroller and Auditor General of India. This includes the maintenance of suitable Manufacturing, Trading, Profit & Loss Accounts and Balance Sheet.

**Rule 93** **Methods and principles on which subsidiary accounts in commercial form are to be kept.** The methods and principles in accordance with which subsidiary and proforma accounts in commercial form are to be kept shall be regulated by orders and instructions issued by Government in each case.

Note 1. Proforma accounts of regular Government Workshops and Factories shall be kept in accordance with the detailed rules and procedure prescribed in the departmental regulations. Proforma accounts relating to Public Works shall be prepared by the Accounts Officers in accordance with the instructions contained in Account Code for Accountants General.

Note 2. The Heads of Account (which should, as far as possible, be common to the Government accounts and the General Ledger maintained by a Commercial Undertaking) shall be selected with due regard to the principles of Governmental and Commercial accounting so that the monthly classified account of income and expenditure of the undertaking may be prepared readily from the General Ledger maintained by it.

**Rule 94** **Adequate regulations to be framed to ensure cost deduced is accurate and true.** Where commercial accounts are maintained for the purpose of assessment of the cost of an article or service, the Head of the unit shall ensure that adequate regulations are framed with the approval of Government in order to ensure that the cost deduced from the accounts is accurate and true.

**Rule 95** **Maintenance and submission of subsidiary accounts and statements by department units.** The Head of the unit shall arrange to obtain the orders of Government regarding the nature and form of subsidiary accounts and statements, if any. Such accounts and statements shall be submitted to the Accounts Officer on such date as may be required by him. The same shall be appended to the Appropriation Accounts of each year.

## IV. PERSONAL DEPOSIT ACCOUNTS

**Rule 96** **Personal Deposit Account.** Personal Deposit Account is a device intended to facilitate the Designated Officer thereof to credit receipts into and effect withdrawals directly from the account, subject to an overall check being exercised by the bank in which the account is authorised to be opened. The Designated Officer shall ensure (with the help of a personal ledger account to be maintained by the bank for the purpose) that no withdrawal will result in a minus balance therein. Only Government officers acting in their official or any other capacity shall be the Designated Officer thereof.

**Rule 97** **(1) Authority to open Personal Deposit Account.** The Personal Deposit Account shall be authorised to be opened by a special order by the concerned Ministry or Department in consultation with the Controller General of Accounts. Such special order or permission shall be issued or granted by the Ministry or Department concerned after it is satisfied that the initial accounts of the moneys to be held in a personal deposit account and disbursed, shall be arranged to be maintained properly and shall be subject to audit. Every personal deposit account so authorised to be opened, shall form part of the Government Account and be located in the Public Account thereof. The provisions relating to "Personal Deposit Account" are contained in para 16.7 of Civil Accounts Manual and Rule 191 to 194 of Central Government Account (Receipts and Payments) Rules.

**Rule 97** **(2)** Personal Deposit accounts shall generally be authorised to be opened in the following types of cases:



- (a) in favour of a Designated Officer appointed for the purpose of administering monies tendered by or on behalf of wards and attached estates under Government management. It shall also be ensured that proper arrangements are made for the maintenance and audit of connected initial accounts;
- (b) in relation to Civil and Criminal Courts' deposits, in favour of the Chief Judicial Authority concerned;
- (c) where, under certain regulatory activities of the Government, receipts are realised and credited to a Fund or Account under the provisions of an Act to be utilised towards expenditure thereunder and no outgo from the Consolidated Fund is involved.
- (d) where a personal deposit account is required to be created by a law or rules having the force of law and certain liabilities devolve on the Government out of the special enactments;
- (e) officers commanding units and others concerned in the administration of public funds in the Defence Departments can be authorised to open personal deposit accounts for such funds.

## **V. CAPITAL AND REVENUE ACCOUNTS**

**Rule 98 Capital Expenditure.** Significant expenditure incurred with the object of acquiring tangible assets of a permanent nature (for use in the organisation and not for sale in the ordinary course of business) or enhancing the utility of existing assets, shall broadly be defined as Capital expenditure. Subsequent, charges on maintenance, repair, upkeep and working expenses, which are required to maintain the assets in a running order as also all other expenses incurred for the day to day running of the organisation, including establishment and administrative expenses, shall be classified as Revenue expenditure. Capital and Revenue expenditure shall be shown separately in the Accounts.

Expenditure on a temporary asset or on grants-in-aid cannot ordinarily be

considered as a capital expenditure and shall not, except in cases specifically authorised by the President on the advice of the Comptroller and Auditor General of India, be debited to a Capital Head.

Capital expenditure is generally met from receipts of capital nature, as distinguished from ordinary revenues derived from taxes, duties, fees, fines and similar items of current income including extraordinary receipts. It is open to the Government to meet capital expenditure from ordinary revenues, provided there are sufficient revenue resources to cover this liability.

Expenditure of a Capital nature as defined above, shall not be classed as Capital expenditure in the Government Accounts unless the classification has been expressly authorised by general or special orders of Government.

Expenditure of a Capital nature shall be distinguished from the Revenue Expenditure both in the Budget Estimates and in Government Accounts.

**Rule 99 Principles for allocation of expenditure between Capital and Revenue.** The following are the main principles governing the allocation of expenditure between Revenue and Capital:

- (a) Capital shall bear all charges for the first construction and equipment of a project as well as charges for intermediate maintenance of the work while not yet opened for service. It shall also bear charges for such further additions and improvements, which enhance the useful life of the asset, as may be sanctioned under rules made by competent authority.
- (b) Subject to Clause (c) below, revenue shall bear subsequent charges for maintenance and all working expenses. These embrace all expenditure on the working and upkeep of the project and also on renewals and replacements and additions, improvements or extensions that are revenue in nature as per rules made by Government.
- (c) In the case of works of renewal and replacement, which partake expenditure both of a capital and revenue nature, the allocation of expenditure shall be regulated by the



broad principle that Revenue should pay or provide a fund for the adequate re- placement of all wastage or depreciation of property originally provided out of capital grants. Only the cost of genuine improvements, which enhance the useful life of the asset whether determined by prescribed rules or formulae, or under special orders of Government, may be debited to Capital. Where under special orders of Government, a Depreciation or Renewals Reserve Fund is established for renewing assets of any commercial department or undertaking, the distribution of expenditure on renewals and replacements between Capital and the Fund shall be so regulated as to guard against overcapitalisation on the one hand and excessive withdrawals from the Fund on the other.

- (d) Expenditure on account of reparation of damage caused by extraordinary calamities such as flood, fire, earthquake, enemy action, etc., shall be charged to Capital, or to Revenue, or divided between them, depending upon whether such expenditure results in creation/acquisition of new assets or whether it is only for restoring the condition of the existing assets, as may be determined by Government according to the circumstance of each case.
- (e) Expenditure on a temporary asset cannot ordinarily be considered as a capital expenditure and shall not, except in cases specifically authorised by the President on the advice of the Comptroller and Auditor General of India, be debited to a Capital Head.

**Rule 100 Allocation between capital and revenue expenditure :** The allocation between capital and revenue expenditure on a Capital Scheme for which separate Capital and Revenue Accounts are to be kept, shall be determined in accordance with such general or special orders as may be prescribed by the Government after consultation with the Comptroller and Auditor General of India.

**Rule 101 Capital receipts during construction mainly to be utilised in reduction of capital expenditure :**

Capital receipts in so far they relate to expenditure previously debited to Capital accruing during the process of construction of a project, shall be utilised in reduction of capital expenditure. Thereafter their treatment in the accounts will depend on circumstances, but except under special rule or order of Government, they shall not be credited to the revenue account of the department or undertaking.

**Rule 102 Receipts and recoveries representing recoveries of expenditure previously debited to Capital Major Head:** Receipts and recoveries on Capital Account in so far as they represent recoveries of expenditure previously debited to a Capital Major Head shall be taken in reduction of expenditure under the Major Head concerned except where, under the rules of allocation applicable to a particular department, such receipts have to be taken to Revenue.

**Rule 103 Conversion of outstanding loans into equity investments or grants-in-aid.** Government takes from time to time, suitable measures to strengthen/ restructure the Capital base of public sector enterprises so that these enterprises can improve their performance and productivity. As a part of the package scheme, financial relief in the form of conversion of outstanding loans into equity investments or grants-in-aid are also agreed to.

Where loans outstanding against Public Sector Undertakings are proposed to be converted into equity investments in or as grants-in-aid to the Public Sector Undertakings, the approval of the Parliament to such proposals, shall be obtained by including a token provision in the relevant Demands for Grants or Supplementary Demands for Grants as may be found expedient. The details of such conversion of loans may be explained in the relevant Budget/Supplementary Demand documents. After obtaining the approval of the Parliament, the balances under loans and the progressive expenditure of the Capital Heads of Accounts shall be corrected proforma in the relevant Accounts of the Union



Government, under the Loan/Capital Major Heads concerned.

## **VI. INTEREST ON CAPITAL**

**Rule 104 Interest rate.** Except in special cases regulated by special orders of Government, interest at such rates as may be specified from time to time shall be charged in the accounts of all Commercial Departments or units for which separate capital and revenue accounts are maintained within the Government accounts.

**Rule 105 (1) Charging of interest on capital outlay met out of specific loans raised by Government.** For capital outlay met out of specific loans raised by Government, the interest shall be charged at such rate as may be prescribed by Government, having regard to the rate of interest actually paid on such loans and the incidental charges incurred in raising and managing them.

By specific loans are meant loans that are raised in the open market for one specific purpose which is clearly specified in the prospectus and in regard to which definite information is given at the time of raising of the loans.

**Rule 105 (2)** For capital outlay provided otherwise, interest shall be charged at the rate of interest to be determined each year by the Department of Economic Affairs, Ministry of Finance.

**Rule 106 Method of calculation of interest.** The interest shall be calculated on the direct capital outlay at the end of the previous year plus half the outlay of the year itself, irrespective of whether such outlay has been met from current revenues or from other sources.

**Rule 107 How interest charged to capital is to be written back.** When under any special orders of Government, charges for interest during the process of construction of a project are temporarily met from capital, the writing back of capitalised interest shall form the first charge on any capital receipts or surplus revenue derived from the project when opened for working.

## **VII. ADJUSTMENT WITH GOVERNMENT DEPARTMENTS ETC**

### **Rule 108 Adjustments with State Governments.**

Subject to the relevant provision of the Constitution or of law made by Parliament or any orders issued thereunder, adjustments in respect of financial transactions with State Governments shall, unless otherwise provided for, be made in such manner, and to such extent as may be mutually agreed upon between the Central Government and the State Government concerned. However, adjustments with State Government in respect of the matters mentioned below shall be regulated by the rules contained in Appendix-5 to the Government Accounting Rules, 1990. The rules are based on reciprocal arrangements made with the State Governments and are, therefore, binding on all of them:-

- (i) Pay and Allowances, other than Leave Salaries.
- (ii) Leave Salaries.
- (iii) Pensions.
- (iv) Expenditure involved in Audit and keeping Accounts.
- (v) Cost of Police functions on Railways including the cost of protecting Railway Bridges.
- (vi) Cost of Forest Surveys carried out by the Survey of India, and Forest maps prepared by that Department.
- (vii) Leave Salary and Pension Contributions recovered in respect of Government servants lent on Foreign Service

**Rule 109 Re-audit.** As a convention, a period of three years has been accepted by the Central and State Governments for the re-audit of past transactions involving errors in classification

**Rule 110 When adjustment necessary.** Adjustment shall always be made unless otherwise agreed upon —

- (a) If a commercial department or undertaking or a regularly organised store department or store section of a department is concerned, or
- (b) If under the operation of any rule or order, an adjustment would have been made if the particular transaction with





State Government were a transaction between two departments of the Central Government.

**Rule 111 Petty and isolated claims for services rendered not to be preferred.** The Central Government (which includes Union Territories) and the State Governments have agreed under reciprocal arrangements not to prefer petty and isolated claims for an amount not exceeding Rupees ten thousand against one another

**Rule 112 Criteria in determining whether a particular claim is covered by the reciprocal arrangement.** The significant criterion in determining whether a particular claim is covered by the reciprocal arrangement mentioned above, will be that the claim shall be both petty and of an occasional character and shall cover services rendered and not supplies made unless the latter forms part of service. The term “service rendered” will be taken to mean an individual act of service, like providing police escort to a high dignitary and will not apply to supply of stores etc. Claims relating to Commercial undertakings under the Government of India or the State Governments such as those of the Railways, the Department of Post, the Electrical undertakings, etc., shall fall outside the purview of the proposed reciprocal arrangements and shall continue to be settled as hitherto.

If a doubt arises as to whether a particular claim would fall within or outside the purview of the proposed arrangement, it shall be decided by mutual consultation. The above arrangements will remain in force without any time limit in respect of all State Governments.

**Rule 113 Projects jointly executed by several State Governments.** In the case of Projects, jointly executed by several Governments, where the expenditure is to be shared by the participating Governments in agreed proportions, but the expenditure is ab-initio incurred by one Government and shares of other participating Governments recovered subsequently; such recoveries from other Governments shall be exhibited as abatement of charges under the relevant expenditure Head of Account in the books

of the Governments incurring the expenditure initially

**Rule 114 Claims of State Governments on account of the extra cost of agency functions.** Claims of State Governments, on account of the extra cost of agency functions entrusted to them under Article 258 of the Constitution shall be dealt with and settled in accordance with such directions as may be issued by the President in this regard from time to time

**Rule 115** The following principles shall be generally observed in dealing with claims preferred by State Governments under Clause (3) of Article 258 of the Constitution: —

- (i) If the agency work involves the employment of a State Commercial Department, it would be open to that department to charge its normal commercial costs.
- (ii) Public Works Department agency costs shall be represented by such percentage charges on the cost of Central Works executed by the State as may be agreed between the Central and the State Government concerned, works outlay being treated as an amount placed at the disposal of the State Government for actual expenditure on the execution of the work.
- (iii) The cost of regular joint establishment shall be shared as far as practicable on the basis of fixed annual sums settled in agreement with the State Government concerned.
- (iv) In other cases, the following procedure shall be adopted unless there are special orders to the contrary:-
  - (a) Details of claims preferred by State Governments shall be ascertained.
  - (b) If the work has been performed by the State Government in the past, the charges shall be compared with those charged in the past but it is not necessary to be meticulous in the matter.
  - (c) If the charges are found to be reasonable and do not exceed Rupees Fifty thousand per annum for any individual item (or connected group of items), a five



years contract shall be offered to the State Government during which the Central Government would pay the fixed sum per annum for the work. The amount will be subjected to review at the end of each period of five years.

- (d) If the amount agreed upon exceeds Rupees Fifty thousand, it shall be necessary to have an annual statement of proposed charges from the State Government at the time of preparation of the Budget. However, if in any individual case, the charges are obviously static, then the contract system may be adopted in these cases also.
- (v) In exceptional cases in which arbitration has to be resorted to, the Ministry of Finance will make the requisite arrangement in the matter.
- (vi) The Ministry of Finance shall be consulted on all matters arising under Article 258 (3) of the Constitution.

**Rule 116 Principles governing transactions in connection with the agency functions entrusted to State Government.** The following procedure shall be followed in regard to transactions arising in connection with the agency functions entrusted to the State Governments under Article 258 of the Constitution:

- (i) **The expenditure on extra staff or contingencies which the State Government have to incur**-The extra cost to the State Government arising mainly in respect of the additional staff employed or contingent and other expenditure, as in the case of work devolving on the State Governments in connection with the administration of the Census Act, is reimbursable under Article 258 (3) of the Constitution. Expenditure in this regard shall be provided in the State Budget in the first instance and adjusted in the accounts of the State Governments under the normal Heads of Accounts. These will be reimbursed in lumpsum to the State Governments, necessary provision being made under a distinct sub-head "Amounts paid to other Governments, Departments, etc.", under the

concerned Demand of the Ministry administratively concerned with the subject. In computing the extra cost, the element of leave and pensionary charges can also be included, provided the relevant service and financial rules of the State Governments provide for this.

- (ii) **The expenditure on work entrusted to the State Government, such as expenditure on construction and maintenance of National Highways, expenditure on Defence Works, Aviation Works, etc.**-The expenditure directly connected with the execution of the scheme or work entrusted to the State Government such as expenditure on the construction or maintenance of National Highways etc., will be adjusted direct in the accounts of the Central Government under the relevant Head of Account. The question of including the estimates in this regard in the Budget of the State Governments and subjecting them to the vote of the State Legislature will not arise. The expenditure will be adjusted under the Head "8658 – Suspense Accounts –PAO Suspense" in the Remittance Section of the State Accounts in the first instance pending their eventual clearance in accordance with the prescribed procedure.

Note: In the converse case relating to the entrustment of a State function to the Central Government under Article 258-A of the Constitution, a procedure similar to that indicated in the Rule 116 above shall be followed. The extra cost on staff and other contingent expenditure, etc., will accordingly have to be provided in the Budget of the Central Government in the usual manner and recovery made in lumpsum from the State Government concerned. The other expenditure on execution of the work proper should be debited to the State Government concerned directly and the question of obtaining a vote of the Parliament for the same will not arise.

**Rule 117 Crucial date for closure of Inter-Governmental adjustments.** Inter-Governmental adjustments can be carried out upto the 15th of April on which date the





books of the Reserve Bank are closed for the month of March. Every endeavour must, therefore, be made to settle as far as possible all transactions with State Governments before the close of the year.

**Rule 118 Adjustments with foreign Governments, outside bodies, etc.**

Unless exempted by Government by general or special orders, services shall not be rendered to any foreign Government or non-Government body or institution or to a separate fund constituted as such except on payment.

**Rule 119 Recoveries of expenditure for services rendered to non-Government parties.**

Recoveries of expenditure for services rendered or supplies made to non-Government parties or other Governments (including local funds and Governments outside India), shall in all cases, be classified as receipts of the Government rendering such services.

**Rule 120 Recoveries of expenditure for services rendered as an agent.**

When a Government undertakes a service merely as an agent of a private body, the entire cost of the service shall be recovered from that body so that the net cost to Government is nil. The recoveries shall be taken as reduction of expenditure.

**Explanation:** The term 'recovery' is used in these rules to denote repayment of, or payment by non-Government parties or other Governments towards charges initially incurred and classified by a Central Government Department in the account, as final expenditure by debit to a Revenue or Capital Head of Account. Recoveries towards establishment charges, tools and plants, fees for procurement of inspection of stores or both etc., effected at percentage rates or otherwise, are some examples.

**Rule 121 Payments to outside body or fund to be through grant-in-aid.** Any relief in respect of payment for services rendered or supplies made to any outside body or fund shall ordinarily be given through a grant-in-aid rather than by remission of dues.

**Rule 122 Charges relating to the maintenance and demarcations and disputes over boundaries.** The incidence of charges relating to the maintenance and demarcations and disputes over boundaries between India and a foreign

country is regulated by the following principles;

- (i) Maintenance – Half the maintenance charges will be borne by the Central Government, the other half being recovered, as far as practicable, from the foreign country, failing which the foreign country's share will also be borne by the Central Government.
- (ii) Demarcation and Disputes – Charges relating to demarcation of boundaries and boundary disputes will be borne by the Central Government under Entry 10 of the Union List, subject to such recovery as shall be made from the Foreign Country.
- (iii) Where streams or other watercourses form the boundaries and where the ordinary principle of median line applies, the Government concerned (i.e., Foreign Country or India) will bear the cost of maintenance of the boundary line on its side. Where a separate set of survey marks is maintained by each of the two Governments on its side, the cost of maintenance of the survey marks shall be borne by the Government concerned.

**Exception:**

- (a) The arrangement in (i) above in its application to Nepal will be subject to special arrangements worked out in consultation with the Nepal Government.
- (b) The share of the Bhutan Government for maintenance and demarcation of and disputes over boundaries will be borne by the Central Government for the present

**VIII.**

**INTER-DEPARTMENTAL ADJUSTMENTS**

**Rule 123 Inter-Departmental Adjustments.** Save as expressly provided by any general or special orders, a Service Department shall not charge other Departments for services rendered or supplies made which falls within the class of duties for which the former Department is constituted. However, a commercial Department or



undertaking shall ordinarily charge and be charged for any supplies made and services rendered to, or by, other departments of Government.

**Rule 124 Principles for division of Departments for purposes of inter-departmental payments.** For purposes of inter-Departmental payments, the Departments of a Government shall be divided into service Departments and commercial departments according to the following principles:-

- (i) Service Departments. -These are constituted for the discharge of those functions which either-
  - (a) Are inseparable from and form part of the idea of Government e.g. Departments of Administration of Justice, Jails, Police, Education, Medical, Public Health, Forest, Defence; or
  - (b) Are necessary to, and form part of, the general conduct of the business of Government e.g. Departments of Survey, Government Printing, Stationery, Public Works (Building and Roads Branch), Central Purchase Organisation (Director-General of Supplies and Disposals, New Delhi).
- (ii) Commercial Departments or Undertakings. -These are established mainly for the purposes of rendering services or providing supplies, of certain special kinds, on payment for the services rendered or for the articles supplied. They perform functions, which are not necessarily governmental functions. They are required to work to a financial result determined through accounts maintained on commercial principles.

**Rule 125 Period for preferment of claims.** All claims shall ordinarily be preferred between Departments, both commercial and non-commercial of the Central Government, within the same financial year and not beyond three years from the date of transaction. This limitation, however, may be waived in specific cases by mutual agreement between the departments concerned.

**Rule 126 Procedure for settlement of inter-**

**departmental adjustments.** The settlement of inter-departmental adjustments shall be regulated by the directions contained in Chapter 4 of Government Accounting Rules, 1990.

**Rule 127 Inter-departmental and other adjustments to be made in the account year.** Under the directions contained in the Account Code for Accountants General, Inter-departmental and other adjustments are not to be made in the accounts of the past year, if they could not have been reasonably anticipated in time for funds being obtained from the proper authority. In all cases, where the adjustment could have reasonably been anticipated as, for example, recurring payments to another Government or department and payments which, though not of fixed amount, are of a fixed character, etc., the Accounts Officer will automatically make the adjustment in the accounts before they are finally closed. The onus of proving that the adjustments could not have been reasonably anticipated should lie with the Controlling Officer.

As between different Departments of the same Government, the recoveries effected for services rendered shall be classified as deductions from the gross expenditure. However, recoveries made by a Commercial Department, e.g., Railways, Posts or a departmental commercial undertaking in respect of services rendered in pursuance of the functions for which the Commercial Department is constituted shall be treated as receipts of the Department but where it acts as an agent for the discharge of functions not germane to the essential purpose of the Department, the recoveries shall be taken as reduction of expenditure.

**Exception.** -Recoveries of fees for purchase, inspection, etc., effected by the Central Purchase Organizations of Government of India, are treated as receipts of the Department concerned.

**NOTE 1.** -The term 'recovery' is used in this rule to denote repayment of/or payment by one Department of the same Government towards charges initially incurred and classified by another Department in its accounts as final expenditure by debit to a Revenue or Capital Head of Account. Recoveries towards establishment charges,



tools and plants, fees for procurement or inspection of stores or both, etc., effected at percentage rates or otherwise, are some examples.

NOTE 2.-Recoveries effected from another Department of the same Government which are to be classified as deduction from the gross expenditure, shall be shown in the relevant Demand for Grant as "below the line" recovery under the appropriate Major Head of Account etc. Recovery actually effected, irrespective of the year to which it relates shall be adjusted in accounts in the schedule of recovery to be attached to the Appropriation Account of the year in which the recovery is effected.

**Rule 128 Adjustment of Pensionary Charges of certain Commercial Departments.**

Except as otherwise provided, the pensionary liability of commercial departments and undertakings, for which pro forma commercial accounts are maintained, shall be assessed on a contribution basis at such rates as may be fixed by Government from time to time. In the case of departments and undertakings, for which no regular commercial accounts are maintained either within or outside the regular Government accounts but which are allowed to charge for their products or services rendered, the pensionary liability shall be taken into account in the estimate of overhead charges and manufacturing costs for the purpose of calculating the issue price of goods manufactured or fees for services rendered. The calculation shall be made at rates prescribed for the purpose by Government.

NOTE: The Railways, Posts and Defence Departments are regarded as separate Governments for the purpose of adjustment of pensionary charges.

**Rule: 129 Pensionary liability in the case of Government Departments/ Undertakings declared as commercial.**

In the case of Government Departments and Undertakings declared as commercial, adjustment of Pensionary liability shall be made in the regular accounts by charging the average of the percentage for 15th year of service based on the rates of monthly contribution of

pension as prescribed in the appropriate order issued from time to time under Appendix-II of Fundamental and Supplementary Rules.



## WORKS

**Rule 130** **Original works** means all new constructions, site preparation, additions and alterations to existing works, special repairs to newly purchased or previously abandoned buildings or structures, including remodelling or replacement.

Minor works mean works which add capital value to existing assets but do not create new assets.

Repair works means works undertaken to maintain building and fixtures. Works will also include services or goods incidental or consequential to the original or repair works.

**Rule 131** **Administrative control of works includes:**

- (i) assumption of full responsibility for construction, maintenance and upkeep;
- (ii) proper utilization of buildings and allied works;
- (iii) provision of funds for execution of these functions.

**Rule 132** **Powers to sanction works.** The powers delegated to various subordinate authorities to accord administrative approval, sanction expenditure and re-appropriate funds for works are regulated by the Delegation of Financial Powers Rules, and other orders contained in the respective departmental regulations.

**Rule 133** **(1)** A Ministry or Department at its discretion may directly execute repair works estimated to cost up to Rupees Thirty Lakhs after following due procedure indicated in Rule 139, 159 & 160.

**Rule 133** **(2)** A Ministry or Department may, at its discretion, assign repair works estimated to cost above Rupees thirty Lakhs and original/minor works of any value to any Public Works Organisation (PWO) such as Central Public Works Department (CPWD), State Public Works Department, others Central Government organisations authorised to carry out civil or electrical works such as Military Engineering Service (MES), Border Roads Organisation (BRO), etc. or Ministry/Department's construction wings of Ministries of Railways, Defence, Environment & Forests, Information & Broadcasting and Departments of Posts, and Space etc.

**Rule 133** **(3)** As an alternative to 133(2), a Ministry or Department may award repair works

estimated to cost above Rupees thirty Lakhs and original works of any value to:

- (i) any Public Sector Undertaking set up by the Central or State Government to carry out civil or electrical works or
- (ii) to any other Central/ State Government organisation /PSU which may be notified by the Ministry of Urban Development (MoUD) for such purpose after evaluating their financial strength and technical competence.

For the award of work under this sub-rule, the Ministry/ Department shall ensure competition among such PSUs/ Organisations. This competition shall be essentially on the lump sum service charges to be claimed for execution of work.

In exceptional cases, for award of work under (i) and (ii) above, on nomination basis, the conditions contained in Rule 194 would apply. The work under these circumstances shall also be awarded only on the basis of lump sum service charge

**Rule 134** **Work under the administrative control of the Public Works Departments.** Works not specifically allotted to any Ministry or Department shall be included in the Grants for Civil Works to be administered by Central Public Works Department. No such work may be financed partly from funds provided in departmental budget and partly from the budget for Civil works as mentioned above.

**Rule 135** **(1) General Rules.** Subject to the observance of these general rules, (including Rule 144) the initiation, authorization and execution of works allotted to a particular Ministry or Department shall be regulated by detailed rules and orders contained in the respective departmental regulations and by other special orders applicable to them.

**Rule 135** **(2)** Ministry or Department shall put in place, as far as possible, empowered project teams for all large value projects and these teams should be tasked only with project execution and not given other operational duties.

**Rule 136** **(1)** No works shall be commenced or liability incurred in connection with it until:

- (i) administrative approval has been



obtained from the appropriate authority in each case.

- (ii) sanction to incur expenditure has been obtained from the competent authority.
- (iii) a properly detailed design has been sanctioned; while designing the projects etc, principles of Life Cycle cost may also be considered.
- (iv) estimates containing the detailed specifications and quantities of various items have been prepared on the basis of the Schedule of Rates maintained by CPWD or other Public Works Organisations and sanctioned.
- (v) funds to cover the charge during the year have been provided by competent authority.
- (vi) tenders invited and processed in accordance with rules.
- (vii) a Work Order issued.

**Rule 136** (2) On grounds of urgency or otherwise, if it becomes necessary to carry out a work or incur a liability under circumstances when the provisions set out under sub rule 1 of rule 136 cannot be complied with, the concerned executive officer may do so on his own judgement and responsibility. Simultaneously, he should initiate action to obtain approval from the competent authority and also to intimate the concerned Accounts Officer.

**Rule 136** (3) Any development of a project considered necessary while a work is in progress, which is not contingent on the execution of work as first sanctioned, shall have to be covered by a supplementary estimate.

**Rule 137** For purpose of approval and sanctions, a group of works which forms one project, shall be considered as one work. The necessity for obtaining approval or sanction of higher authority to a project which consists of such a group of work should not be avoided because of the fact that the cost of each particular work in the project is within the powers of such approval or sanction of a lower authority. This provision, however, shall not apply in case of works of similar nature which are independent of each other.

**Rule 138** Any anticipated or actual savings from a sanctioned estimate for a definite project, shall not, without special authority, be

applied to carry out additional work not contemplated in the original project.

**Rule 139 Procedure for Execution of Works.** The broad procedure to be followed by a Ministry or Department for execution of works under its own arrangements shall be as under :-

- (i) the detailed procedure relating to expenditure on such works shall be prescribed by departmental regulations framed in consultation with the Accounts Officer, generally based on the procedures and the principles underlying the financial and accounting rules prescribed for similar works carried out by the Central Public Works Department (CPWD);
- (ii) preparation of detailed design and estimates shall precede any sanction for works;
- (iii) no work shall be undertaken before Issue of Administrative Approval and Expenditure Sanction by the competent Authority on the basis of estimates framed;
- (iv) Open tenders will be called for works costing Rs. Five lakh to Rs. Thirty lakh;
- (v) limited tenders will be called for works costing less than Rupees five lakhs;
- (vi) execution of Contract Agreement or Award of work should be done before commencement of the work;
- (vii) final payment for work shall be made only on the Personal Certificate of the Officer-in-charge of execution of the work in the format given below:  
"I ..... Executing Officer of (Name of the Work), am personally satisfied that the work has been executed as per the specifications laid down in the Contract Agreement and the workmanship is up to the standards followed in the Industry."

**Rule 140** For original/minor works and repair works entrusted as per Rule 133(2) or Rule 133(3), the Administrative Approval and Expenditure Sanction shall be accorded and funds allotted by the concerned authority under these rules and in accordance with the Delegation of Financial Power Rules. The Public Works Organisation or the Public Sector Undertaking or any Organisation allotted



work shall then execute the work entrusted to it in accordance with the rules and procedures prescribed in that organisation. A Memorandum of Understanding (MoU) may be drawn with Public Works Organisation or the Public Sector Undertaking for proper execution of work.

**Rule 141** **Review of Projects.** After a project costing Rs. 100 crore or above is approved, the Administrative Ministry or Department will set up a Review Committee consisting of a representative each from the Administrative Ministry, Finance (Internal Finance Wing) and the Executing Agency to review the progress of the work. The Review Committee shall have the powers to accept variation within 10% of the approved estimates. For works costing less than Rs. 100 crore, it will be at the discretion of the Administrative Ministry/Department to set up a suitable mechanism for review and acceptance of variation within 10% of the approved estimates.





## PROCUREMENT OF GOODS AND SERVICES

### PROCUREMENT OF GOODS

**Rule 142** This chapter contains the general rules applicable to all Ministries or Departments, regarding procurement of goods required for use in the public service. Detailed instructions relating to procurement of goods may be issued by the procuring departments broadly in conformity with the general rules contained in this Chapter.

**Rule 143 Definition of Goods.** The term 'goods' used in this chapter includes all articles, material, commodity, livestock, furniture, fixtures, raw material, spares, instruments, machinery, equipment, industrial plant, vehicles, aircraft, ships, medicines, railway rolling stock, assemblies, sub-assemblies, accessories, a group of machineries comprising of an integrated production process or such other category of goods or intangible products like software, technology transfer, licenses, patents or other intellectual properties purchased or otherwise acquired for the use of Government but excludes books, publications, periodicals, etc. for a library. The term 'goods' also includes works and services which are incidental or consequential to the supply of such goods, such as, transportation, insurance, installation, commissioning, training and maintenance.

**Rule 144 Fundamental principles of public buying (for all procurements including procurement of works).** Every authority delegated with the financial powers of procuring goods in public interest shall have the responsibility and accountability to bring efficiency, economy, and transparency in matters relating to public procurement and for fair and equitable treatment of suppliers and promotion of competition in public procurement.

The procedure to be followed in making public procurement must conform to the following yardsticks :-

- (i) The description of the subject matter of procurement to the extent practicable should -
  - a) be objective, functional, generic and measurable and specify technical, qualitative and performance characteristics.

- b) not indicate a requirement for a particular trade mark, trade name or brand.

- (ii) the specifications in terms of quality, type etc., as also quantity of goods to be procured, should be clearly spelt out keeping in view the specific needs of the procuring organisations. The specifications so worked out should meet the basic needs of the organisation without including superfluous and non-essential features, which may result in unwarranted expenditure.

- (iii) Where applicable, the technical specifications shall, to the extent practicable, be based on the national technical regulations or recognized national standards or building codes, wherever such standards exist, and in their absence, be based on the relevant international standards. In case of Government of India funded projects abroad, the technical specifications may be framed based on requirements and standards of the host beneficiary Government, where such standards exist.

Provided that a procuring entity may, for reasons to be recorded in writing, adopt any other technical specification.

- (iv) Care should also be taken to avoid purchasing quantities in excess of requirement to avoid inventory carrying costs.

- (v) offers should be invited following a fair, transparent and reasonable procedure.

- (vi) the procuring authority should be satisfied that the selected offer adequately meets the requirement in all respects.

- (vii) the procuring authority should satisfy itself that the price of the selected offer is reasonable and consistent with the quality required.

- (viii) at each stage of procurement the concerned procuring authority must place on record, in precise terms, the considerations which weighed with it while taking the procurement decision.

- (ix) a complete schedule of procurement



cycle from date of issuing the tender to date of issuing the contract should be published when the tender is issued.

- (x) All Ministries/Departments shall prepare Annual Procurement Plan before the commencement of the year and the same should also be placed on their website.

**Rule 145 Authorities competent to purchase goods.** An authority which is competent to incur expenditure may sanction the purchase of goods required for use in public service in accordance with provisions in the Delegation of Financial Powers Rules, following the general procedure contained in the following rules.

**Rule 146 Procurement of goods required on mobilisation** Procurement of goods required on mobilisation and/ or during the continuance of Military operations shall be regulated by special rules and orders issued by the Government on this behalf from time to time.

**Rule 147 Powers for procurement of goods.** The Ministries or Departments have been delegated full powers to make their own arrangements for procurement of goods. In case, however, a Ministry or Department does not have the required expertise, it may project its indent to the Central Purchase Organisation (e.g. DGS&D) with the approval of competent authority. The indent form to be utilised for this purpose will be as per the standard form evolved by the Central Purchase Organisation

**Rule 148 Rate Contract.** DGS&D shall conclude rate contracts with the registered suppliers for such goods, which are not available on GeM, and are identified as common use items and are needed on recurring basis by various Central Government Ministries or Departments. DGS&D will furnish and update all the relevant details of the rate contracts on its website. The Ministries or Departments shall follow those rate contracts to the maximum extent possible.

**Rule 149. Government e-Market place (GeM).** DGS&D or any other agency authorized by the Government will host an online Government e-Marketplace (GeM) for common use Goods and Services. DGS&D will ensure adequate publicity including periodic advertisement of the

items to be procured through GeM for the prospective suppliers. The Procurement of Goods and Services by Ministries or Departments will be mandatory for Goods or Services available on GeM. The credentials of suppliers on GeM shall be certified by DGS&D. The procuring authorities will certify the reasonability of rates. The GeM portal shall be utilized by the Government buyers for direct on-line purchases as under :-

- (i) Up to Rs.50,000/- through any of the available suppliers on the GeM, meeting the requisite quality, specification and delivery period.
- (ii) Above Rs.50,000/- and up to Rs.30,00,000/- through the GeM Seller having lowest price amongst the available sellers, of at least three different manufacturers, on GeM, meeting the requisite quality, specification and delivery period. The tools for online bidding and online reverse auction available on GeM can be used by the Buyer if decided by the competent authority.
- (iii) Above Rs.30,00,000/- through the supplier having lowest price meeting the requisite quality, specification and delivery period after mandatorily obtaining bids, using online bidding or reverse auction tool provided on GeM.
- (iv) The invitation for the online e-bidding/reverse auction will be available to all the existing Sellers or other Sellers registered on the portal and who have offered their goods/services under the particular product/service category, as per terms and conditions of GeM.
- (v) The above mentioned monetary ceiling is applicable only for purchases made through GeM. For purchases, if any, outside GeM, relevant GFR Rules shall apply.
- (vi) The Ministries/Departments shall work out their procurement requirements of Goods and Services on either "OPEX" model or "CAPEX" model as per their requirement/ suitability at the time of preparation of Budget Estimates (BE) and shall project their Annual Procurement Plan of goods and



services on GeM portal within 30 days of Budget approval.

- (vii) The Government Buyers may ascertain the reasonableness of prices before placement of order using the Business Analytics (BA) tools available on GeM including the Last Purchase Price on GeM, Department's own Last Purchase Price etc.
- (viii) A demand for goods shall not be divided into small quantities to make piecemeal purchases to avoid procurement through L-1 Buying / bidding / reverse auction on GeM or the necessity of obtaining the sanction of higher authorities required with reference to the estimated value of the total demand.

#### **Rule 150 Registration of Suppliers**

- (i) With a view to establishing reliable sources for procurement of goods commonly required for Government use, the Central Purchase Organisation (e.g. DGS&D) will prepare and maintain item-wise lists of eligible and capable suppliers. Such approved suppliers will be known as "Registered Suppliers". All Ministries or Departments may utilise these lists as and when necessary. Such registered suppliers are prima facie eligible for consideration for procurement of goods through Limited Tender Enquiry. They are also ordinarily exempted from furnishing bid security along with their bids. A Head of Department may also register suppliers of goods which are specifically required by that Department or Office, periodically. Registration of the supplier should be done following a fair, transparent and reasonable procedure and after giving due publicity.
- (ii) Credentials, manufacturing capability, quality control systems, past performance, after-sales service, financial background etc. of the supplier(s) should be carefully verified before registration.
- (iii) The supplier(s) will be registered for a fixed period (between 1 to 3 years) depending on the nature of the goods. At the end of this period, the registered

supplier(s) willing to continue with registration are to apply afresh for renewal of registration. New supplier(s) may also be considered for registration at any time, provided they fulfil all the required conditions.

- (iv) Performance and conduct of every registered supplier is to be watched by the concerned Ministry or Department. The registered supplier(s) are liable to be removed from the list of approved suppliers if they fail to abide by the terms and conditions of the registration or fail to supply the goods on time or supply substandard goods or make any false declaration to any Government agency or for any ground which, in the opinion of the Government, is not in public interest.
- (v) The list of registered suppliers for the subject matter of procurement be exhibited on the Central Public Procurement Portal and websites of the Procuring Entity/ e-Procurement/ portals.

#### **Rule 151 Debarment from bidding.**

- (i) A bidder shall be debarred if he has been convicted of an offence—
  - (a) under the Prevention of Corruption Act, 1988; or
  - (b) the Indian Penal Code or any other law for the time being in force, for causing any loss of life or property or causing a threat to public health as part of execution of a public procurement contract.
- (ii) A bidder debarred under sub-section (i) or any successor of the bidder shall not be eligible to participate in a procurement process of any procuring entity for a period not exceeding three years commencing from the date of debarment. Department of Commerce (DGS&D) will maintain such list which will also be displayed on the website of DGS&D as well as Central Public Procurement Portal.
- (iii) A procuring entity may debar a bidder or any of its successors, from participating in any procurement process undertaken by it, for a period not exceeding two years, if it determines that the bidder has breached the code of integrity. The



Ministry/Department will maintain such list which will also be displayed on their website.

- (iv) The bidder shall not be debarred unless such bidder has been given a reasonable opportunity to represent against such debarment

**Rule 152 Enlistment of Indian Agents.** As per the Compulsory Enlistment Scheme of the Department of Expenditure, Ministry of Finance, it is compulsory for Indian agents, who desire to quote directly on behalf of their foreign principals, to get themselves enlisted with the Central Purchase Organisation (eg. DGS&D). However, such enlistment is not equivalent to registration of suppliers as mentioned under Rule 150.

**Rule 153 Reserved Items and other Purchase/Price Preference Policy.**

- (i) The Central Government, through administrative instructions, has reserved all items of hand spun and hand-woven textiles (khadi goods) for exclusive purchase from Khadi Village Industries Commission (KVIC). It has also reserved all items of handloom textiles required by Central Government departments for exclusive purchase from KVIC and/or the notified handloom units of Association of Corporations and Apex Societies of Handlooms (ACASH).
- (ii) Ministry of Micro, Small and Medium Enterprises (MSME) have notified procurement policy under section 11 of the Micro, Small and Medium Enterprises Development Act, 2006.
- (iii) The Central Government may, by notification, provide for mandatory procurement of any goods or services from any category of bidders, or provide for preference to bidders on the grounds of promotion of locally manufactured goods or locally provided services.

**Rule 154 Purchase of goods without quotation**

Purchase of goods upto the value of Rs. 25,000 (Rupees twenty five thousand) only on each occasion may be made without inviting quotations or bids on the basis of a certificate to be recorded by the competent authority in the following format.

"I,, am personally satisfied that these goods purchased are of the requisite quality and specification and have been purchased from a reliable supplier at a reasonable price."

**Rule 155 Purchase of goods by Purchase Committee.** Purchase of goods costing above Rs. 25,000 (Rupees twenty five thousand only) and upto Rs.2,50,000/- (Rupees two lakh and fifty thousand only) on each occasion may be made on the recommendations of a duly constituted Local Purchase Committee consisting of three members of an appropriate level as decided by the Head of the Department. The committee will survey the market to ascertain the reasonableness of rate, quality and specifications and identify the appropriate supplier. Before recommending placement of the purchase order, the members of the committee will jointly record a certificate as under.

"Certified that we, members of the purchase committee are jointly and individually satisfied that the goods recommended for purchase are of the requisite specification and quality, priced at the prevailing market rate and the supplier recommended is reliable and competent to supply the goods in question, and it is not debarred by Department of Commerce or Ministry/ Department concerned."

**Rule 156 (1) Purchase of goods directly under Rate Contract.** In case a Ministry or Department directly procures Central Purchase Organisation (e.g. DGS&D) rate contracted goods from suppliers, the prices to be paid for such goods shall not exceed those stipulated in the rate contract and the other salient terms and conditions of the purchase should be in line with those specified in the Rate Contract. The Ministry or Department shall make its own arrangement for inspection and testing of such goods where ever required.

**Rule 156 (2)** The Central Purchase Organisation (e.g. DGS&D) should host the specifications, prices and other salient details of different rate contracted items, appropriately updated, on the web site for use by the procuring Ministry or Department.

**Rule 157** A demand for goods should not be divided



into small quantities to make piecemeal purchases to avoid the necessity of obtaining the sanction of higher authority required with reference to the estimated value of the total demand.

**Rule 158 Purchase of goods by obtaining bids.**

Except in cases covered under Rule 154, 155, and 156(1), Ministries or Departments shall procure goods under the powers referred to in Rule 147 above by following the standard method of obtaining bids in :

- (i) Advertised Tender Enquiry
- (ii) Limited Tender Enquiry
- (iii) Two-Stage Bidding
- (iv) Single Tender Enquiry
- (v) Electronic Reverse Auctions

**Rule 159 E-Publishing**

- (i) It is mandatory for all Ministries/ Departments of the Central Government, their attached and Subordinate Offices and Autonomous /Statutory Bodies to publish their tender enquiries, corrigenda thereon and details of bid awards on the Central Public Procurement Portal (CPPP).
- (ii) Individual cases where confidentiality is required, for reasons of national security, would be exempted from the mandatory e-publishing requirement. The decision to exempt any case on the said grounds should be approved by the Secretary of the Ministry/ Department with the concurrence of the concerned Financial Advisor. In the case of Autonomous Bodies and Statutory Bodies' approval of the Head of the Body with the concurrence of the Head of the Finance should be obtained in each such case. Statistical information on the number of cases in which exemption was granted and the value of the concerned contract should be intimated on a Quarterly basis to the Ministry of Finance, Department of Expenditure.
- (iii) The above instructions apply to all Tender Enquiries, Requests for Proposals, Requests for Expressions of Interest, Notice for pre Qualification/ Registration or any other notice

inviting bids or proposals in any form whether they are advertised, issued to limited number of parties or to a single party.

- (iv) In the case of procurements made through DGS&D Rate Contracts or through any other Central Procurement Organizations (CPOs) only award details need to be published.
- (v) These instructions would not apply to procurements made in terms of provisions of Rules 154 (Purchase of goods without quotations) or 155 (Purchase of goods by purchase committee) of General Financial Rules.

**Rule 160 E-Procurement**

- (i) It is mandatory for Ministries/ Departments to receive all bids through e-procurement portals in respect of all procurements.
- (ii) Ministries/ Departments which do not have a large volume of procurement or carry out procurements required only for day-to-day running of offices and also have not initiated e-procurement through any other solution provided so far, may use e-procurement solution developed by NIC. Other Ministries/ Departments may either use e-procurement solution developed by NIC or engage any other service provider following due process.
- (iii) These instructions will not apply to procurements made by Ministries / Departments through DGS&D Rate Contracts.
- (iv) In individual case where national security and strategic considerations demands confidentiality, Ministries/ Departments may exempt such cases from e-procurement after seeking approval of concerned Secretary and with concurrence of Financial Advisers.
- (v) In case of tenders floated by Indian Missions Abroad, Competent Authority to decide the tender, may exempt such case from e-procurement.

**Rule 161 Advertised Tender Enquiry**

- (i) Subject to exceptions incorporated





under Rule 154, 155, 162 and 166, invitation to tenders by advertisement should be used for procurement of goods of estimated value of Rs. 25 lakhs (Rupees Twenty Five Lakh) and above. Advertisement in such cases should be given on Central Public Procurement Portal (CPPP) at [www.eprocure.gov.in](http://www.eprocure.gov.in) and on GeM. An organisation having its own website should also publish all its advertised tender enquiries on the website.

- (ii) The organisation should also post the complete bidding document in its website and on CPPP to enable prospective bidders to make use of the document by downloading from the web site.
- (iii) The advertisements for invitation of tenders should give the complete web address from where the bidding documents can be downloaded.
- (iv) In order to promote wider participation and ease of bidding, no cost of tender document may be charged for the tender documents downloaded by the bidders.
- (iv) Where the Ministry or Department feels that the goods of the required quality, specifications etc., may not be available in the country and it is necessary to also look for suitable competitive offers from abroad, the Ministry or Department may send copies of the tender notice to the Indian Embassies abroad as well as to the foreign Embassies in India. The selection of the embassies will depend on the possibility of availability of the required goods in such countries. In such cases e-procurement as per Rule 160 may not be insisted.
- (v) Ordinarily, the minimum time to be allowed for submission of bids should be three weeks from the date of publication of the tender notice or availability of the bidding document for sale, whichever is later. Where the Department also contemplates obtaining bids from abroad, the minimum period should be kept as four weeks for both domestic and foreign bidders.

#### **Rule 162 Limited Tender Enquiry**

- (i) This method may be adopted when estimated value of the goods to be procured is up to Rupees Twenty five Lakhs. Copies of the bidding document should be sent directly by speed post/registered post/courier/ e-mail to firms which are borne on the list of registered suppliers for the goods in question as referred under Rule 150 above. The number of supplier firms in Limited Tender Enquiry should be more than three. Efforts should be made to identify a higher number of approved suppliers to obtain more responsive bids on competitive basis.

Further, an organisation should publish its limited tender enquiries on Central Public Procurement Portal (CPPP) as per Rule 159. Apart from CPPP, the organisations should publish the tender enquiries on the Department's or Ministry's web site.

- (ii) The unsolicited bids should not be accepted. However Ministries/ Departments should evolve a system by which interested firms can register and bid in next round of tendering.
- (iii) Purchase through Limited Tender Enquiry may be adopted even where the estimated value of the procurement is more than Rupees twenty-five Lakhs, in the following circumstances.
  - (a) The competent authority in the Ministry or Department certifies that the demand is urgent and any additional expenditure involved by not procuring through advertised tender enquiry is justified in view of urgency. The Ministry or Department should also put on record the nature of the urgency and reasons why the procurement could not be anticipated.
  - (b) There are sufficient reasons, to be recorded in writing by the competent authority, indicating that it will not be in public interest to procure the goods through advertised tender enquiry.
  - (c) The sources of supply are definitely known and possibility of





fresh source(s) beyond those being tapped is remote.

- (iv) Sufficient time should be allowed for submission of bids in Limited Tender Enquiry cases.

**Rule 163 Two bid system (simultaneous receipt of separate technical and financial bids) :** For purchasing high value plant, machinery etc. of a complex and technical nature, bids may be obtained in two parts as under :

- (i) Technical bid consisting of all technical details along with commercial terms and conditions; and
- (ii) Financial bid indicating item-wise price for the items mentioned in the technical bid.

The technical bid and the financial bid should be sealed by the bidder in separate covers duly super-scribed and both these sealed covers are to be put in a bigger cover which should also be sealed and duly super-scribed. The technical bids are to be opened by the purchasing Ministry or Department at the first instance and evaluated by a competent committee or authority. At the second stage financial bids of only these technically acceptable offers should be opened after intimating them the date and time of opening the financial bid for further evaluation and ranking before awarding the contract.

**Rule 164 Two-Stage Bidding** (Obtain bids in two stages with receipt of financial bids after receipt and evaluation of technical bids)

- (i) Ministry/Department may procure the subject matter of procurement by the method of two-stage bidding, if
  - (a) it is not feasible to formulate detailed specifications or identify specific characteristics for the subject matter of procurement, without receiving inputs regarding its technical aspects from bidders; or
  - (b) the character of the subject matter of procurement is subject to rapid technological advances or market fluctuations or both; or
  - (c) Ministry/Department seeks to enter into a contract for the purpose of research, experiment,

study or development, except where the contract includes the production of items in quantities sufficient to establish their commercial viability or to recover research and development costs; or

- (d) The bidder is expected to carry out a detailed survey or investigation and undertake a comprehensive assessment of risks, costs and obligations associated with the particular procurement.
- (ii) The procedure for two stage bidding shall include the following, namely:—
  - (a) in the first stage of the bidding process, the Ministry/Department shall invite bids through advertised tender containing the technical aspects and contractual terms and conditions of the proposed procurement without a bid price;
  - (b) all first stage bids, which are otherwise eligible, shall be evaluated through an appropriate committee constituted by the Ministry/Department;
  - (c) the committee may hold discussions with the bidders and if any such discussion is held, equal opportunity shall be given to all bidders to participate in the discussions;
  - (d) in revising the relevant terms and conditions of the procurement, the procuring entity shall not modify the fundamental nature of the procurement itself, but may add, amend or omit any specification of the subject matter of procurement or criterion for evaluation;
  - (e) in the second stage of the bidding process, the procuring entity shall invite bids from all those bidders whose bids at the first stage were not rejected, to present final bid with bid prices in response to a revised set of terms and conditions of the procurement;
  - (f) any bidder, invited to bid but not in a position to supply the subject



matter of procurement due to modification in the specifications or terms and conditions, may withdraw from the bidding proceedings without forfeiting any bid security that he may have been required to provide or being penalised in any way, by declaring his intention to withdraw from the procurement proceedings with adequate justification.

**Rule 165 Late Bids.** In the case of advertised tender enquiry or limited tender enquiry, late bids (i.e. bids received after the specified date and time for receipt of bids) should not be considered.

**Rule 166 Single Tender Enquiry.** Procurement from a single source may be resorted to in the following circumstances :

- (i) It is in the knowledge of the user department that only a particular firm is the manufacturer of the required goods
- (ii) In a case of emergency, the required goods are necessarily to be purchased from a particular source and the reason for such decision is to be recorded and approval of competent authority obtained.
- (iii) For standardisation of machinery or spare parts to be compatible to the existing sets of equipment (on the advice of a competent technical expert and approved by the competent authority), the required item is to be purchased only from a selected firm

**Note :** Proprietary Article Certificate in the following form is to be provided by the Ministry/Department before procuring the goods from a single source under the provision of sub Rule 166 (i) and 166 (iii) as applicable.

- (i) The indented goods are manufactured by M/s.....
- (ii) No other make or model is acceptable for the following reasons :  
.....
- (iii) Concurrence of finance wing to the proposal vide: .....
- (iv) Approval of the competent authority vide:

(Signature with date and designation of the indenting officer)

#### **Rule 167 Electronic Reverse Auction**

- (i) Electronic Reverse Auction means an online real-time purchasing technique utilised by the procuring entity to select the successful bid, which involves presentation by bidders of successively more favourable bids during a scheduled period of time and automatic evaluation of bids;
- (ii) A procuring entity may choose to procure a subject matter of procurement by the electronic reverse auction method, if:
  - (a) It is feasible for the procuring entity to formulate a detailed description of the subject matter of the procurement;
  - (b) There is a competitive market of bidders anticipated to be qualified to participate in the electronic reverse auction, so that effective competition is ensured;
  - (c) The criteria to be used by the procuring entity in determining the successful bid are quantifiable and can be expressed in monetary terms; and
- (iii) The procedure for electronic reverse auction shall include the following, namely:
  - (a) The procuring entity shall solicit bids through an invitation to the electronic reverse auction to be published or communicated in accordance with the provisions similar to e-procurement; and
  - (b) The invitation shall, in addition to the information as specified in e-procurement, include details relating to access to and registration for the auction, opening and closing of the auction and Norms for conduct of the auction.

#### **Rule 168 Contents of Bidding Document**

All the terms, conditions, stipulations and information to be incorporated in the bidding document are to be shown in the appropriate chapters as below :-

Chapter – 1: Instructions to Bidders.



- Chapter – 2: Conditions of Contract.
- Chapter – 3: Schedule of Requirements.
- Chapter – 4: Specifications and allied Technical Details.
- Chapter – 5: Price Schedule (to be utilised by the bidders for quoting their prices).
- Chapter – 6: Contract Form.
- Chapter – 7: Other Standard Forms, if any, to be utilised by the purchaser and the bidders.

**Rule 169 Maintenance Contract.** Depending on the cost and nature of the goods to be purchased, it may also be necessary to enter into maintenance contract(s) of suitable period either with the supplier of the goods or with any other competent firm, not necessarily the supplier of the subject goods. Such maintenance contracts are especially needed for sophisticated and costly equipment and machinery. It may, however, be kept in mind that the equipment or machinery is maintained free of charge by the supplier during its warranty period or such other extended periods as the contract terms may provide and the paid maintenance should commence only thereafter.

#### **Rule 170 Bid Security**

- (i) To safeguard against a bidder's withdrawing or altering its bid during the bid validity period in the case of advertised or limited tender enquiry, Bid Security (also known as Earnest Money) is to be obtained from the bidders except Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organisation or the concerned Ministry or Department. The bidders should be asked to furnish bid security along with their bids. Amount of bid security should ordinarily range between two percent to five percent of the estimated value of the goods to be procured. The amount of bid security should be determined accordingly by the Ministry or Department and indicated in the bidding documents. The bid security may be accepted in the form of Account Payee Demand

Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks or payment online in an acceptable form, safeguarding the purchaser's interest in all respects. The bid security is normally to remain valid for a period of forty-five days beyond the final bid validity period.

- (ii) Bid securities of the unsuccessful bidders should be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract.
- (iii) In place of a Bid security, the Ministries/ Departments may require Bidders to sign a Bid securing declaration accepting that if they withdraw or modify their Bids during the period of validity, or if they are awarded the contract and they fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document, they will be suspended for the period of time specified in the request for bids document from being eligible to submit Bids for contracts with the entity that invited the Bids.

#### **Rule 171 Performance Security**

- (i) To ensure due performance of the contract, Performance Security is to be obtained from the successful bidder awarded the contract. Unlike contracts of Works and Plants, in case of contracts for goods, the need for the Performance Security depends on the market conditions and commercial practice for the particular kind of goods. Performance Security should be for an amount of five to ten per cent. of the value of the contract as specified in the bid documents. Performance Security may be furnished in the form of an Account Payee Demand Draft, Fixed Deposit Receipt from a Commercial bank, Bank Guarantee from a Commercial bank or online payment in an acceptable form safeguarding the purchaser's interest in all respects.
- (ii) Performance Security should remain valid for a period of sixty days beyond the date of completion of all



contractual obligations of the supplier including warranty obligations.

- (iii) Bid security should be refunded to the successful bidder on receipt of Performance Security.

**Rule 172 (1) Advance payment to supplier**

Ordinarily, payments for services rendered or supplies made should be released only after the services have been rendered or supplies made. However, it may become necessary to make advance payments for example in the following types of cases :-

- (i) Advance payment demanded by firms holding maintenance contracts for servicing of Air-conditioners, computers, other costly equipment, etc.
- (ii) Advance payment demanded by firms against fabrication contracts, turn-key contracts etc.

Such advance payments should not exceed the following limits :

- (a) Thirty per cent. of the contract value to private firms;
- (b) Forty per cent. of the contract value to a State or Central Government agency or a Public Sector Undertaking; or
- (c) in case of maintenance contract, the amount should not exceed the amount payable for six months under the contract.

Ministries or Departments of the Central Government may relax, in consultation with their Financial Advisers concerned, the ceilings (including percentage laid down for advance payment for private firms) mentioned above. While making any advance payment as above, adequate safeguards in the form of bank guarantee etc. should be obtained from the firm.

**Rule 172 (2) Part payment to suppliers:**

Depending on the terms of delivery incorporated in a contract, part payment to the supplier may be released after it dispatches the goods from its premises in terms of the contract.

**Rule 173 Transparency, competition, fairness and elimination of arbitrariness in the procurement process** All government

purchases should be made in a transparent, competitive and fair manner, to secure best value for money. This will also enable the prospective bidders to formulate and send their competitive bids with confidence. Some of the measures for ensuring the above are as follows:-

- (i) the text of the bidding document should be self-contained and comprehensive without any ambiguities. All essential information, which a bidder needs for sending responsive bid, should be clearly spelt out in the bidding document in simple language. The condition of prior turnover and prior experience may be relaxed for Startups (as defined by Department of Industrial Policy and Promotion) subject to meeting of quality & technical specifications and making suitable provisions in the bidding document. The bidding document should contain, inter alia.
  - (a) Description and Specifications of goods including the nature, quantity, time and place or places of delivery.
  - (b) the criteria for eligibility and qualifications to be met by the bidders such as minimum level of experience, past performance, technical capability, manufacturing facilities and financial position etc or limitation for participation of the bidders, if any.
  - (c) eligibility criteria for goods indicating any legal restrictions or conditions about the origin of goods etc which may required to be met by the successful bidder.
  - (d) the procedure as well as date, time and place for sending the bids.
  - (e) date, time and place of opening of the bid.
  - (e) Criteria for evaluation of bids
  - (f) special terms affecting performance, if any.
  - (g) Essential terms of the procurement contract



- (h) Bidding Documents should include a clause that "if a firm quotes NIL charges/ consideration, the bid shall be treated as unresponsive and will not be considered".
- (ii) Any other information which the procuring entity considers necessary for the bidders to submit their bids.
- (iii) Modification to bidding document:
  - (a) In case any modification is made to the bidding document or any clarification is issued which materially affects the terms contained in the bidding document, the procuring entity shall publish or communicate such modification or clarification in the same manner as the publication or communication of the initial bidding document was made.
  - (b) In case a clarification or modification is issued to the bidding document, the procuring entity shall, before the last date for submission of bids, extend such time limit, if, in its opinion more time is required by bidders to take into account the clarification or modification, as the case may be, while submitting their bids.
  - (c) Any bidder who has submitted his bid in response to the original invitation shall have the opportunity to modify or re-submit it, as the case may be, or withdraw such bid in case the modification to bidding document materially affect the essential terms of the procurement, within the period initially allotted or such extended time as may be allowed for submission of bids, after the modifications are made to the bidding document by the procuring entity:  
Provided that the bid last submitted or the bid as modified by the bidder shall be considered for evaluation
- (iv) Suitable provision should be kept in the bidding document to enable a bidder to question the bidding conditions, bidding process and/ or rejection of its bid. The reasons for rejecting a tender or non-issuing a tender document to a prospective bidder must be disclosed where enquiries are made by the bidder.
- (v) Suitable provision for settlement of disputes, if any, emanating from the resultant contract, should be kept in the bidding document.
- (vi) The bidding document should indicate clearly that the resultant contract will be interpreted under Indian Laws.
- (vii) The bidders should be given reasonable time to prepare and send their bids.
- (viii) The bids should be opened in public and authorised representatives of the bidders should be permitted to attend the bid opening.
- (ix) The specifications of the required goods should be clearly stated without any ambiguity so that the prospective bidders can send meaningful bids. In order to attract sufficient number of bidders, the specification should be broad based to the extent feasible
- (x) Pre-bid conference: In case of turn-key contract(s) or contract(s) of special nature for procurement of sophisticated and costly equipment or wherever felt necessary, a suitable provision is to be kept in the bidding documents for one or more rounds of pre-bid conference for clarifying issues and clearing doubts, if any, about the specifications and other allied technical details of the plant, equipment and machinery etc. projected in the bidding document. The date, time and place of pre-bid conference should be indicated in the bidding document. This date should be sufficiently ahead of bid opening date. The records of such conference shall be intimated to all bidders and, shall also be exhibited on the website(s) where tender was published.
- (xi) Criteria for determining





responsiveness are to be taken into account for evaluating the bids such as:

- (a) time of delivery.
  - (b) Performance/ efficiency/ environmental characteristics.
  - (c) the terms of payment and of guarantees in respect of the subject matter of procurement
  - (d) price.
  - (e) cost of operating, maintaining and repairing etc.
- (xii) Bids received should be evaluated in terms of the conditions already incorporated in the bidding documents; No new condition which was not incorporated in the bidding documents should be brought in for evaluation of the bids. Determination of a bid's responsiveness should be based on the contents of the bid itself without recourse to extrinsic evidence.
- (xiii) Bidders should not be permitted to alter or modify their bids after expiry of the deadline for receipt of bids.
- (xiv) Negotiation with bidders after bid opening must be severely discouraged. However, in exceptional circumstances where price negotiation against an ad-hoc procurement is necessary due to some unavoidable circumstances, the same may be resorted to only with the lowest evaluated responsive bidder.
- (xv) In the Rate Contract system, where a number of firms are brought on Rate Contract for the same item, negotiation as well as counter offering of rates are permitted to the bidders and for this purpose special permission has been given to the Directorate General of Supplies and Disposals (DGS&D).
- (xvi) Contract should ordinarily be awarded to the lowest evaluated bidder whose bid has been found to be responsive and who is eligible and qualified to perform the contract satisfactorily as per the terms and conditions incorporated in the corresponding bidding document. However, where the

lowest acceptable bidder against ad-hoc requirement is not in a position to supply the full quantity required, the remaining quantity, as far as possible, be ordered from the next higher responsive bidder at the rates offered by the lowest responsive bidder.

- (xvii) Procurement of Energy Efficient Electrical Appliances: Ministries/ Departments while procuring electrical appliances notified by Department of Expenditure shall ensure that they carry the notified threshold or higher Star Rating of Bureau of Energy Efficiency (BEE).
- (xviii) The name of the successful bidder awarded the contract should be mentioned in the CPPP, Ministries or Departments website and their notice board or bulletin.
- (xix) Rejection of all Bids is justified when
- a. effective competition is lacking.
  - b. all Bids and Proposals are not substantially responsive to the requirements of the Procurement Documents.
  - c. the Bids'/Proposals' prices are substantially higher than the updated cost estimate or available budget; or
  - d. none of the technical Proposals meets the minimum technical qualifying score.
- (xx) Lack of competition in rule 173(xix) shall not be determined solely on the basis of the number of Bidders. Even when only one Bid is submitted, the process may be considered valid provided following conditions are satisfied:
- a. the procurement was satisfactorily advertised and sufficient time was given for submission of bids.
  - b. the qualification criteria were not unduly restrictive; and
  - c. prices are reasonable in comparison to market values
- (xxi) When a limited or open tender results in only one effective offer, it shall be treated as a single tender contract.





- (xxii) In case a purchase Committee is constituted to purchase or recommend the procurement, no member of the purchase Committee should be reporting directly to any other member of such Committee in case estimated value of procurement exceeds Rs. 25 lakhs.

**Rule 174 Efficiency, Economy and Accountability in Public Procurement System.** Public procurement procedure should ensure efficiency, economy and accountability in the system. To achieve the same, the following keys areas should be addressed :

- (i) To reduce delay, appropriate time frame for each stage of procurement should be prescribed by the Ministry or Department.
- (ii) To minimise the time needed for decision making and placement of contract, every Ministry/Department, with the approval of the competent authority, may delegate, wherever necessary, appropriate purchasing powers to the lower functionaries.
- (iii) The Ministries or Departments should ensure placement of contract within the original validity of the bids. Extension of bid validity must be discouraged and resorted to only in exceptional circumstances.
- (iv) The Central Purchase Organisation (e.g. DGS&D) should bring into the Rate Contract system more and more common user items which are frequently needed in bulk by various Central Government Departments. The Central Purchase Organisation (e.g. DGS&D) should also ensure that the Rate Contracts remain available without any break.

**Rule 175 (1) Code of Integrity**

No official of a procuring entity or a bidder shall act in contravention of the codes which includes

- (i) prohibition of
  - (a) making offer, solicitation or acceptance of bribe, reward or gift or any material benefit, either directly or indirectly, in exchange for an unfair advantage in the procurement process or to

otherwise influence the procurement process.

- (b) any omission, or misrepresentation that may mislead or attempt to mislead so that financial or other benefit may be obtained or an obligation avoided.
- (c) any collusion, bid rigging or anti-competitive behavior that may impair the transparency, fairness and the progress of the procurement process.
- (d) improper use of information provided by the procuring entity to the bidder with an intent to gain unfair advantage in the procurement process or for personal gain.
- (e) any financial or business transactions between the bidder and any official of the procuring entity related to tender or execution process of contract; which can affect the decision of the procuring entity directly or indirectly.
- (f) any coercion or any threat to impair or harm, directly or indirectly, any party or its property to influence the procurement process.
- (g) obstruction of any investigation or auditing of a procurement process.
- (h) making false declaration or providing false information for participation in a tender process or to secure a contract;

(ii) disclosure of conflict of interest.

(iii) Disclosure by the bidder of any previous transgressions made in respect of the provisions of sub-clause (i) with any entity in any country during the last three years or of being debarred by any other procuring entity.

**Rule 175 (2)** The procuring entity, after giving a reasonable opportunity of being heard, comes to the conclusion that a bidder or prospective bidder, as the case may be, has contravened the code of integrity, may take appropriate measures.



**Rule 176 Buy-Back Offer**

When it is decided with the approval of the competent authority to replace an existing old item(s) with a new and better version, the department may trade the existing old item while purchasing the new one. For this purpose, a suitable clause is to be incorporated in the bidding document so that the prospective and interested bidders formulate their bids accordingly. Depending on the value and condition of the old item to be traded, the time as well as the mode of handing over the old item to the successful bidder should be decided and relevant details in this regard suitably incorporated in the bidding document. Further, suitable provision should also be kept in the bidding document to enable the purchaser either to trade or not to trade the item while purchasing the new one.

**PROCUREMENT OF SERVICES**

**A. CONSULTING SERVICES**

**Rule 177 "Consulting Service"** means any subject matter of procurement (which as distinguished from 'Non- Consultancy Services' involves primarily non-physical project-specific, intellectual and procedural processes where outcomes/deliverables would vary from one consultant to another), other than goods or works, except those incidental or consequential to the service, and includes professional, intellectual, training and advisory services or any other service classified or declared as such by a procuring entity but does not include direct engagement of a retired Government servant.

**Note:** These Services typically involve providing expert or strategic advice e.g., management consultants, policy consultants, communications consultants, Advisory and project related Consulting Services which include, feasibility studies, project management, engineering services, finance, accounting and taxation services, training and development etc.

**Rule 178** The Ministries or Departments may hire external professionals, consultancy firms or consultants (referred to as consultant hereinafter) for a specific job, which is well defined in terms of content and time frame for its completion.

**Rule 179** This chapter contains the fundamental principles applicable to all Ministries or Departments regarding engagement of consultant(s). Detailed instructions to this effect may be issued by the concerned Ministries or Departments. However, the Ministries or Departments shall ensure that they do not contravene the basic rules contained in this chapter.

**Rule 180 Identification of Services required to be performed by Consultants:** Engagement of consultants may be resorted to in situations requiring high quality services for which the concerned Ministry/ Department does not have requisite expertise. Approval of the competent authority should be obtained before engaging consultant(s).

**Rule 181 Preparation of scope of the required Consultant(s):** The Ministries/ Departments should prepare in simple and concise language the requirement, objectives and the scope of the assignment. The eligibility and prequalification criteria to be met by the consultants should also be clearly identified at this stage.

**Rule 182 Estimating reasonable expenditure:** Ministry or Department proposing to engage consultant(s) should estimate reasonable expenditure for the same by ascertaining the prevalent market conditions and consulting other organisations engaged in similar activities.

**Rule 183 Identification of likely sources.**

- (i) Where the estimated cost of the consulting service is up to Rupees twenty-five lakhs, preparation of a long list of potential consultants may be done on the basis of formal or informal enquiries from other Ministries or Departments or Organisations involved in similar activities, Chambers of Commerce & Industry, Association of consultancy firms etc.
- (ii) Where the estimated cost of the consulting services is above Rupees twenty-five lakhs, in addition to (i) above, an enquiry for seeking 'Expression of Interest' from consultants should be published on Central Public Procurement Portal (CPPP) at [www.eprocure.gov.in](http://www.eprocure.gov.in) and on



GeM. An organisation having its own website should also publish all its advertised tender enquiries on the website. Enquiry for seeking Expression of Interest should include in brief, the broad scope of work or service, inputs to be provided by the Ministry or Department, eligibility and the pre-qualification criteria to be met by the consultant(s) and consultant's past experience in similar work or service. The consultants may also be asked to send their comments on the objectives and scope of the work or service projected in the enquiry. Adequate time should be allowed for getting responses from interested consultants.

**Rule 184 Short listing of consultants.** On the basis of responses received from the interested parties as per Rule 183 above, consultants meeting the requirements should be short listed for further consideration. The number of short listed consultants should not be less than three.

**Rule 185 Preparation of Terms of Reference (TOR).**

The TOR should include

- (i) Precise statement of objectives.
- (ii) Outline of the tasks to be carried out.
- (iii) Schedule for completion of tasks.
- (iv) The support or inputs to be provided by the Ministry or Department to facilitate the consultancy.
- (v) The final outputs that will be required of the Consultant.

**Rule 186 Preparation and Issue of Request for Proposal (RFP).** RFP is the document to be used by the Ministry/Department for obtaining offers from the consultants for the required service. The RFP should be issued to the shortlisted consultants to seek their technical and financial proposals. The RFP should contain :

- (i) A letter of Invitation
- (ii) Information to Consultants regarding the procedure for submission of proposal.
- (iii) Terms of Reference (TOR).
- (iv) Eligibility and pre-qualification criteria in case the same has not been ascertained through Enquiry for Expression of Interest.

- (v) List of key position whose CV and experience would be evaluated.
- (vi) Bid evaluation criteria and selection procedure.
- (vii) Standard formats for technical and financial proposal.
- (viii) Proposed contract terms.
- (ix) Procedure proposed to be followed for midterm review of the progress of the work and review of the final draft report.

**Rule 187 Receipt and opening of proposals**

Proposals should ordinarily be asked for from consultants in 'Two bid' system with technical and financial bids sealed separately. The bidder should put these two sealed envelopes in a bigger envelope duly sealed and submit the same to the Ministry or Department by the specified date and time at the specified place. On receipt, the technical proposals should be opened first by the Ministry or Department at the specified date, time and place.

**Rule 188 Late Bids.** Late bids i.e. bids received after the specified date and time of receipt should not be considered.

**Rule 189 Evaluation of Technical Bids:** Technical bids should be analysed and evaluated by a Consultancy Evaluation Committee (CEC) constituted by the Ministry or Department. The CEC shall record in detail the reasons for acceptance or rejection of the technical proposals analysed and evaluated by it.

**Rule 190 Evaluation of Financial Bids of the technically qualified bidders:** The Ministry or Department shall open the financial bids of only those bidders who have been declared technically qualified by the Consultancy Evaluation Committee as per Rule 189 above for further analysis or evaluation and ranking and selecting the successful bidder for placement of the consultancy contract.

**Rule 191 Methods of Selection/ Evaluation of Consultancy Proposals**

The basis of selection of the consultant shall follow any of the methods given in Rule 192 to 194 as appropriate for the circumstances in each case.

**Rule 192. Quality and Cost Based Selection (QCBS):** QCBS may be used for Procurement of consultancy services,



where quality of consultancy is of prime concern.

- (i) In QCBS initially the quality of technical proposals is scored as per criteria announced in the RFP. Only those responsive proposals that have achieved at least minimum specified qualifying score in quality of technical proposal are considered further.
- (ii) After opening and scoring, the Financial proposals of responsive technically qualified bidders, a final combined score is arrived at by giving predefined relative weight ages for the score of quality of the technical proposal and the score of financial proposal.
- (iii) The RFP shall specify the minimum qualifying score for the quality of technical proposal and also the relative weight ages to be given to the quality and cost (determined for each case depending on the relative importance of quality vis-a-vis cost aspects in the assignment, e.g. 70:30, 60:40, 50:50 etc). The proposal with the highest weighted combined score (quality and cost) shall be selected.
- (iv) The weight age of the technical parameters i.e. non- financial parameters in no case should exceed 80 percent.

**Rule 193 Least Cost System (LCS).** LCS is appropriate for assignments of a standard or routine nature (such as audits and engineering design of non-complex works) where well established methodologies, practices and standards exist. Unlike QCBS, there is no weight age for Technical score in the final evaluation and the responsive technically qualified proposal with the lowest evaluated cost shall be selected.

**Rule 194 Single Source Selection/Consultancy by nomination.** The selection by direct negotiation/nomination, on the lines of Single Tender mode of procurement of goods, is considered appropriate only under exceptional circumstance such as:

- (i) tasks that represent a natural continuation of previous work carried out by the firm;
- (ii) in case of an emergency situation, situations arising after natural

disasters, situations where timely completion of the assignment is of utmost importance; and

- (iii) situations where execution of the assignment may involve use of proprietary techniques or only one consultant has requisite expertise.
- (iv) Under some special circumstances, it may become necessary to select a particular consultant where adequate justification is available for such single-source selection in the context of the overall interest of the Ministry or Department. Full justification for single source selection should be recorded in the file and approval of the competent authority obtained before resorting to such single-source selection.
- (v) It shall ensure fairness and equity, and shall have a procedure in place to ensure that the prices are reasonable and consistent with market rates for tasks of a similar nature; and the required consultancy services are not split into smaller sized procurement.

**Rule 195 Monitoring the Contract.** The Ministry/Department should be involved throughout in the conduct of consultancy, preferably by taking a task force approach and continuously monitoring the performance of the consultant(s) so that the output of the consultancy is in line with the Ministry /Department's objectives.

**Rule 196 Public competition for Design of symbols/logos.** Design competition should be conducted in a transparent, fair and objective manner. Wide publicity should be given to the competition so as to ensure that the information is accessible to all possible participants in the competition. This should include publication on the website of Ministry/Department concerned, as also the Central Public Procurement Portal. If the selection has been by a jury of experts nominated for the purpose, the composition of the jury may also be notified.

## **B. OUTSOURCING OF SERVICES**

**Rule 197 "Non-Consulting Service"** means any subject matter of procurement (which as distinguished from 'Consultancy



Services'), involve physical, measurable deliverables/ outcomes, where performance standards can be clearly identified and consistently applied, other than goods or works, except those incidental or consequential to the service, and includes maintenance, hiring of vehicle, outsourcing of building facilities management, security, photocopier service, janitor, office errand services, drilling, aerial photography, satellite imagery, mapping etc.

**Rule 198 Procurement of Non-consulting Services.**

A Ministry or Department may procure certain non-consulting services in the interest of economy and efficiency and it may prescribe detailed instructions and procedures for this purpose without, however, contravening the following basic guidelines.

**Rule 199 Identification of likely contractors.**

The Ministry or Department should prepare a list of likely and potential contractors on the basis of formal or informal enquiries from other Ministries or Departments and Organisations involved in similar activities, scrutiny of 'Yellow pages', and trade journals, if available, web site etc.

**Rule 200 Preparation of Tender enquiry.**

Ministry or Department should prepare a tender enquiry containing, inter alia :

- (i) The details of the work or service to be performed by the contractor;
- (ii) The facilities and the inputs which will be provided to the contractor by the Ministry or Department;
- (iii) Eligibility and qualification criteria to be met by the contractor for performing the required work/service; and
- (iv) The statutory and contractual obligations to be complied with by the contractor.

**Rule 201 Invitation of Bids.**

- (i) For estimated value of the non-consulting service up to Rupees ten lakhs or less: The Ministry or Department should scrutinise the preliminary list of likely contractors as identified as per Rule 199 above, decide the prima facie Eligible and

capable contractors and issue limited tender enquiry to them asking for their offers by a specified date and time etc. as per standard practice. The number of the contractors so identified for issuing limited tender enquiry should be more than three.

- (ii) For estimated value of the non-consulting service above Rs.10 lakhs: The Ministry or Department should issue advertisement in such case should be given on Central Public Procurement Portal(CPPP)at [www.eprocure.gov.in](http://www.eprocure.gov.in) and on GeM. An organisation having its own website should also publish all its advertised tender enquiries on the website. The advertisements for invitation of tenders should give the complete web address from where the bidding documents can be downloaded.

**Rule 202 Late Bids.** Late bids i.e. bids received after the specified date and time of receipt should not be considered.

**Rule 203 Evaluation of Bids Received.**

The Ministry or Department should evaluate, segregate, rank the responsive bids and select the successful bidder for placement of the contract.

**Rule 204 Procurement of Non-consulting services by nomination.** Should it become necessary, in an exceptional situation to procure a non-consulting service from a specifically chosen contractor, the Competent Authority in the Ministry or Department may do so in consultation with the Financial Adviser. In such cases the detailed justification, the circumstances leading to such procurement by choice and the special interest or purpose it shall serve, shall form an integral part of the proposal.

**Rule 205 Monitoring the Contract.** The Ministry or Department should be involved throughout in the conduct of the contract and continuously monitor the performance of the contractor.

**Rule 206** Any circumstances which are not covered in Rule 198 to Rule 205 for procurement of non-consulting services, the procuring entity may refer Rule 135 to Rule 176 pertaining to procurement of goods and not to the procurement of consulting services.





## INVENTORY MANAGEMENT

**Rule 207** This chapter contains the basic rules applicable to all Ministries or Departments regarding inventory management. Detailed instructions and procedures relating to inventory management may be prescribed by various Ministries or Departments broadly in conformity with the basic rules contained in this chapter.

**Rule 208 (1) Receipt of goods and materials from private suppliers.**

- (i) While receiving goods and materials from a supplier, the officer-in-charge of stores should refer to the relevant contract terms and follow the prescribed procedure for receiving the materials.
- (ii) All materials shall be counted, measured or weighed and subjected to visual inspection at the time of receipt to ensure that the quantities are correct, the quality is according to the required specifications and there is no damage or deficiency in the materials. Technical inspection where required should be carried out at this stage by Technical Inspector or Agency approved for the purpose. An appropriate receipt, in terms of the relevant contract provisions may also be given to the supplier on receiving the materials.
- (iii) Details of the material so received should thereafter be entered in the appropriate stock register, preferably in an IT-based system. The officer-in-charge of stores should certify that he has actually received the material and recorded it in the appropriate stock registers.

**Rule 209 Receipt/issue of goods and materials from internal divisions of the same organisation.**

- (i) The indenting officer requiring goods and materials from internal division(s) of the same organisation should project an indent in the prescribed form for this purpose. While receiving the supply against the indent, the indenting officer shall examine, count, measure or weigh the materials as the case may be, to ensure that the quantities are correct, the quality is in line with the required specifications and there is no damage or deficiency in the materials. An appropriate

receipt shall also be given to this effect by the indenting officer to the division sending the materials.

- (ii) In the case of issue of materials from stock for departmental use, manufacture, sale, etc., the Officer-in-charge of the stores shall see that an appropriate indent, in the prescribed form has been projected by the indenting officer. A written/online acknowledgement of receipt of material issued shall be obtained from the indenting officer or his authorised representative at the time of issue of materials.
- (iii) In case of materials issued to a contractor, the cost of which is recoverable from the contractor, all relevant particulars, including the recovery rates and the total value chargeable to the contractor should be got acknowledged from the contractor duly signed and dated.
- (iv) If the Officer-in-charge of the stores is unable to comply with the indent in full, he should make the supply to the extent available and make suitable entry to this effect in the indenter's copy of the indent. In case alternative materials are available in lieu of the indented materials, a suitable indication to this effect may be made in the document.

**Rule 210 Custody of goods and materials.** The officer-in-charge of stores having custody of goods and materials, especially valuable and/or combustible articles, shall take appropriate steps for arranging their safe custody, proper storage accommodation, including arrangements for maintaining required temperature, dust free environment etc.

**Rule 211 Lists and Accounts.**

- (i) The Officer-in-charge of stores shall maintain suitable item-wise lists and accounts and prepare accurate returns in respect of the goods and materials in his charge making it possible at any point of time to check the actual balances with the book balances.

The form of the stock accounts mentioned above shall be determined with reference to the nature of the





goods and materials, the frequency of the transactions and the special requirements of the concerned Ministries/Departments.

- (ii) Separate accounts shall be kept for
  - (a) Fixed Assets such as plant, machinery, equipment, furniture, fixtures etc. in the Form GFR-22.
  - (b) Consumables such as office stationery, chemicals, maintenance spare parts etc. in the Form GFR-23.
  - (c) Library books in the Form GFR 18
  - (d) Assets of historical/artistic value held by museum/government departments in the Form GFR-24.

Note: These forms can be supplemented with additional details by Ministries/Departments as required.

**Rule 212 Hiring out of Fixed Assets.** When a fixed asset is hired to local bodies, contractors or others, proper record should be kept of the assets and the hire and other charges as determined under rules prescribed by the competent authority, should be recovered regularly. Calculation of the charges to be recovered from the local bodies, contractors and others as above should be based on the historical cost.

**Rule 213 (1) Physical verification of Fixed Assets.** The inventory for fixed assets shall ordinarily be maintained at site. Fixed assets should be verified at least once in a year and the outcome of the verification recorded in the corresponding register. Discrepancies, if any, shall be promptly investigated and brought to account.

**Rule 213 (2) Verification of Consumables:** A physical verification of all the consumable goods and materials should be undertaken at least once in a year and discrepancies, if any, should be recorded in the stock register for appropriate action by the competent authority.

**Rule 213 (3) Procedure for verification :**

- (i) Verification shall always be made in the presence of the officer, responsible for the custody of the inventory being verified.
- (ii) A certificate of verification along with the findings shall be recorded in the stock register.

- (iii) Discrepancies, including shortages, damages and unserviceable goods, if any, identified during verification, shall immediately be brought to the notice of the competent authority for taking appropriate action in accordance with provision given in Rule 33 to 38.

**Rule 214 Buffer Stock.** Depending on the frequency of requirement and quantity thereof as well as the pattern of supply of a consumable material, optimum buffer stock should be determined by the competent authority.

**Note:** As the inventory carrying cost is an expenditure that does not add value to the material being stocked, a material remaining in stock for over a year shall generally be considered surplus, unless adequate reasons to treat it otherwise exist. The items so declared surplus may be dealt as per the procedure laid down under Rule 217.

**Rule 215 Physical verification of Library books.**

- (i) Complete physical verification of books should be done every year in case of libraries having not more than twenty thousand volumes. For libraries having more than twenty thousand volumes and up to fifty thousand volumes, such verification should be done at least once in three years. Sample physical verification at intervals of not more than three years should be done in case of libraries having more than fifty thousand volumes. In case such verification reveals unusual or unreasonable shortages, complete verification shall be done.
- (ii) Loss of five volumes per one thousand volumes of books issued/consulted in a year may be taken as reasonable provided such losses are not attributable to dishonesty or negligence. However, loss of a book of a value exceeding Rs. 1,000/- (Rupees One thousand only) and rare books irrespective of value shall invariably be investigated and appropriate action taken.

**Rule 216 Transfer of charge of goods, materials etc.** In case of transfer of Officer-in-charge of the goods, materials etc., the transferred officer shall see that the goods or material



are made over correctly to his successor. A statement giving all relevant details of the goods, materials etc., in question shall be prepared and signed with date by the relieving officer and the relieved officer. Each of these officers will retain a copy of the signed statement.

**Rule 217 Disposal of Goods.**

- (i) An item may be declared surplus or obsolete or unserviceable if the same is of no use to the Ministry or Department. The reasons for declaring the item surplus or obsolete or unserviceable should be recorded by the authority competent to purchase the item.
- (ii) The competent authority may, at his discretion, constitute a committee at appropriate level to declare item(s) as surplus or obsolete or unserviceable.
- (iii) The book value, guiding price and reserved price, which will be required while disposing of the surplus goods, should also be worked out. In case where it is not possible to work out the book value, the original purchase price of the goods in question may be utilised. A report of stores for disposal shall be prepared in Form GFR - 10.
- (iv) In case an item becomes unserviceable due to negligence, fraud or mischief on the part of a Government servant, responsibility for the same should be fixed.
- (v) **Sale of Hazardous waste/Scrap Batteries/Electronic waste:** Scrap lots comprising of hazardous waste, batteries etc. shall be sold keeping in view the extant guidelines of Ministry of Environment & Forest. Prospective bidders of such lots of hazardous waste/scrap batteries/ e-waste should be in possession of registration, valid on the date of e-Auction and on the date of delivery, as recycler/ pre-processor agency.

**Rule 218 Modes of Disposal.**

- (I) Surplus or obsolete or unserviceable goods of assessed residual value above Rupees Two Lakh should be disposed of by :
  - (a) obtaining bids through advertised tender or
  - (b) public auction.

- (ii) For surplus or obsolete or unserviceable goods with residual value less than Rupees Two Lakh, the mode of disposal will be determined by the competent authority, keeping in view the necessity to avoid accumulation of such goods and consequential blockage of space and, also, deterioration in value of goods to be disposed of. Ministries/ Departments should, as far as possible prepare a list of such goods.
- (iii) Certain surplus or obsolete or unserviceable goods such as expired medicines, food grain, ammunition etc., which are hazardous or unfit for human consumption, should be disposed of or destroyed immediately by adopting suitable mode so as to avoid any health hazard and/or environmental pollution and also the possibility of misuse of such goods.
- (iv) Surplus or obsolete or unserviceable goods, equipment and documents, which involve security concerns (e.g. currency, negotiable instruments, receipt books, stamps, security press etc.) should be disposed of/ destroyed in an appropriate manner to ensure compliance with rules relating to official secrets as well as financial prudence.

**Rule 219 Disposal through Advertised Tender.**

- (i) The broad steps to be adopted for this purpose are as follows :
  - (a) Preparation of bidding documents.
  - (b) Invitation of tender for the surplus goods to be sold.
  - (c) Opening of bids.
  - (d) Analysis and evaluation of bids received.
  - (e) Selection of highest responsive bidder.
  - (f) Collection of sale value from the selected bidder.
  - (g) Issue of sale release order to the selected bidder.
  - (h) Release of the sold surplus goods to the selected bidder.
  - (i) Return of bid security to the unsuccessful bidders.
- (ii) The important aspects to be kept



in view while disposing the goods through advertised tender are as under:-

- (a) The basic principle for sale of such goods through advertised tender is ensuring transparency, competition, fairness and elimination of discretion. Wide publicity should be ensured of the sale plan and the goods to be sold. All the required terms and conditions of sale are to be incorporated in the bidding document comprehensively in plain and simple language. Applicability of taxes, as relevant, should be clearly stated in the document.
- (b) The bidding document should also indicate the location and present condition of the goods to be sold so that the bidders can inspect the goods before bidding.
- (c) The bidders should be asked to furnish bid security along with their bids. The amount of bid security should ordinarily be ten per cent. of the assessed or reserved price of the goods. The exact bid security amount should be indicated in the bidding document.
- (d) The bid of the highest acceptable responsive bidder should normally be accepted. However, if the price offered by that bidder is not acceptable, negotiation may be held only with that bidder. In case such negotiation does not provide the desired result, the reasonable or acceptable price may be counter offered to the next highest responsive bidder(s).
- (e) In case the total quantity to be disposed of cannot be taken up by the highest acceptable bidder, the remaining quantity may be offered to the

next higher bidder(s) at the price offered by the highest acceptable bidder.

- (f) Full payment, i.e. the residual amount after adjusting the bid security should be obtained from the successful bidder before releasing the goods.
- (g) In case the selected bidder does not show interest in lifting the goods, the bid security should be forfeited and other actions initiated including re-sale of the goods in question at the risk and cost of the defaulter, after obtaining legal advice.

(iii) Late bids i.e. bids received after the specified date and time of receipt should not to be considered.

#### **Rule 220 Disposal through Auction.**

- (i) A Ministry or Department may undertake auction of goods to be disposed of either directly or through approved auctioneers.
- (ii) The basic principles to be followed here are similar to those applicable for disposal through advertised tender so as to ensure transparency, competition, fairness and elimination of discretion. The auction plan including details of the goods to be auctioned and their location, applicable terms and conditions of the sale etc. should be given wide publicity in the same manner as is done in case of advertised tender.
- (iii) While starting the auction process, the condition and location of the goods to be auctioned, applicable terms and conditions of sale etc., (as already indicated earlier while giving wide publicity for the same), should be announced again for the benefit of the assembled bidders.
- (iv) During the auction process, acceptance or rejection of a bid should be announced immediately on the stroke of the hammer. If a bid is accepted, earnest money (not less than twenty-five per cent. of the bid value) should immediately be taken on the spot from the successful bidder



either in cash or in the form of Deposit-at-Call-Receipt (DACR), drawn in favour of the Ministry or Department selling the goods. The goods should be handed over to the successful bidder only after receiving the balance payment.

- (v) The composition of the auction team will be decided by the competent authority. The team should however include an officer of the Internal Finance Wing of the department

**Rule 221 Disposal at scrap value or by other modes.** If a Ministry or Department is unable to sell any surplus or obsolete or unserviceable item in spite of its attempts through advertised tender or auction, it may dispose of the same at its scrap value with the approval of the competent authority in consultation with Finance division. In case the Ministry or Department is unable to sell the item even at its scrap value, it may adopt any other mode of disposal including destruction of the item in an eco-friendly manner.

**Rule 222** A sale account should be prepared for goods disposed of in Form GFR 11 duly signed by the officer who supervised the sale or auction.

**Rule 223 (1) Powers to write off.** All profits and losses due to revaluation, stock-taking or other causes shall be duly recorded and adjusted where necessary. Formal sanction of the competent authority shall be obtained in respect of losses, even though no formal correction or adjustment in government accounts is involved. Powers to write off of losses are available under the Delegation of Financial Powers Rules.

**Rule 223 (2) Losses due to depreciation :** Losses due to depreciation shall be analysed, and recorded under following heads, as applicable :-

- (i) normal fluctuation of market prices;
- (ii) normal wear and tear;
- (iii) lack of foresight in regulating purchases; and
- (iv) negligence after purchase.

**Rule 223 (3) Losses not due to depreciation :** Losses not due to depreciation shall be grouped under the following heads :-

- (i) losses due to theft or fraud;
- (ii) losses due to neglect;

- (iii) anticipated losses on account of obsolescence of stores or of purchases in excess of requirements;
- (iv) losses due to damage, and
- (v) losses due to extra ordinary situations under 'Force Majeure' conditions like fire, flood, enemy action, etc.;



## CONTRACT MANAGEMENT

**Rule 224** (1) All contracts shall be made by an authority empowered to do so by or under the orders of the President in terms of Article 299 (1) of the Constitution of India.

**Rule 224** (2) All the contracts and assurances of property made in the exercise of the executive power of the Union shall be executed on behalf of the President. The words "for and on behalf of the President of India" should follow the designation appended below the signature of the officer authorized in this behalf.

**Note 1:** The various classes of contracts and assurances of property, which may be executed by different authorities, are specified in the Notifications issued by the Ministry of Law from time to time.

**Note 2:** The powers of various authorities, the conditions under which such powers should be exercised and the general procedure prescribed with regard to various classes of contracts and assurances of property are laid down in Rule 21 of the Delegation of Financial Powers Rules.

**Rule 225 General principles for contract.**

The following general principles should be observed while entering into contracts:—

- (i) The terms of contract must be precise, definite and without any ambiguities. The terms should not involve an uncertain or indefinite liability, except in the case of a cost plus contract or where there is a price variation clause in the contract.
- (ii) Standard forms of contracts should be adopted wherever possible, with such modifications as are considered necessary in respect of individual contracts. The modifications should be carried out only after obtaining financial and legal advice.
- (iii) In cases where standard forms of contracts are not used, legal and financial advice should be taken in drafting the clauses in the contract.
- (iv) (a) A Ministry or Department may, at its discretion, make purchases of value up to Rupees two lakh and fifty thousand by issuing purchase orders containing basic terms and conditions:  
(b) In respect of Works Contracts, or Contracts for purchases valued

between Rupees one lakh to Rupees ten lakhs, where tender documents include the General Conditions of Contract (GCC), Special Conditions of Contract (SCC) and scope of work, the letter of acceptance will result in a binding contract.

- (c) In respect of contracts for works with estimated value of Rupees ten lakhs or above or for purchase above Rupees ten lakhs, a Contract document should be executed, with all necessary clauses to make it a self-contained contract. If however, these are preceded by Invitation to Tender, accompanied by GCC and SCC, with full details of scope and specifications, a simple one page contract can be entered into by attaching copies of the GCC and SCC, and details of scope and specifications, Offer of the Tenderer and Letter of Acceptance.
- (d) Contract document should be invariably executed in cases of turnkey works or agreements for maintenance of equipment, provision of services etc.
- (v) No work of any kind should be commenced without proper execution of an agreement as given in the foregoing provisions.
- (vi) Contract document, where necessary, should be executed within 21 days of the issue of letter of acceptance. Non-fulfilment of this condition of executing a contract by the Contractor or Supplier would constitute sufficient ground for annulment of the award and forfeiture of Earnest Money Deposit.
- (vii) Cost plus contracts should ordinarily be avoided. Where such contracts become unavoidable, full justification should be recorded before entering into the contract. Where supplies or special work covered by such cost plus contracts have to continue over a long duration, efforts should be made to convert future contracts on a firm price basis after allowing a reasonable period to the suppliers/contractors to



stabilize their production/ execution methods and processes.

**Explanation :** A cost plus contract means a contract in which the price payable for supplies or services under the contract is determined on the basis of actual cost of production of the supplies or services concerned plus profit either at a fixed rate per unit or at a fixed percentage on the actual cost of production.

- (viii) (a) Price Variation Clause can be provided only in long-term contracts, where the delivery period extends beyond 18 months. In short-term contracts firm and fixed prices should be provided for. Where a price variation clause is provided, the price agreed upon should specify the base level viz, the month and year to which the price is linked, to enable variations being calculated with reference to the price levels prevailing in that month and year.
- (b) A formula for calculation of the price variations that have taken place between the Base level and the Scheduled Delivery Date should be included in this clause. The variations are calculated by using indices published by Governments or Chambers of Commerce periodically. An illustrative formula has been appended to these rules at Appendix-11 for guidance.
- (c) The Price variation clause should also specify cut off dates for material and labour, as these inputs taper off well before the scheduled Delivery Dates.
- (d) The price variation clause should provide for a ceiling on price variations, particularly where escalations are involved. It could be a percentage per annum or an overall ceiling or both. The buyer should ensure a provision in the contract for benefit of any reduction in the price in terms of the price variation clause being passed on to him.
- (e) The clause should also stipulate a

minimum percentage of variation of the contract price above which price variations will be admissible (e.g. where resultant increase is lower than two per cent. no price adjustment will be made in favour of the supplier).

- (f) Where advance or stage payments are made there should be a further stipulation that no price variations will be admissible on such portions of the price, after the dates of such payment.
- (g) Where deliveries are accepted beyond the scheduled Delivery Date subject to levy of liquidated damages as provided in the Contract, the liquidated damages (if a percentage of the price) will be applicable on the price as varied by the operation of the Price variation clause.
- (h) No price variation will be admissible beyond the original Scheduled Delivery Date for defaults on the part of the supplier.
- (i) Price variation may be allowed beyond the original Scheduled Delivery Date, by specific alteration of that date through an amendment to the contract in cases of Force Majeure or defaults by Government.
- (j) Where contracts are for supply of equipment, goods etc, imported (subject to customs duty and foreign exchange fluctuations) and/or locally manufactured (subject to excise duty and other duties and taxes), the percentage and element of duties and taxes included in the price should be specifically stated, along with the selling rate of foreign exchange element taken into account in the calculation of the price of the imported item.
- The mode of calculation of variations in duties and taxes and Foreign exchange rates and the documents to be produced in support of claims for such variations should also be stipulated in the Contract.





- (k) The clause should also contain the mode and terms of payment of the price variation admissible.
- (ix) Contracts should include provision for payment of all applicable taxes by the contractor or supplier.
- (x) "Lump sum" contracts should not be entered into except in cases of absolute necessity. Where lump sum contracts become unavoidable, full justification should be recorded. The contracting authority should ensure that conditions in the lump sum contract adequately safeguard and protect the interests of the Government.
- (xi) Departmental issue of materials should be avoided as far as possible. Where it is decided to supply materials departmentally, a schedule of quantities with the issue rates of such material as are required to execute the contract work should form an essential part of the contract.
- (xii)(a) In contracts where government property is entrusted to a contractor either for use on payment of hire charges or for doing further work on such property, specific provision for safeguarding government property (including insurance cover) and for recovery of hire charges regularly, should be included in the contracts.
- (b) Provision should be made in the contract for periodical physical verification of the number and the physical condition of the items at the contractor's premises. Results of such verification should be recorded and appropriate penal action taken where necessary.
- (xiii) Copies of all contracts and agreements for purchases of the value of Rupees Twenty-five Lakhs and above, and of all rate and running contracts entered into by civil departments of the Government other than the departments like the Directorate General of Supplies and Disposals for which a special audit procedure exists, should be sent to the Audit Officer and /or the Accounts officer as the case may be.
- (xiv)(a) The terms of a contract, including the scope and specification once entered into, should not be materially varied.
- (b) Wherever material variation in any of the terms or conditions in a contract becomes unavoidable, the financial and other effects involved should be examined and recorded and specific approval of the authority competent to approve the revised financial and other commitments obtained, before varying the conditions.
- (c) All such changes should be in the form of an amendment to the contract duly signed by all parties to the contract.
- (xv) Normally no extensions of the scheduled delivery or completion dates should be granted except where events constituting force majeure, as provided in the contract, have occurred or the terms and conditions include such a provision for other reasons. Extensions as provided in the contract may be allowed through formal amendments to the contract duly signed by parties to the contract.
- (xvi) All contracts shall contain a provision for recovery of liquidated damages for defaults on the part of the contractor. Only in exceptional circumstances to be justified by procuring entity in writing, an exemption from such provision can be made.
- (xvii) A warranty clause should be incorporated in every contract, requiring the supplier to, without charge, repair or rectify defective goods or to replace such goods with similar goods free from defect. Any goods repaired or replaced by the supplier shall be delivered at the buyers premises without costs to the buyer.
- (xviii) All contracts for supply of goods should reserve the right of Government to reject goods which do not conform to the specifications.



- (xix) No claim for the payment from contractor shall be entertained after the lapse of three years of arising of the claim.

**Rule 226 Management of Contracts.**

- (i) Implementation of the contract should be strictly monitored and notices issued promptly whenever a breach of provisions occurs.
- (ii) Proper procedure for safe custody and monitoring of Bank Guarantees or other Instruments should be laid down. Monitoring should include a monthly review of all Bank Guarantees or other instruments expiring after three months, along with a review of the progress of supply or work. Extensions of Bank Guarantees or other instruments, where warranted, should be sought immediately.

**Rule 227 Legal Advice.**

Wherever disputes arise during implementation of a contract, legal advice should be sought before initiating action to refer the dispute to conciliation and/or arbitration as provided in the contract or to file a suit where the contract does not include an arbitration clause. The draft of the plaint for arbitration should be got vetted by obtaining legal and financial advice. Documents to be filed in the matter of resolution of dispute, if any, should be carefully scrutinized before filing to safeguard government interest.



## GRANTS-IN-AID AND LOANS

### I. GRANTS-IN-AID

**Rule 228** As a general principle Grants-in-aid can be given to a person or a public body or an institution having a distinct legal entity. Thus Grants-in-aid including scholarships may be sanctioned by an authority competent to do so under the Delegation of Financial Powers Rules to :—

- (a) Institutions or Organizations set up as Autonomous Organisations, under a specific statute or as a society registered under the Societies Registration Act, 1860 or Indian Trusts Act, 1882 or other statutes.
- (b) Voluntary organizations or Non-Government Organisations carrying out activities which promote the welfare schemes and programmes of the Government should be selected on the basis of well-defined criteria regarding financial and other resources, credibility and type of activities undertaken.
- (c) Educational and other institutions by way of scholarships or stipends to the students.
- (d) Urban and Rural local self-government institutions
- (e) Co-operative societies.
- (f) Societies or clubs set up by Government servants to promote amongst themselves social, cultural and sports activities as recreational avenues.

**Rule 229** **General Principles for setting up of Autonomous Organisations** referred to under Rule 228(a):-

- (i) No new autonomous institutions should be created by Ministries or Departments without the approval of the Cabinet.
- (ii) No new autonomous institution should be created by an Autonomous Body itself, the appraisal/approval process for creation of new autonomous bodies would apply in such cases too. However, Regional Centres/Offices/Sub-Stations of any autonomous body can be created with prior approval of the administrative ministry in consultation with Ministry of Finance.

- (iii) Stringent criteria should be followed for setting up of new autonomous organisations and the type of activities to be undertaken by them. The Ministry or Department should examine in detail: (a) whether the activities proposed to be taken up are necessary at all; (b) whether these activities, if necessary, need to be undertaken by setting up an autonomous organisation only or whether these could be performed by the concerned Government agency or any other organisation already existing.
- (iv) All autonomous organisations, new or already in existence should be encouraged to maximise generation of internal resources and eventually attain self-sufficiency.
- (v) The Ministry or Department may consider creating a Corpus Fund for an Autonomous Body only with prior concurrence of Ministry of Finance if the corpus is created out of budgetary allocation. If the corpus is created out of internal accruals of the body, approval of the administrative Ministry must be obtained.
- (vi) User Charges: Governing Body of the Autonomous Body shall review user charges/ sources of internal revenue generation at least once a year and inform the administrative Ministry. This exercise should preferably be completed before the formulation of Union Annual Budget.
- (vii) All Autonomous Bodies should maintain database relating to grants, income, expenditure, investment assets and employee strength in the format prescribed by the Department of Expenditure, Ministry of Finance.
- (viii) Financial advice for Autonomous Bodies: Every autonomous organisation should designate an officer at appropriate level to render financial advice whose concurrence should be obtained for sanction and incurring of expenditure. The financial limits up to which such concurrence is mandatory may be drawn up by each organisation. The Chief Executive Officer of the Autonomous body will be responsible for overall financial



management of the autonomous bodies.

- (ix) Peer review of autonomous organisations: Ministry shall put in place a system of external or internal peer review of autonomous organisations every three or five years depending on the size and nature of activity. Such a review should be the responsibility of the concerned administrative division of the Ministry/Department and should focus, inter alia, on;
- (a) the objective for which the autonomous organisation was set up and whether these objectives have been or are being achieved;
  - (b) whether the activities should be continued at all, either because they are no longer relevant or have been completed or if there has been a substantial failure in achievement of objectives.
  - (c) whether the nature of the activities is such that these need to be performed only by an autonomous organisation.
  - (d) whether similar functions are also being undertaken by other organisations, be it in the Central Government or State Governments or the Private Sector, and if so, whether there is scope for merging or winding up the organisations under review.
  - (e) whether the total staff complement, particularly at the support level, is kept at a minimum: whether the enormous strides in information technology and communication facilities as also facilities for outsourcing of work on a contract basis, have been taken into account in determining staff strength; and whether scientific or technical personnel are being deployed on functions which could well be carried out by non-scientific or non-technical personnel etc.
  - (f) whether user charges including overhead/ institutional charges / management fee in respect of sponsored projects, wherever the output or benefit of services are

utilised by others, are levied at appropriate rates

- (g) the scope for maximizing internal resources generation in the organisation so that the dependence upon Government budgetary support is minimised.
- (x) An organisation whose performance is found to be outstanding and internationally acclaimed as a result of the review envisaged under Para (v) above should be granted greater autonomy and increased flexibility in matters of recruitment and financial rules thereby enabling it to devise and adopt staff structures, procedures and rules suited to improving their productivity.
- (xi) Autonomous organisations as also others with a budgetary support of more than Rupees five crores per annum, should be required to enter into a Memorandum of Understanding with the Administrative Ministry or Department, spelling out clearly performance parameters, output targets in terms of details of programme of work and qualitative improvement in output, along with commensurate input requirements. The output targets, given in measurable units of performance, should form the basis of budgetary support extended to these organisations. The roadmap for improved performance with clear milestones should form part of the MoU.
- (xii) Findings of the peer review should be examined and put up for appropriate decision to the Secretary by the concerned programme division of the Administrative Department. Further releases of Grant (after three or five years, as the case may be), should be made conditional on conduct and decisions on the findings of such peer review.

**Rule 230 (1) Principles and Procedure for award of Grants-in-aid.**

Any Institution or Organisation seeking Grants-in-aid from Government will be required to submit an application which includes all relevant information such as



Articles of Association, bye-laws, audited statement of accounts, sources and pattern of income and expenditure etc. enabling the sanctioning authority to assess the suitability of the Institution or Organisation seeking Grant. The application should clearly spell out the need for seeking Grant and should be submitted in such form as may be prescribed by the sanctioning authority. The Institution or Organisation seeking Grants-in-aid should also certify that it has not obtained or applied for grants for the same purpose or activity from any other Ministry or Department of the Government of India or State Government.

**Rule 230** (2) In order to obviate duplication in Grants-in-aid, each Ministry or Department should maintain a list of institutions or organisations along with details of amount and purpose of Grants given to them. These details should also be made available on the website of the Ministry/Department.

**Rule 230** (3) Award of Grants should be considered only on the basis of viable and specific schemes drawn up in sufficient detail by the institution or organisation. The budget for such schemes should disclose, inter alia, the specific quantified and qualitative targets likely to be attained against the outlay. In the cases of the schemes where Grants are given as part of the expenditure on reimbursement basis (i.e. the expenditure has already been incurred on approved project/scheme and reimbursement from the Government in the form of Grant/Subsidy etc. is due) the same will be treated as the Central Financial Assistance (CFA) and no Utilization Certificate shall be required in such cases of reimbursements.

**Rule 230** (4) Recurring Grant is defined as one which is released periodically to the same organization for the same purpose. Non-recurring Grant is one time release to an organization for a special purpose (which could be released in instalments). Every order sanctioning a Grant shall indicate whether it is recurring or non-recurring and specify clearly the object for which it is being given and the general and special conditions, if any, attached to the Grant. In the case of non-recurring Grants for specified object, the order shall also specify the time limit within which the

Grant or each instalment of it, is to be spent.

**Rule 230** (5) Central Autonomous Organisations which receive Grants should account for capital and revenue expenditure separately. The Government of India, Ministry of Finance has formulated standard formats for presentation of final accounts, for all Central Autonomous Organisations. All Grant sanctioning authorities should enforce the condition of maintaining and presenting their annual accounts in the standard formats on all Central Autonomous Organisations.

**Rule 230** (6) The Grants sanctioning authorities should not only take into account the internally generated resources while regulating the award of Grants but should consider laying down targets for internal resources generation by the Grantee Institutions or Organisations every financial year, particularly where Grants are given on recurring basis every year.

**Rule 230** (7) **Unspent Balances:** When recurring Grants-in-aid are sanctioned to the same Institution or Organisation for the same purpose, the unspent balance of the previous Grant should be taken into account in sanctioning the subsequent Grant. For this purpose, the Programme Division of Ministries/Department shall take help of PFMS Portal to know the bank balance of the recipients before making each release. The instructions of Department of Expenditure regarding the use of PFMS Portal for Central Sector Schemes issued from time to time shall be strictly followed by all Ministries/Departments. The principles of 'just in time release', should be applied for releases in respect of all payments to the extent possible. The following broad principles shall be adhered to:

- (i) Cash balance at a time should preferably not be more than 3 months of requirements
- (ii) Funds should be released as per actual requirements and that sanction may precede the release of funds, though its validity may be limited to that financial year.

**Rule 230** (8) All interests or other earnings against Grants in aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted



to the Consolidated Fund of India immediately after finalisation of the accounts. Such advances should not be allowed to be adjusted against future releases.

**Rule 230 (9)** In making Grants to Non-Government or Quasi-Government Institutions or Organisations, a condition should be laid down that assets acquired wholly or substantially out of Government Grants, except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in the General Financial Rules, shall not be disposed of without obtaining the prior approval of the authority which sanctioned the Grants-in-aid.

**Rule 230 (10)** The sanctioning authority may prescribe conditions regarding quantum and periodicity for release of Grants-in-aid in instalments in consultation with the Financial Adviser. However, the release of the last instalment of the Annual Grant must be conditional upon the Grantee Institutions providing reasonable evidence of proper utilization of instalments released earlier. In the cases where Central Financial Assistance (CFA) has been sanctioned, the grant will be released in one instalment upon the Grantee Institutions/ Organisation providing complete evidence of achieving the specified objectives and expenditure incurred supported by Audited Statement of Expenditure. In these cases, the grantee institutions will not be required to submit Utilization Certificates.

**Rule 230 (11)** In order to finalize the Budgetary Estimates of Grants in aid to the Grantee Institutions, the Ministry or Department should impress upon Institution or Organisation desiring Grants from Government, to submit their requirement with supporting details by the end of September in the year preceding the year for which the Grants-in-aid is sought. The Ministry or Department should finalize their examination of the requests with the utmost expedition and make the necessary Budget provision where it is decided to sanction Grants. The Institution or Organisation should be informed of the result of their requests by April of the succeeding year.

**Rule 230 (12)**

- (i) All Grantee Institutions or Organisations which receive more than fifty per cent. of their recurring expenditure in the form of Grants-in-aid, should ordinarily formulate terms and conditions of service of their employees which are, by and large, not higher than those applicable to similar categories of employees in Central Government. In exceptional cases relaxation may be made in consultation with the Ministry of Finance.
- (ii) Grantee Institutions or Organisations should be encouraged to take advantage of the pension or gratuity schemes or Group Insurance Schemes or house buildings loans or vehicle loans schemes etc. available in the market for employees instead of undertaking liability on their own or Government account.

**Rule 230 (13)** The sanctioning authority, while laying down the pattern of assistance, may decide whether the ownership of buildings constructed with Grants-in-aid may vest with Government or the Grantee Institution or Organisation. Where the ownership is vested in the Government, the Grantee Institution or Organisation may be allowed to occupy the building as a lessee. In such cases suitable record of details of location, cost, name of lessee and terms and conditions of lease must be maintained in the records of the granting Ministry or Department. In all cases of buildings constructed with Grants-in-aid, responsibility of maintenance of such buildings shall be of the Grantee Institution or Organisation.

**Rule 230 (14)** Any other special terms and conditions or procedures for transaction of business as Government may desire to be followed by the Grantee Institution or Organisation, shall be got incorporated in the Articles of Association or bye-laws of the Institution or Organisation concerned before release of Grants-in-aid.

**Rule 230 (15)** Grants-in-aid may be sanctioned to meet the bonafide expenditure incurred not earlier than two years prior to the date of issue of the sanction.

**Rule 230 (16)** The stipulation in regard to refund of





the unutilised amount of Grant-in-aid with interest thereon should be brought out clearly in the letter sanctioning the Grant as well as in the bond so required to be executed.

**Rule 230. (17)** (i) As a precondition to the sanction of Grants-in-aid to the agencies where:

- (a) the recipient body employs more than twenty persons on a regular basis and at least fifty per cent of its recurring expenditure is met from Grants-in-aid from Central Government; and
- (b) the body is a registered society or a co-operative institution and is in receipt of a general purpose annual Grants-in-aid of Rupees twenty lakhs and above from the Consolidated Fund of India;

the Grant sanctioning authority should ensure that a suitable clause is invariably included in the terms and conditions under which the Grants-in-aid are given, to provide for reservation for Scheduled Castes and Scheduled Tribes or OBC in posts and services under such organizations or agencies. The relative provision may be on the following lines :-

" ..... (Name of Institution or Organization etc.) agrees to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India".

- (ii) While sanctioning Grants-in-aid to Institutions or Organisations referred to in (a) above, the Grant sanctioning authority should keep in view the progress made by such Institutions or Organisations in employing Scheduled Castes and Scheduled Tribes or OBC candidates in their services.

**Rule 231 (1) Grants-in-aid to "Voluntary Organisations"** Subject to the following terms and conditions, Grants-in-aid towards administrative expenditure may be sanctioned to voluntary organizations to ensure a certain minimum staff structure and qualified personnel to improve their effectiveness and expand their activities under the following conditions :-

- (i) The Grants-in-aid should not exceed twenty-five per cent. of approved administrative expenditure on pay and allowances of the personnel of the voluntary organisation concerned;
- (ii) Grants-in-aid to meet administrative expenditure to any private institutions other than the voluntary organizations should not ordinarily be sanctioned. In exceptional cases such Grants can be considered for sanction in consultation with Internal Finance Wing.

**Rule 231 (2)** Before a Grant is released, the members of the Executive Committee of the Grantee should be asked to Execute Bonds in a prescribed format binding themselves jointly and severally to:-

- (i) abide by the conditions of the Grants-in-aid by the target dates, if any, specified therein; and
- (ii) not to divert the Grants or entrust execution of the scheme or work concerned to another Institution(s) or Organization(s); and
- (iii) abide by any other conditions specified in the agreement governing the Grants-in-aid.
- (iv) In the event of the Grantee failing to comply with the conditions or committing breach of the conditions of the Bond, the signatories to the Bond shall be jointly and severally liable to refund to the President of India, the whole or a part amount of the Grant with interest at ten per cent. per annum thereon or the sum specified under the Bond. The stamp duty for this Bond shall be borne by the Government.

**Rule 231 (3)** Execution of Bond will not apply to Quasi-Government Institutions, Central Autonomous Organisations and Institutions whose budget is approved by the Government

**Rule 232 General Principles for award of Grants-in-aid for Centrally Sponsored Schemes.** The following principles should be kept in view by Ministries/Departments of the Central Government at the time of designing Centrally Sponsored Schemes for implementation in State Governments or Union Territories and approving and releasing assistance to State Governments or Union Territories for such schemes: -



- (i) Every Centrally Sponsored Scheme should have a time-bound quantifiable and measurable outcome targets with provisions for periodic monitoring, mid-term evaluation and detailed impact studies.
- (ii) The scheme should be designed in consultation with States and Union Territories. States should be delegated adequate powers to change the details of the schemes to suit local conditions, subject to reporting such changes to the concerned Ministry or Department.
- (iii) Where schemes are in operation with similar objectives targeting the same population, the schemes should be converged.
- (iv) To ensure monitoring and effective control over such schemes, the number of schemes should be restricted, so that the gain from the expenditure on such schemes is maximized. The role of the Central Ministries or Departments should be capacity building, inter-sectoral coordination and detailed monitoring.
- (v) The release of funds to State Governments and monitoring further utilisation should be undertaken through PFMS. The Ministries or Departments should establish a mechanism to ensure that the funds earlier released have been effectively utilised and that the data and facts reported by the State Governments or Union Territories relating to physical and financial performance are correct. Before releasing further funds, it should also be ensured that the State Governments or Union Territories have the capacity to actually spend the balance from the previous years and the releases during the current year.
- (vi) The Ministries or Departments should focus attention on the attainment of the objectives and not on expenditure only. A mechanism for avoiding release of large part of funds towards the end of the year should be devised and incorporated in the Scheme design itself.

- (vii) A concurrent monitoring and evaluation mechanism should be built into the Scheme. A periodic review of every Centrally Sponsored Scheme should be undertaken for any required mid-course correction or changes in the scheme design
- (viii) A post-completion review of every Centrally Sponsored Scheme should be undertaken by the State Government(s) or Union Territories implementing the scheme, highlighting the time and cost overruns, if any, and suggestions for formulating and implementing future schemes. A copy of the review should be obtained by the Ministry concerned and kept in view while formulating new Centrally Sponsored Schemes.

**Rule 233 Funding of Sponsored Projects or Schemes.**

- (i) Ministries or Departments of Government sponsor projects or schemes to be undertaken by Universities, Indian Institute of Technology and other similar Autonomous Organisations such as ICAR, CSIR, ICMR etc., the results from which are expected to be in national interest. Normally the entire expenditure on such projects or schemes including capital expenditure, is funded by the Ministry or Department. The funds released for such projects or schemes in one or more installments are not treated as Grants-in-aid in the books of the implementing agency. Apart from the requirement of submission of technical and financial reports on completion of the project or scheme, a stipulation should be made in such cases that the ownership in the physical and intellectual assets created or acquired out of such funds shall vest in the sponsor. While the Project or Scheme is ongoing, the recipients should not treat such assets as their own assets in their Books of Accounts but should disclose their holding and using such assets in the Notes to Accounts specifically.
- (ii) On completion of the Projects or Schemes and the receipt of technical and financial reports, the Ministries/ Departments should decide and



communicate to the implementing agencies whether the assets should be returned, sold or retained by them.

- (iii) If the assets are to be sold, the proceeds therefrom should be credited to the account of the sponsoring Department/Organisation. If the assets are allowed to be retained by the Institution/Organisation, the implementing agency should include the assets at the book value in their own accounts.

**Rule 234 Register of Grants.** A Register of Grants shall be maintained by the sanctioning authority in the format given in Form GFR - 21.

- (i) Columns (i) to (v) of the Register in format at Form GFR - 21 should be filled in simultaneously with the issue of the order sanctioning each Grant. These columns should be attested by any Gazetted Officer nominated for the purpose by the sanctioning authority. The serial number should be recorded on the body of the sanction at the time the item is entered in the Register as under : "Noted at Serial No .....in the Register of Grants".
- (ii) Such a record will guard against the possibility of double payment. Columns (vi) and (vii) should be filled in and attested by the Gazetted Officer concerned as soon as the bill is ready. The bill should then be submitted to the Gazetted Officer nominated to act as Drawing and Disbursing Officer with the register for signing the bill and to the sanctioning authority for giving dated initials in column (viii) of Register. It should also be the duty of the sanctioning authority to verify that the conditions, if any, attached to the Grant have been duly accepted by the Grantee without any reservation and that no other bill for the same purpose has already been paid before. No bill should be signed unless it has been noted in the Register of Grants against the relevant sanction. This will also facilitate watching of payments in instalments, if any, in the case of lump sum sanctions.

- (iii) Information at column (xiii) of the Form GFR-21 above should be used also for regulating the subsequent Grants.

**Rule 235 Accounts of Grantee Institutions.**

Institutions or Organisations receiving Grants should, irrespective of the amount involved, be required to maintain subsidiary accounts of the Government grant and furnish to the Accounts Officer a set of audited statement of accounts. These audited statements of accounts should be required to be furnished after utilization of the Grants-in-aid or whenever called for.

**Rule 236 (1) Audit of Accounts.** The accounts of all Grantee Institutions or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organisation is called upon to do so and a provision to this effect should invariably be incorporated in all orders sanctioning Grants-in-aid.

**Rule 236 (2)**

- (i) The accounts of the Grantee Institution or Organisation shall be audited by the Comptroller and Auditor General of India under Section 14 of the Comptroller and Auditor General of India (Duties, Powers and Conditions of Service) Act, 1971, if the Grants or loans to the institution in a financial year are not less than Rupees twenty-five lakhs and also not less than seventy-five percent of the total expenditure of the Institution. The accounts may also be audited by the Comptroller and Auditor General of India if the Grants or loans in a financial year are not less than Rupees one crore. Where the accounts are so audited by the Comptroller and Auditor General of India in a financial year, he shall continue to audit the accounts for a further period of two years notwithstanding that the conditions outlined above are not fulfilled.
- (ii) Where any Grant and /or loan is given for any specific purpose to any Institution or Organisation or



authority, not being a foreign State or international Body/Organization, the Comptroller and Auditor General is competent under Section 15 (1) of the CAG's (DPC) Act, 1971, to scrutinize the procedures by which the sanctioning authority satisfies itself as to the fulfillment of the conditions subject to which such Grants and/or loans were given and shall, for this purpose, have right of access to the books and accounts of that Institute or Organisation or authority.

**Rule 236 (3)** In all other cases, the Institution or Organisation shall get its accounts audited from Chartered Accountants of its own choice.

**Rule 236 (4)** Where the Comptroller and Auditor General of India is the sole auditor for a local Body or Institution, auditing charges will be payable by the auditee Institution in full unless specifically waived by Government

**Rule 237 Time Schedule for submission of annual accounts.** The dates prescribed for submission of the annual accounts for Audit leading to the issue of Audit Certificate by the Comptroller and Auditor General of India and for submission of annual report and audited accounts to the nodal Ministry for timely submission to the Parliament are listed below:-

- (i) Approved and authenticated annual accounts to be made available by the Autonomous Body to the concerned Audit Office and commencement of audit of annual accounts-30th June
- (ii) Issue of the final SAR in English version with audit certificate to Autonomous Body/ Government concerned -31st October
- (iii) Submission of the Annual Report and Audited Accounts to the Nodal for it to be laid on the Table of the Parliament -31st December

**Rule 238 (1) Utilization Certificates.** In respect of non-recurring Grants to an Institution or Organisation, a certificate of actual utilization of the Grants received for the purpose for which it was sanctioned in Form GFR 12-A, should be insisted upon in the order sanctioning the Grants-in-aid. The Utilization Certificate in respect of Grants referred to in Rule 230 (10) should also disclose whether the specified,

quantified and qualitative targets that should have been reached against the amount utilised, were in fact reached, and if not, the reasons therefor. They should contain an output based performance assessment instead of input based performance assessment. The Utilization Certificate should be submitted within twelve months of the closure of the financial year by the Institution or Organisation concerned. Receipt of such certificate shall be scrutinised by the Ministry or Department concerned. Where such certificate is not received from the Grantee within the prescribed time, the Ministry or Department will be at liberty to blacklist such Institution or Organisation from any future grant, subsidy or other type of financial support from the Government.

**Rule 238 (2)** In respect of recurring Grants, Ministry or Department concerned should release any amount sanctioned for the subsequent financial year only after Utilization Certificate in respect of Grants of preceding financial year is submitted. Release of Grants-in-aid in excess of seventy five per cent of the total amount sanctioned for the subsequent financial year shall be done only after utilisation certificate and the annual audited statement relating to Grants-in-aid released in the preceding year are submitted to the satisfaction of the Ministry/Department concerned. Reports submitted by the Internal Audit parties of the Ministry or Department and Inspection Reports received from Indian Audit and Accounts Department and the performance reports if any received for the third and fourth quarter in the year should also be looked into while sanctioning further Grants.

**Rule 238 (3)** Utilization certificates need not be furnished in cases where the Grants -in -aid / CFA are being made as reimbursement of expenditure already incurred on the basis of duly audited accounts. In such cases the sanction letters should specify clearly that the Utilization Certificates will not be necessary.

**Rule 238 (4)** In respect of Central Autonomous Organisations, the Utilization Certificate shall disclose separately the annual expenditure incurred and the funds given to suppliers of stores and assets, to construction agencies, to staff for (House



Building and Purchase of conveyance) which do not constitute expenditure at that stage but have been met out of Grants and are pending adjustments. These shall be treated as unutilized Grants allowed to be carried forward. While recording the Grants in the subsequent year the amount carried forward shall be taken into account.

**Rule 238** (5) In the case of Private and Voluntary Organizations receiving recurring Grants-in-aid from Rupees ten lakhs to less than Rupees fifty lakhs, all the Ministries or Departments of Government of India should include in their Annual Report a statement showing the quantum of funds provided to each of those organizations and the purpose for which they were utilized, for the information of Parliament. The Annual Reports and accounts of Private and Voluntary Organizations receiving recurring Grants-in-aid to the tune of Rupees fifty lakhs and above should be laid on the Table of the House within nine months of the close of the succeeding financial year of the Grantee Organisations.

**Rule 238** (6) In the case of organizations receiving one-time assistance or non recurring Grants as Grants-in-aid from Rupees ten lakhs to Rupees fifty lakhs, all Ministries or Departments of Government of India should include in their Annual Reports, statements showing the quantum of funds provided to each of these organizations and the purpose for which the funds were utilized, for the information of Parliament. The Annual Reports and Audited Accounts of Private and Voluntary Organizations or societies registered under the Registration of Societies Act, 1860, receiving one-time assistance/non-recurring Grants of Rupees fifty lakhs and above should also be laid on the Table of the House, within nine months of the close of the succeeding financial year of the grantee Organisations.

**Rule 239** **State Government to submit Utilization Certificate for Grants-in-aid relating to Scheme.** When Central Grants are given to State Governments for implementation of Central Scheme, Utilization Certificate in format GFR 12-C may be submitted by the State Government in respect of the Scheme. The

UC should be counter-signed by the Administrative Secretary of the Division regulating the Scheme/Finance Secretary.

**Rule 240** **State Government to submit Utilization Certificate when expenditure incurred through local bodies.** When Central Grants are given to State Governments for expenditure to be incurred by them through local bodies or private institutions, the Utilization Certificates should be furnished by the State Government concerned.

**Rule 241** **Utilisation Certificate in case of Direct Benefit Transfer (DBT) Scheme.** In case of the schemes covered under Direct Benefit Transfers (DBT), where the fund flow is directly from the Central Government to the beneficiaries, the intimation from the bank/National Payments Corporation of India (Aadhaar Payment Bridge) regarding deposit of the funds in the beneficiaries' bank accounts, generated as per procedure prescribed by the Controller General of Accounts, may be treated as a Utilization Certificate. The Ministry/Department releasing the Grant should keep proper record and accounts relating to such direct releases under DBT to the beneficiaries bank accounts.

**Rule 242** (1) **Performance parameters.** Performance parameters should be clearly set to allow better oversight of the Autonomous Body.

**Rule 242** (2) **Submission of Achievement-cum-Performance Reports.**

- i. The Grantee Institutions or Organisations should be required to submit performance cum achievement reports soon after the end of the financial year, and in any case, not later than six months after the close of the financial year.
- ii. In regard to non-recurring Grants such as those meant for celebration of anniversaries, conduct of special tours and maintenance Grants for education, performance-cum-achievement reports need not be obtained.
- iii. In the case of recurring Grants, submission of achievement-cum-performance reports should usually be insisted upon in all cases. However, in the case of Grants-in-aid not





exceeding Rupees twenty five lakhs, the sanctioning authority may dispense with the submission of performance-cum-achievement reports and should, in that event, refer to the Utilization Certificates and other information available with it to decide whether or not the Grants-in-aid should continue to be given.

- iv. (a) The Annual Reports and Audited Statements of Accounts of Autonomous Organisations are required to be laid on the table of the Parliament. In such cases, the Ministries or Departments of Central Government need not incorporate performance-cum-achievement reports in the Annual Reports.
- (b) In all other cases, if the Grants-in-aid exceed Rupees ten lakhs but less than rupees fifty lakhs, the Ministry or Departments of the Central Government should include a statement in their Annual Report of their own assessment of the achievements or performance of the Institution or Organisations.
- (c) In cases where the Grants-in-aid are for Rupees fifty lakhs or more, the Ministry or Departments of the Central Government should include in their Annual Report a review of the utilization of the Grants-in-aid individually, specifying in detail the achievements vis-à-vis the amount spent, the purpose and destination of Grants.
- v. Where the accounts of the Grantee Institutions or Organisations are audited by the CAG of India copies of the performance-cum-achievement reports, furnished by the grantee Institution to the Administrative Ministry or sanctioning authority should be made available to audit. In other cases copies of such reports, received by the Departments of the Central Government or the sanctioning authority should be made available to audit when local audit of such Grants-in-aid in the Administrative Ministry or Department

or sanctioning authority is conducted or when it is called for by the Accountant General.

**Rule 243 Discretionary Grants.** When an allotment for Discretionary Grants is placed at the disposal of a particular authority, the expenditure from such Grants shall be regulated by general or special orders of the competent authority specifying the object for which the Grants can be made and any other condition(s) that shall apply to them. Such Discretionary Grants must be non-recurring and not involve any future commitment.

**Rule 244 Other Grants.** Grants, subventions, etc., including Grants to States other than those dealt with in the foregoing rules, shall be made under special orders of Government.

- Rule 245**
- (i) Regulation of recurring Grants-in-aid for Government employees' welfare :—
    - a. Grants-in-aid for provision of amenities or of recreational or welfare facilities to the staff of the offices of the Government are regulated under orders of the Ministry of Home Affairs issued from time to time. The admissibility of the Grants-in-aid for the welfare of the employees of the Government should be regulated in the following manner :—
      - i. The Grant in aid will be admissible on the basis of the total strength borne on the regular strength of an organization, i.e., Ministry or Department, etc., and its Attached and Subordinate Offices and such statutory bodies whose budget forms part of Consolidated Fund of India, irrespective of the fact whether any individual is a member of the staff club, etc., or not. However, Grant-in-aid in respect of Gazetted Officers will be admissible only to that Ministry or Department or Office where membership of recreation club is open to such officers.

Staff paid from contingencies, work-charged staff etc., will not be taken into calculation for this purpose. Staff eligible for similar concession under some other rule or statutory provision, e.g., industrial workers will also not be covered by these orders.





- ii) Amounts of Grants-in-aid. (a) The rate of the Grant-in-aid will be Rupees fifty per head per annum. In addition to this, an additional Grant-in-aid up to Rupees twenty-five per head per annum to match the subscriptions collected during the previous financial year by the existing staff clubs will be admissible. In the case of staff clubs which are started during the financial year in which Grant-in-aid is to be given, an additional matching grants-in-aid up to Rupees twenty-five per head per annum, to match the subscription collected by such clubs up to the date on which the proposal for the Grant is mooted, may be sanctioned. The total strength of the eligible staff will be that existing on the thirty-first March of the previous financial year or that on the date on which proposal for Grant is mooted in the case of new staff clubs above rates, as revised from time to time will apply.
- iii) An illustrative list of items on which expenditure can be incurred out of Grants-in-aid sanctioned by Government for provision of amenities is given below:
  - i) Articles of sports – Outdoor and indoor games equipment
  - ii) Cost of uniforms, etc., supplied to teams of players.
  - iii) Magazines and periodicals.
  - iv) Entry fee for tournaments
  - v) Hiring of playgrounds
  - vi) Hiring and repair for furniture, etc.,
  - vii) Purchase of furniture.
  - viii) Conveyance expenses incurred locally.
  - ix) Entertainments.
  - x) Prizes.
  - xi) Film shows.
  - xii) Hiring of accommodation for Club/Association, etc.
  - xiii) Cultural, Sports and Physical development programme(s).
  - xiv) Inter-Ministerial meets.
  - xv) Inter-Departmental meets
2. A maximum one time Grant of Rupees fifty thousand may be sanctioned for setting up of a Recreation Club.
3. Grants-in-aid to the Ministry or Departments of the Central Government and their Attached and Subordinate Offices will be allocated by the concerned Ministry or Department on receipt of formal requests in the prescribed manner. For the purposes of these Grants-in-aid, the Departments of the Central Government and their attached and Subordinate Offices will be treated as a single unit. It will be the responsibility of that Ministry or Department to distribute the amount further to its Attached and Subordinate Offices and to their different clubs. The accounts of these clubs for the preceding year duly audited by an Internal Auditor should be obtained immediately after the close of the financial year in any case by the thirtieth April by the Ministry or Department before allocating funds for the next financial year.
4. Grants-in-aid for the provision of amenities or recreational or welfare facilities to the staff of the Indian Audit and Accounts Department are regulated by separate orders

## II. LOANS

**Rule 246** The rules in this Section shall be observed by all authorities competent to sanction loans of public moneys to State Governments, Local Administrations of Union Territories, local bodies, foreign Government on specific recommendation of State Government, Government institutions and other Government bodies.

**Rule 247 (1) Powers and Procedure for sanction of loans.** The powers of Departments of the Central Government and Administrators as well as other subordinate authorities to sanction loans are given in the Delegation of Financial Powers Rules and other general and special orders issued under that rule.

**Rule 247 (2) Nodal Division in Ministry of Finance.** The Budget Division, Department of Economic Affairs, Ministry of Finance shall be the nodal division in the Ministry of Finance to finalise terms and conditions of loans by the Central Government.



**Rule 248** All sanctions of loans issued by a Department of Central Government or an Administrator of Union Territory in exercise of their powers under the relevant provision of Delegation of Financial Powers Rules shall include a certificate to the effect that the same is in accordance with the rules or principles prescribed by the Ministry of Finance and that the rate of interest on the loan and the period of repayment thereof have been fixed with the approval of that Ministry.

**Rule 249** (1) All sanctions to loans shall be subject to the Delegation of Financial Powers Rules and shall specify the terms and conditions relating to them including the terms and conditions of their repayment and payment of interest.

**Rule 249** (2) Borrowers shall be required to adhere strictly to the terms settled for the loans made to them. Modifications of these terms can be made subsequently only for very special reasons and after seeking prior concurrence of Ministry of Finance.

**Rule 250** (1) **General conditions for regulating all loans :** All loans shall be regulated by the following general conditions :-

- (i) A specific term shall be fixed which shall be as short as possible, within which each loan has to be fully repaid with interest due. The terms may, in very special cases, extend to thirty years.
- (ii) The term is to be calculated from the date on which the loan is completely drawn or declared by competent authority to be closed.
- (iii) The repayment of loans shall be effected by instalments, which shall ordinarily be fixed on annual basis, and with due dates of payment being specially prescribed.
- (iv) Any instalment paid before its due date may be taken entirely towards the principal, provided it is accompanied by payment toward interest due up-to-date of actual payment of instalment; if not, the amount of the instalment shall first be adjusted towards the interest due for preceding and current periods and the balance, if any, shall alone be applied towards the principal. If, however, the payment of the instalment is in advance of the due

date by fourteen days or less, interest for the full period (half-year or full year, as the case may be) shall be payable.

- (v) When the due date of repayment of any instalment of principal or interest falls on a Sunday or a public holiday, the payment made on the next working day following the Sunday or the public holiday, shall be regarded as payment on the due date and no interest shall be charged for the day or days by which the recovery is so postponed.

**Exception.** If an instalment of principal or interest is payable on the thirty-first March of a year, and if that day happens to be a public holiday the recoveries shall be made on the immediately preceding working day. In case, the due date for the repayment of a loan or payment of interest falls on a holiday observed by the Reserve Bank of India, at which the effective credit of the same is to take place this shall be shifted to the next working day, except when the due date is thirty-first March.

- (vi) The payment of interest and the repayment of principal of a loan are always to be made with reference to the calendar date on which the loan in question is paid. However, where payment of instalment is in advance of the due date by fourteen days or less, interest for the full year or half year (depending on the prescribed mode of recovery) shall be charged thereon. In the case of a loan sanctioned by the Central Government to a State Government on or before thirty-first March of a year, which is adjusted in the books of the Reserve Bank of India in the month of April but in the accounts of the previous year the instalment of principal and/or interest shall fall due for payment on the thirty-first March of the succeeding year and not on the anniversaries of the calendar date in April on which the inter-Governmental adjustment was carried out.
- (vii) The date of drawal of a loan by a State Government shall be determined as indicated below –



- (a) When monetary settlement is involved—Normally the calendar date on which amount of a loan is actually credited to the account of the State Government by the Reserve Bank is to be treated as the date of its drawal.

This position shall also hold in cases where adjustment in accounts is made in one month but date of adjustment in the books of the Reserve Bank of India falls in the following calendar month. The calendar date on which the credit is actually afforded to the State Government in the books of the Reserve Bank of India in such cases shall be treated as the date of its drawal.

**Exception.** An exception to this arrangement is in the case of loans for which credit is afforded to the recipient State Government in the month of April by the Reserve Bank of India but in the accounts of previous year. In such cases, a loan shall be deemed to have been paid on the thirty-first March of the financial year in the accounts for which the payment is adjusted. Consequently, payment of annual interest as also repayment of instalment of principal in respect of such loans shall fall due on the thirty-first March of the succeeding years and not on the anniversaries of the calendar date in April on which inter-Governmental adjustment on account of such loans was carried out in the books of the Reserve Bank of India.

- (b) Where no monetary settlement is involved.—In regard to cases where adjustment in the books of the Accounts Offices are only involved and actual credit through the Reserve Bank of India is not necessary, the last date of the month of account in which the adjustment is effected shall be taken as the date of drawal of loan for purposes of repayment and charging interest.

(viii) In order to avoid any default in the

payment of loan, the Principal Accounts Officers or Pay and Accounts Officers who maintain the detailed accounts of loans, shall issue notices in Form GFR-19 to the loanees (other than State and Union Territory Governments) i.e. Public Sector Undertakings, statutory bodies and Government institutions etc., say, a month in advance of the due date for the repayment of any instalment of the principal and/ or interest thereon. However, omission to give notice does not give the loanees any claim to exemption from the consequences of default in the repayment of the principal and/or interest thereon.

**Rule 250** (2) Before sanctioning a loan to private Institutions the lending Ministry or Department shall examine the financial health and managerial ability of such institutes.

**Rule 250** (3) (i) Before considering a loan application from parties other than State Governments and Local Administrations of Union Territories, the following requirements shall be fulfilled:-

- (a) it shall be seen that there is adequate budget provision;
- (b) it shall be seen whether the grant of the loan is in accordance with approved Government policy and accepted patterns of assistance.

(ii) Before approving the loan, the applicant shall be asked to furnish the following materials and information:-

- (a) copies of profit and loss (or income and expenditure) accounts and balance sheets for the last 3 years;
- (b) the main sources of income and how the loan is proposed to be repaid within the stipulated period;
- (c) the security proposed to be offered for the loan together with a valuation of the security offered by an independent authority and a certificate to the effect that the asset offered as security is not already encumbered.
- (d) Details of loan or loans taken from the Central Government or a State



Government in the past, indicating amount, purpose, rate of interest, stipulated period of repayment, date of original loan and amount outstanding against the loan(s) on the date of the application and the assets, if any, given as security;

- (e) a complete list of all other loans, outstanding on the date of application and the assets given as security against them;
- (f) the purpose for which the loan is proposed to be utilized and the economics of the scheme.

**NOTE.** Where the loan is to be given to Government institution on the strength of a guarantee given by the trust managing it, similar information should be called for in respect of the trust also.

- (iii) On receipt of the information called for as mentioned in (ii) above, confidential enquiries shall be made from the other Departments of the Central Government or State Governments from which the party has taken loans, to judge the performance in regard to the previous loans. If the replies indicate that the performance was not satisfactory, the loan shall be refused. It must be analysed that the financial position of the party is sound. It shall also be ensured that the security offered is adequate and its value is at least thirty-three and one-third per cent. above the amount of the loan. If possible, an independent valuation of the security offered shall be obtained. The applicant for the loan must satisfy both the criteria for financial soundness and adequacy of security before a loan is sanctioned.
- (iv) In the case of Institutions which receive Grants-in-aid from Government to meet a part of their deficits and the balance is met by the State Government and the Trustees of Management, it shall be ensured—
  - (a) that in computing the deficit for purpose of the Grant-in-aid, the income from the scheme, if any, earmarked for servicing the loan and the instalment of repayment of the loan and interest (if any) is

not included;

- (b) that as far as possible, the scheme for which the loan is given is self-financing and does not throw an additional burden on the general income of the institutions, e.g., in the case of hostels for colleges that the rents proposed are adequate;
- (c) the Institution produces an undertaking from the State Government or the Management that any shortfall towards repayment of the loan and interest shall be made good by it. In the latter case the financial position of the Management (Trust) shall be investigated after calling for information on the lines of Rule 250. (3) (i) above.
- (v) Ministries or Departments of the Central Government shall lay down a procedure for periodical review of the old loans so that prompt action can be taken, if necessary, for enforcing regular payments.

**Rule 250** (4) The detailed procedure to be followed in connection with the Grant of loans to local bodies shall be regulated by the provisions of the Local Authorities Loans Act and other special Acts and by rules made thereunder.

**Rule 251** (1) **Interest on Loans.**

Interest shall be charged at the rate prescribed by the Government for any particular loan or for the class of loans concerned.

**Rule 251** (2) A loan shall bear interest for the day of payment but not for the day of repayment. Interest for any shorter period than a complete year shall be calculated as follows, unless any other method of calculation is prescribed in any particular case or class of cases.

$$\frac{\text{Number of days} \times \text{Yearly rate of interest}}{365 \text{ (366 in case of a leap year)}}$$

**Rule 252** (1) **Procedure to be followed for recovery of loans and interest thereon and Grant of moratorium.** The instructions issued by the Ministry of Finance from time to time prescribing the interest rates and other terms and conditions of loans to State and Union Territory Governments, Local Bodies,



Statutory Corporations, financial, industrial and commercial undertakings in the Public Sector shall be strictly followed.

**Rule 252** (2) The recovery of loans shall ordinarily be effected in annual equal instalments of principal together with interest due on the outstanding amount of principal from time to time. The repayment and interest instalments may be rounded off to the nearest rupee subject to final adjustment at the time of payment of last instalment of principal and/or interest.

**Rule 252** (3) A suitable period of moratorium towards repayment might be agreed to in individual cases having regard to the projects for which the loans are to be utilized. However, no moratorium shall ordinarily be allowed in respect of interest payable on loans.

**Rule 253** (1) **Loans to State and Union Territory Governments, Local Bodies, Statutory Corporations, Public Sector Undertakings, etc.** Loans shall ordinarily be sanctioned at the normal rates of interest prescribed by Government for the particular category of the loanee. In cases where the normal rate is considered too high and a concession is justified, it shall take the form of direct subsidy debitable to the grants of the sanctioning authority. In such cases interest shall, however, be paid by the borrower in the first instance at the normal rates and subsidy shall be claimed separately.

**Rule 253** (2) **Agreements and other documentation.**

- (i) In the case of loans to parties other than State Governments and wholly owned Government Companies, a loan agreement specifying all the terms and conditions shall be executed. A clause shall invariably be inserted in all such agreements enabling Government at any time to call for accounts of the applicant relating to any accounting year with power to depute an officer specially authorized for this purpose to inspect the applicant's books, if necessary.
- (ii) A written undertaking in Form GFR 15 shall be obtained from a wholly Government-owned company at the time of sanctioning the loan. The sanction shall specifically state that such an undertaking would be

obtained from the loanee before the drawal of the amount of loan and a certificate that the undertaking has been obtained, shall be recorded by the Drawing Officer of the office of the sanctioning authority in the bill for drawal of the amount of loan. The sanction in respect of loans to other organizations, where a formal agreement is required to be executed, shall also be issued in the same manner.

**Rule 254** **Undertaking to be obtained from wholly-owned Government Companies.**

In the case of loans to wholly-owned Government Companies, a written undertaking to the effect that the fixed assets of the company shall not be hypothecated without prior approval of the Government shall be obtained in Form GFR 32. No stamp duty need be paid on these written undertakings.

**Rule 255** Loans to parties other than State Governments, wholly owned Government Companies and Local Administration of Union Territories shall be sanctioned only against adequate security. The security to be taken shall ordinarily be at least thirty-three and one-third per cent. more than the amount of the loan. However, a competent authority may accept security of less value for adequate reasons to be recorded.

**Rule 256** (1) **Submission of Utilization Certificate, Reports, Statements, etc.** In cases in which conditions are attached to the utilization of loan, either in the shape of the specification of the particular objects on or the time within which the money must be spent or otherwise, the authority competent to sanction the loan shall be primarily responsible for certifying to the Accounts Officer where necessary, the fulfilment of the conditions attaching to the loan, unless there is any special rule or order to the contrary. The loans sanctioned to the State Governments and the Local Administration of Union Territories shall not, however, come within the purview of this rule.

**Rule 256** (2)

- (i) The certificate referred to in Rule 256 (1) above shall be furnished as in Form GFR 12-B and at such intervals as may





be agreed to between the Audit Officer and/or the Accounts Officer, as the case may be, and the Ministry or Department concerned. Before recording the certificate, the certifying officer shall take steps to satisfy himself that the conditions, on which the loan was sanctioned, have been or are being fulfilled. For this purpose, he may require the submission to him at suitable intervals of such reports, statements, etc., which shall establish the utilization of loan for the purpose for which it was sanctioned. The loanee institution may also be required to furnish a certificate from its Auditors that the conditions attaching to the loan have been or are being fulfilled. The certificate shall give details of the breaches, if any, of those conditions.

- (ii) A Certificate of Utilization of the loan shall be furnished to the Accounts Officer in every case of loan made for specific purposes, even if of the any conditions is not specifically attached to the grant. Such certificates are not, however, necessary in cases where loans are sanctioned not for any specific purpose or object but take the shape of a temporary financial aid or where the loans have been sanctioned to the Public Sector Undertakings intended for financing of their approved capital outlays. The repayment of loan, however, has to be watched in the usual manner.
- (iii) In respect of loans the detailed accounts of which are maintained in the Audit Offices, the authorities sanctioning the loan shall furnish the Utilization Certificate in respect of each individual case.
- (iv) Where the detailed accounts of the loans are maintained by the Departmental authorities, a consolidated Utilization Certificate shall be furnished to Audit by the Ministries/Departments sanctioning the loans to Institutions/Organisations for the total amount of the loans disbursed during each year for different purposes including the loans sanctioned by their subordinate officers. This certificate shall not cover the loans to individuals for which

Utilization Certificates need not be furnished to the Accounts Officer. The Certificate shall indicate the year-wise and object-wise break-up of loans disbursed and the loans for which Utilizations Certificates are furnished. The utilization certificate shall also show the loans disbursed separately for each sub-head of account to facilitate verification by the Accounts Officer.

- (v) The Utilization Certificates shall be furnished within a 'reasonable time' after the loan is paid to the institutions. The Department of Central Government shall prescribe, in consultation with the Ministry of Finance, target dates for the submission of the Utilization Certificates by the Department concerned to the Accounts Officer. The target date shall, as far as possible, be not later than eighteen months from the date of sanction of the loan.
- (vi) In respect of loans, the detailed accounts of which are maintained by Departmental Officers and where consolidated Utilization Certificates are to be furnished to Accounts Officer, the period of 18 months shall be reckoned from the expiry of the financial year in which the loans are disbursed. The consolidated Utilization Certificates in respect of such loans paid each year shall, therefore, be furnished not later than September of the second succeeding financial year.
- (vii) The due dates for submission of the Utilization Certificates shall be specified in the letter of sanction for loan. The target date as specified shall be rigidly enforced and extension shall only be allowed in very exceptional circumstances in consultation with the Ministry of Finance under intimation to the Audit Officer and/or the Accounts Officer, as the case may be. No further loans shall be sanctioned unless the sanctioning authorities are satisfied about the proper utilization of the earlier loan sanctioned to an Institution, etc.

**Rule 257 Instalments of Loans.** When a loan of public money is taken out in instalments, each instalment of the loan so drawn shall





be treated as a separate loan for purposes of repayment of principal and payment of interest thereon except where the various instalments drawn during a financial year are, for this purpose, allowed to be consolidated into a single loan as at the end of that particular financial year. In the latter event, simple interest at the prescribed rate on the various loan instalments from the date of drawal of each instalment to the date of their consolidation shall be separately payable by the borrower. Repayment of each loan or the consolidated loan, as the case may be, and the payment of interest thereon shall be arranged by the borrower annually on or before the anniversary date of drawal or consolidation of the loan in such number of instalments as the sanctioning authority may prescribe. The sanctioning authority may allow, in deserving cases a moratorium towards repayment of principal but not for the payment of interest. Should it appear that there is an undue delay on the part of the debtor in taking out the last instalment of a loan the authority sanctioning the loan may at any time declare that loan closed, and order repayment of capital to begin. The Accounts Officer shall bring to notice any delay that appears to him to require this remedy and he shall take this step whether or not there are any dates fixed for taking of instalments.

**NOTE 1.** These instructions are applicable mutatis mutandis to loans, the repayments of which are made by other than annual instalments.

**NOTE 2.** It must be remembered that the calculation fixing the amount of equal periodical instalments, by which a loan is repaid with interest, presupposes punctual payment of the instalment and that, if any instalment is not punctually repaid, the interest amount shall need to be recalculated.

**Rule 258 (1) Defaults in Payment.** The loan sanctions in favour of State or Union Territory Governments and the loan sanctions or undertakings or agreements in case of wholly Government owned companies or Public Sector Undertakings shall invariably include provision for the levy of penal interest on overdue instalments of interest or principal and interest. The loan sanctions and

agreements in all other cases shall invariably stipulate a higher rate of interest and provide for lower rate of interest in the case of punctual payments. The penal or the higher rate of interest, as the case may be, shall not, except under special orders of Government, be less than two and half per cent per annum above the normal rate of interest prescribed by Government from time to time for the loans advanced.

**Rule 258 (2)** Any default in the payment of interest upon a loan or in the repayment of principal, shall be promptly reported by the Accounts Officer, to the authority which sanctioned the loan. The responsibility of the Accounts Officer, under this rule refers only to the loans, the detailed accounts for which are kept by him.

**Rule 258 (3)** Procedure to be followed in case of defaults in repayment of interest free loans or loans sanctioned at concessional rates of interest :

- (i) In the case of grant of interest free loans e.g., loans to technical educational institutions for construction of hostels, prompt repayment shall be made a condition for the grant of interest free loans. The sanction letter in such cases shall provide that in the event of any default in repayment, interest at rates prescribed by Government from time to time will be chargeable on the loans.
- (ii) In the case of loans sanctioned at concessional rates of interest the difference between the normal rate and concessional rate), shall be made conditional upon prompt repayments of principal and payment of interest thereon by the entity concerned.
- (iii) In the cases where in addition to interest free loans, subsidy is also provided to meet running expenses the sanction letter shall provide that in the event of any default in repayment, the defaulted dues would be recovered out of the subsidy payable.

**Rule 258 (4)** On receipt of a report of default referred to in sub-rule (2) above, the authority concerned shall immediately take steps to get the default remedied and also consider enforcement of penal or higher rate of interest on the overdue amounts. Where the sanctioning authority



is satisfied, having regard to the circumstances of the case, that penal or higher interest need not be recovered, the borrower shall ordinarily be asked to pay interest, at the normal rate prescribed in the loan sanction, on the overdue amount (of principal and/or interest) from the due date of payment up to the date of settlement of the default. The recovery of additional interest shall not be waived except in special circumstances or where the period of defaults is very short, e.g., a few days.

**Rule 259 Irrecoverable Loans.** A competent authority, after prior approval of the Ministry of Finance may remit or write off any loans owing to their irrecoverability or otherwise.

**Rule 260 Accounts and Control.** Subject to such general or specific directions as may be given by the Comptroller and Auditor-General in this behalf, detailed accounts of loans to Institutions and Organizations, etc., shall be maintained by the Accounts Officer who shall watch their recovery and see that the conditions attached to each loan are fulfilled.

**Rule 261** The instructions contained in this Chapter relating to cost of audit of Grants-in-aid are applicable Mutatis mutandis in the case of loans as well.

**Rule 262 Annual Returns.** Each Principal Accounts Officer shall submit to the concerned Ministry or Department of Government, a statement in Form GFR 13 showing the details of outstanding Central Loans borne on his books as on thirty-first March each year. This statement shall be submitted not later than the following thirtieth September and shall indicate the aggregate of outstanding balance of loans, details of defaults, if any, in repayment of principal and/ or interest and the earliest period to which the default pertains, against each State or Union Territory Government, foreign Government, Railway or Department of Posts funds, Central Public Sector and other Government Institutions etc. Where, however, detailed accounts are not required to be maintained by the Accounts Office, the statement shall contain departmental authority-wise aggregate balances of outstanding loans.

**Rule 263 (1) Review of Annual Statements with a**

**view to enforce repayments of the principal and interest due.**

The Administrative Ministries shall keep watch over the receipt of the Annual Statements in Form GFR 20 regularly from the Accounts Officer and conduct a close review of the cases of defaults in repayment of the instalments of principal and/or interest due, as revealed from these Annual Statements and take suitable measures for enforcing repayments of the principal and interest due. If these statements are not received in time, the Accounts Officer shall be reminded promptly. To facilitate a proper review of the position of outstanding loans, the Ministries may also arrange to maintain centrally a list of all sanctions issued relating to loans advanced to State Governments and other entities.

**Rule 263 (2) Submission of Annual Assessment Report.**

A copy of Annual Assessment Report on status of all outstanding loans, including timely and accurate payment of principal and interest due, shall be submitted by the Financial Advisor of the Administrative Ministry concerned to the Ministry of Finance by 30th June of each financial year.



## BUDGETING AND ACCOUNTING OF EXTERNALLY AIDED PROJECTS

### **Rule 264 (1) Implementation of Projects or Schemes through external aid receipt.**

The projects or schemes of the Government of India to be implemented through external aid receipt from multilateral or bilateral funding agencies shall be shown in the budget proposals approved annually by the Parliament.

### **Rule 264 (2) The external aid comes from bilateral and multilateral sources as follows:**

- (i) Bilateral funding to finance specific project(s) by the funding agency(ies) under Government to Government agreement(s); and,
- (ii) Multi-lateral funding by Multi-Lateral Funding Agencies, such as the World Bank under agreement(s) between the borrower (Government of India) and the Multilateral Funding Agency(ies).

### **Rule 264 (3) The Department of Economic Affairs, Ministry of Finance as the nodal agency shall execute the legal agreement for loans or grants from external funding Agency(ies). However, grant agreements for Technical Assistance can also be executed by the beneficiary Ministries or Departments with the approval of Ministry of Finance, Department of Economic Affairs.**

### **Rule 264 (4) The Office of the Controller of Aid Accounts and Audit (CAAA) in the Department of Economic Affairs, Ministry of Finance shall be responsible for implementing the financial covenants laid down in the agreement(s) executed by Department(s) of Government of India and the External Funding Agency(ies). A copy of all such agreements shall be sent to the Office of Controller, Aid Accounts and Audit, Department of Economic Affairs for this purpose.**

### **Rule 265 Currency of external aid.**

The external aid shall flow from the Funding Agency in foreign currency or Indian Rupees and shall be received by the Reserve Bank of India, Mumbai which shall remit the rupee equivalent to the account of Controller, Aid Accounts and Audit, Department of Economic Affairs at Reserve Bank of India, New Delhi. The remittances shall be accounted as external loan/Grant receipts in the Consolidated Fund of India.

### **Rule 266 Accounting of Cash grants.** Cash grants, as distinct from commodity grant or other assistance in kind received from external sources shall be accounted for only by the office of Controller of Aid Accounts and Audit, Department of Economic Affairs.

### **Rule 267 Procedure for withdrawal.** The concerned administrative Ministries or Departments shall be required to make provision of funds under the relevant head of account as 'External Aided Component' in their Detailed Demands for Grants for release of external aid amounts during the year to the respective Project Implementing Agencies. There are mainly two procedures laid down for withdrawal of funds from the loan or grant account:

### **Rule 267 (1) Reimbursement procedure.** Under the reimbursement procedure the Project Implementing Agency shall initially spend or incur expenditure and subsequently claim the amount from the Funding Agency through the office of the Controller, Aid Accounts. The remittances shall be accounted as External Loan or Grant receipt in the Consolidated Fund of India. There are two ways of dealing with the reimbursement claims as given below:

#### **(i) Reimbursement through Special Account (Revolving Fund Scheme).**

Under the Revolving Fund Scheme, the Funding Agency disburses the estimated expenditure of four months for the projects as initial advance to Government of India under the respective loan or credit or grant agreement. Office of Controller of Aid Accounts & Audit withdraws the amount specified in the agreement as initial deposit from the Funding Agency, by sending a simple withdrawal application in the prescribed format after the loan is declared effective. Such initial deposit designated in US Dollars is received by Reserve Bank of India, Mumbai and Rupee equivalent shall be passed on to Controller of Aid Accounts & Audit through Government Foreign Transaction (GFT) advice. However, Reserve Bank of India, Mumbai shall maintain a loan wise proforma account for liquidation of advance



received from Funding Agency. Office of Controller of Aid Accounts and Audit, on receipt of reimbursement claims from Project Implementing Agency, shall send an advice to Reserve Bank of India, Mumbai advising it to debit the Special Account with the US Dollars equivalent of the amount of the eligible claim. Office of Controller, Aid Accounts and Audit shall consolidate all such claims and submit to Funding Agency for replenishment of Special Account. This shall be accompanied by a statement of debits and credits made during the period by Reserve Bank of India, Mumbai and supporting documents received from the Project Implementing Agency.

- (ii) **Reimbursement outside Special Account:** Under the reimbursement procedure (where there is no provision in the loan or credit agreement for the Special Account or the balance in the Special Account is 'Nil') office of Controller of Aid Accounts and Audit shall send the reimbursement claims received from the Project Implementing Agency direct to the Funding Agency after checking the eligibility aspect. The Funding Agency shall disburse the eligible expenditure to the borrower's account with Reserve Bank of India, Mumbai, who shall pass on the Rupee equivalent to the account of the Controller of Aid Accounts and Audit at Reserve Bank of India, New Delhi by issue of Government Foreign Transaction (GFT) advice.

**Rule 267 (2) Direct Payment Procedure.** Under this procedure adopted in some cases the Funding Agency, on the request of the Project Implementing Agency (received through Controller of Aid Accounts and Audit), duly supported by relevant documents, shall directly pay to the contractor or supplier or consultant from the loan or credit or grant account. The Funding Agency, after satisfying itself as to the eligibility of the expenditure etc. remits the amount directly to the account of the payees as per the payment instructions. The Funding Agency apprises the office of Controller of Aid Accounts

and Audit and the Project Implementing Agency of the particulars of the payment made. Office of Controller of Aid Accounts and Audit shall work out the rupee equivalent of the foreign currency payment. This rupee equivalent shall be recovered by office of Controller of Aid Accounts and Audit from the Project Implementing Agencies or State Governments which have availed of the Direct Payment Procedure.

**Note :** In the case of Central Projects, Centrally Sponsored Projects and Public Sector or Financial Institutions, the concerned administrative Ministry or Department shall release the fund to the Project Implementing Agency with the instruction to deposit rupee equivalent of the foreign currency that have been availed of under Direct Payment Procedure by them to the account of Controller of Aid Accounts and Audit at Reserve Bank of India, New Delhi or Branch of SBI so authorised.

**Rule 268**

**(1) Fund Flow for State Projects financed from external aid source.** The respective Departments of the State Government shall provide in the Budget such expenditure proposed to be incurred under Plan Schemes during the financial year by the Project Implementing Agencies. These shall be in respect of State projects to be financed from external aid sources both under loan or credit and grants and eligible for disbursement from Funding Agency under Reimbursement or Direct Payment Procedure.

**Rule 268**

**(2) Fund flow for State Projects under Reimbursement Procedure.** The disbursements under the "Reimbursement through Special Account" and "Reimbursement out side Special Account", referred to in Rule 267 (i), shall be consolidated at periodical intervals under each loan or credit State-wise by the office of the Controller of Aid Accounts and Audit. The details of the same shall be sent to Plan Finance Division of the Department of Expenditure in the Ministry of Finance for release of funds to the respective State Governments. The Plan Finance division of Department of Expenditure in the Ministry of Finance shall issue sanctions for actual release of the disbursement for each State. A copy of such sanction shall be endorsed



to the Finance Department of the concerned State Government for information. The office of the Chief Controller of Accounts, Ministry of Finance shall issue the Inter-Government (IG) Advice to Reserve Bank of India, Central Accounts Section, Nagpur, for effecting the release to the concerned State Governments. The account of the State Government maintained at Reserve Bank of India, Central Accounts Section, Nagpur, shall be credited with the amount so released, thus, completing the cycle of funds from the expenditure incurred from the Budget of the State till receipt of funds of such expenditure from Government of India to the State.

**Rule 268 (3) Fund flow for State Projects under Direct Payment Procedure.**

Under Direct Payment Procedure the claims shall be processed as mentioned in Rule 267 (ii). Office of Controller of Aid Accounts and Audit shall work out the Rupee equivalent of such Direct Payment based on Reserve Bank of India buying rate applicable for the value date on which the Direct Payment was made. Office of Controller of Aid Accounts and Audit shall consolidate such disbursement in Rupees, and send a list of such disbursement State-wise to Plan Finance Division of Department of Expenditure at periodical intervals requesting them to release the amount to the State concerned notionally and recover the same for credit to Controller of Aid Accounts and Audit's account. The Plan Finance Division shall issue a separate sanction for the amount to be released to the State concerned and for simultaneous recovery and credit back to the account of the Controller of Aid Accounts and Audit. A copy of such sanction shall also be endorsed to the Finance Department of the State Government concerned. The office of the Chief Controller of Accounts, Ministry of Finance shall advise Reserve Bank of India, Central Accounts Section, Nagpur, for making necessary adjustment entries in the accounts of the State concerned under intimation to the Finance Department of the State and Controller of Aid Accounts and Audit. This completes the cycle of funds flow in the case of direct payment claims.

**Rule 269 Fund flow for Central or Central sponsored Projects.** Under the Central or Central sponsored project financed from external aid, whether loan or grant, the process of disbursement of such claims by the Funding Agency shall be the same as explained in Rule 267. The respective Ministry or Department get EAP funds under a separate budget head when Demands for Grants are passed in the Parliament and advised by the Budget Division of the Ministry of Finance. The funds shall be released to Project Implementing Agency within six weeks by the administrative Ministry or Department with reference to expenditure incurred by the Project Implementing Agency.

**Rule 270 Fund flow for Public Sector or Financial Institutions.** When the Project Implementing Agency under Loan or Credit Agreement is a Public Sector or Financial Institution or Autonomous Body and Government of India is the Borrower, the Administrative Ministry concerned shall provide in its budget funds required to be passed on to the Project Implementing Agency for the expenditure incurred by the latter under the externally aided project. The Project Implementing Agency shall submit claims under reimbursement or direct payment procedures to the office of the Controller of Aid Accounts and Audit, Department of Economic Affairs. The disbursement of the claims by the Funding Agency shall be similar as explained in Rule 267. The concerned administrative Ministry or Department releases the amount to Project Implementing Agency based on the certification of disbursement received from the Funding Agency as certified by the office of the Controller of Aid Accounts and Audit.

However, where the loan is negotiated directly by a particular Public Sector Undertaking or Financial Institution, the funds from the Funding Agency shall flow direct to the borrowing entity.

**Rule 271 Repayment of loans.** Office of Controller of Aid Accounts and Audit shall be responsible for prompt repayment of principal on the due date as per the agreements. The remittance of foreign currency is arranged through designated Public Sector Commercial Banks and Reserve Bank of India. The Rupee





equivalent and the amount of foreign currency remitted shall be intimated by the Banks to Controller of Aid Accounts and Audit. The Rupee equivalent of the foreign currency remitted is credited to the respective Banks' account maintained at Reserve Bank of India, New Delhi, by debit to Controller of Aid Accounts and Audit's account as per standing arrangement. On the receipt of the advice from Reserve Bank of India, New Delhi, Controller of Aid Accounts and Audit shall debit the concerned loan account in the Consolidated Fund of India. The repayment of loans shall be classified as charged expenditure. In cases where the funds from externally aided Projects are further passed on as loans, the recovery of the loan along with interest shall be the responsibility of the respective administrative Ministry or Department.

**Rule 272 Interest Payments.** Interest on external loans shall be paid on the due date as stipulated in the loan or credit agreements against the budget provision made for this purpose. Interest payments shall be accounted for as debit under the Major Head '2049-Interest Payments' for external loans in the Consolidated Fund of India. The procedure for transfer of amount shall be the same as followed in the case of repayment of loans, referred to in Rule 271 above. The interest payment shall be classified as charged expenditure.

**Rule 273 Accounting of exchange variation.** The exchange variation in respect of foreign loans that have been fully repaid shall be adjusted written off to "8680-Miscellaneous Government Accounts - Write off in terms of Government Accounting Rules and the procedures prescribed by CGA in consultation with CAG.

**Rule 274 Aid in form of materials and equipment.** In cases where materials, equipment and other commodities, without involving any cash inflow, are received as aid from foreign countries, the Funding Agency issues an advice to the concerned Ministry or Department giving details of materials supplied along with the value thereof. The Ministry or Department concerned in turn shall intimate the details to the office of the Controller of Aid Accounts and Audit,

Department of Economic Affairs for making the budget provision in regard to aid material or equipment.

**Note :** Refer to Para 4.8.1 of Civil Accounts Manual and Note (1) below Major Head '3606-Aid Materials and Equipments' of List of Major and Minor Heads of Account of Union and States for detail procedure of adjustment of value of the materials etc. received





## GOVERNMENT GUARANTEES

**Rule 275 (1) Power to Give and Limits on Government Guarantees.** The power of the Union Government to give guarantees emanates from and is subject to such limits as may be fixed in terms of Article 292 of the Constitution of India, the Fiscal Responsibility and Budget Management Act and Rules framed there under as amended from time to time.

**Rule 275 (2)** In terms of the Fiscal Responsibility and Budget Management Act and Rules framed thereunder, the Central Government shall not give guarantees aggregating the amount prescribed therein.

**Rule 275 (3)** Powers to grant Government of India Guarantee, including those on external borrowings, vests with the Budget Division, Department of Economic Affairs (DEA).

**Rule 276 Objectives of Government Guarantees:** The sovereign guarantee is normally extended for the purpose of achieving the following objectives:

- (i) To improve viability of projects or activities undertaken by central entities with significant social and economic benefits;
- (ii) To enable central public sector companies to raise resources at lower interest charges or on more favourable terms;
- (iii) To fulfil the requirement in cases where sovereign guarantee is a precondition for concessional loans from bilateral/ multilateral agencies to central public sector companies/agencies.

**Rule 277 Guidelines for grant of Government of India Guarantee:** The following guidelines should be followed by the Ministries or Departments of the Government of India for recommending guarantee or counter guarantee.—

- (i) A proposal for guarantee by Government must be justified in public interest such as in the case of borrowings by central public sector institutions for approved development purposes or borrowings by central public sector undertakings from Banks for working capital and other purposes.
- (ii) The Administrative Ministry/ Department or the credit Divisions of Department of Economic Affairs shall

examine the proposal in consultation with the Financial Adviser in the same manner as a proposal for loan. While examining the proposal the following considerations shall be kept in view :-

- (a) Public interest which the guarantee is expected to serve.
  - (b) Credit worthiness of the borrower to ensure that no undue risk is involved.
  - (c) Terms of the borrowing shall take into account the yields as applicable on Government paper of similar maturity.
  - (d) The conditions prescribed in the guarantee order/agreement in order to ensure continued credit worthiness of the borrower.
- (iii) Risk associated with assumption of a new contingent liability/guarantee proposal, including the probability of future payouts should be thoroughly assessed by the concerned Administrative Ministry/Department or Credit Divisions of Department of Economic Affairs recommending the proposal. Such assessment should ideally be entrusted to an independent unit and should be undertaken even when it has already been decided by a higher authority to provide guarantees. The assessment should reveal an accurate picture of the financial condition of the entity to be guaranteed; risks associated with implementation of the project/ scheme, etc. This information would be useful to estimate the funds needed to meet associated contingent liabilities if the need should arise, in current or future budgets.
- (iv) After examination in the concerned Ministry or Department or Credit Division of DEA, all proposals for extending guarantees shall be referred to Budget Division, DEA for approval. No guarantees shall be given without the approval of Budget Division, DEA
- (v) With a view to enable the Ministry of Finance to examine cases of Government of India guarantees and extension thereto, all Ministries or Departments should furnish to that Ministry, data of certain operational



parameters of the Public Sector Undertaking or Entity, as given in GFR 26. In case the accounts of the Central Public Sector Undertaking or Entity have been audited by the Comptroller & Auditor General of India, the effect of the comments of the Comptroller & Auditor General of India on the Central Public Sector Undertaking's profitability should be brought out. Further, where BIFR targets have been assigned or Cabinet directions issued to the Company, the actuals vis-à-vis targets for the preceding three years should be indicated. The data should be furnished in the Form GFR 26 along with the proposal for guarantee.

- (vi) Guarantees shall normally be restricted to the repayment of principal and normal interest component of the loan. Other risks shall not form part of the guarantee.
- (vii) Government guarantees will be extended to only central public sector companies/agencies.
- (viii) Government guarantees shall not be provided to the private sector.
- (ix) Government guarantees should normally not be extended for external commercial borrowings.
- (x) Government guarantees may be given on all soft loan components of the bilateral/multilateral aid. However, guarantee shall not be normally given for the commercial loan components of such aid.
- (xi) Government of India guarantee will not be given in cases of grants. However, if the donor insists on ensuring performance, the same may be listed as a negotiating condition for getting the grant.
- (xii) Appropriate conditions, may be made by Government while giving the guarantee e.g. period of guarantee, levy of fee to cover risk, representation for Government on the Board of Management, Mortgage or lien on the assets, submission to Government of periodical reports and accounts, right to get the accounts audited on behalf of Government etc. Even if fee, representation and mortgage are not

considered necessary, the right to verify the continued credit-worthiness of the borrower should be ensured.

- (xiii) Guarantees may not be proposed for pursuing low priority objectives or programmes. Proposal for grant of guarantee as an off-budget support should also be examined comprehensively by the proposing Ministry/Department against other alternative forms of support which may be more appropriate and cost-effective. For example, in the case of provision of credit guarantees to enterprises that continually incur losses as a result of government's pricing policy, budgetary subsidies or direct government loans may be a more effective and less costly option.
- (xiv) Guarantees may not be proposed in respect of Central Public Sector Enterprises whose strong financial credentials and high credit rating would indicate inherent ability to directly raise the required resources without the support of government guarantee.

**Rule 278 Borrowings from multilateral agencies by Central Public Sector Undertakings.**

- (i) All borrowings from the multilateral agencies by Central Public Sector Undertakings would be direct (without Government of India's intermediation) on the terms as agreed mutually between the borrower and the lender and approved by the Government of India. However, where such terms involve guarantee of Government of India, prior approval of the Budget Division of the Ministry of Finance may be obtained.
- (ii) The borrowing should relate to the Projects approved by the prescribed competent authority of the Central Government.
- (iii) Wherever guarantee is to be given by Government of India, the borrower shall enter into an agreement with the Government of India for the payment of guarantee fee on the principal amount of the loan drawn and loan outstanding from time to time.
- (iv) The Government of India Guarantee would only cover the principal amount



and the normal interest. All other risks including the exchange rate risk would be shared between the borrower and lender as per terms and conditions prescribed in the loan agreement.

**Rule 279 (1) Levy of Guarantee Fees.** The rates of fee on guarantees would be as notified by the Budget Division, Department of Economic Affairs, Ministry of Finance from time to time. The rates of guarantee fee are given in Appendix - 12. Ministries or Departments shall levy the prescribed fee in respect of all cases. The fees are also to be levied in respect of non-fund based borrowings or credits (viz. letters of credit, Bank guarantees etc.). In case of any doubt with regard to the categorisation of any particular undertaking or organization or the nature of borrowing for the purpose of levy of fee, the matter may be referred to the Budget Division for clarification. The Ministries or Departments should also take adequate steps to ensure prompt recovery of the prescribed fees.

**Rule 279 (2)** The guarantee fee should be levied before the guarantee is given and thereafter on first April every year. The rate of guarantee fee is to be applied on the amount outstanding at the beginning of the guarantee year.

**Rule 279 (3)** Where the guarantee fee is not paid on the due date, fee should be charged at double the normal rates for the period of default.

**Rule 279 (4)** The Government may guarantee no more than 80% of the project loan, depending on the conditions imposed by the lender. This would incentivize the lenders to make proper analysis of the project, credit worthiness of the borrower(s), and build strategies for risk management. In such cases, bankers/ lenders may be asked to share the risk by bearing a minimum of 20% of the net loss associated with any default. The arrangement would ensure that the lenders undertake a more rigorous assessment of the risk exposure.

Provided further that in certain exceptional circumstances, the Government of India may guarantee 100% of the financing where the organisation concerned is discharging some function on behalf of the Government of India.

## **Rule 280 Execution of Government Guarantees.**

- (i) Once the guarantee is approved by Ministry of Finance, the guarantees will be executed and monitored by the Administrative Ministries concerned, who are also required to report the status in this regard on an annual basis till they are invoked or are obliterated. The following guidelines need to be kept in view while issuing guarantees-
  - a) The obligations of the borrower to service the loan and the guarantee, and the monitoring of the utilization of the guaranteed loans, and adherence to the terms and conditions of the guarantee by the Borrower shall be ensured by the Administrative Ministry/ Department through a back-to-back agreement with the borrower which may be drawn up and implemented to the satisfaction of the Administrative Ministry concerned. For this purpose, necessary records to monitor the guarantee, including servicing of guarantee fee shall be maintained by the Line Ministries/ Departments concerned.
  - b) Administrative Ministry should ensure that there are no inconsistencies between the guarantee approval given by the Ministry of Finance and the guarantee agreement signed by it with the borrower. The obligations enforced by the Government as guarantor would be duly factored in.
  - c) Deviations/modifications/ amendments on the main conditions of the guarantee, particularly with reference to the rate of interest on the loan to be guaranteed and obligations of the Government to be covered, should not be referred in a routine manner to Budget Division for clarification/ change. The Administrative Ministry concerned shall make out a separate case, fully justifying the need for considering any proposed modifications/ amendments, after thorough



scrutiny of the request of the borrower for the same, before placing these proposals before the Budget Division for a final decision.

- d) In respect of bilateral and multilateral credit, Standard format of Guarantee of the lending institutions may be examined with a view that the same are not in contradiction with the conditions of sovereign guarantee prescribed in this chapter, before signing by the Administrative Ministry/ Department. The guarantee agreement may also not omit any conditions as brought out in this Chapter. New conditions or covenants, and differences, if any, shall be referred to Budget Division of the Department of Economic Affairs (DEA) for concurrence.
- e) Guarantee proposals approved by the Budget Division shall have to be executed in the same financial year. If the guarantee/ loan agreement is not signed in the same financial year as that of the approval of the guarantee proposal, the guarantee proposal shall have to be submitted again.
- f) The guarantee shall hold only for the specific purpose agreed to by the Budget Division.
- g) Guarantee given by Government of India shall be non-transferrable and would cease to exist in case the ownership of the entity is transferred from Government of India, unless the Guarantee is re-confirmed by the Budget Division.
- (ii) The Financial Advisers in Ministry/ Department will perform the responsibility of maintenance of records and reporting including for the Finance Accounts and the IGAS, through the office of Controller/Chief Controller of Accounts.

**Rule 281 (1) Review of Guarantees.** All Ministries or Departments shall ensure that all guarantees are reviewed every year. The

monitoring or review undertaken should examine whether the borrower is discharging repayment obligations or interest obligations as per terms of the loan agreement, whether the repaying capacity for the loan and guarantee amount is imposed in any manner, and whether all covenants and conditions are being religiously followed. The Financial Advisers of the Ministries or Departments should undertake these reviews. A copy of the review report including on timely and correct payment of guarantee fees, shall be forwarded by the Finance Advisor to the Budget Division by 30th April every year for the previous financial year.

**Rule 281 (2)** The Financial Adviser of the Ministries or Departments would be responsible for ensuring that the annual reviews are carried out by the Ministries or Departments concerned. They shall also ensure that a register of guarantees in Form GFR 25 is maintained :-

- (i) to keep a record of guarantees;
- (ii) to retain information required from time to time in respect of guarantees;
- (iii) to keep record of the annual reviews to see that these are carried out regularly;
- (iv) to keep record of levy and recovery of guarantee fee;
- (v) to send data as contained in Form GFR 25, duly updated every year to the Budget Division in the Ministry of Finance, Department of Economic Affairs by tenth of April.

**Rule 281 (3)** In respect of guarantees issued by the Ministry of Finance for external loans, the respective credit divisions of Department of Economic Affairs shall conduct an annual review in consultation with the Financial Adviser (DEA). For this purpose the Financial Adviser (DEA) shall ensure the maintenance of the required registers, as well as ensure that the annual reviews are carried out by the concerned credit divisions, and report forwarded to the Budget Division in Form GFR 25. In cases, where the guarantees on external loans are issued by the concerned administrative Ministry, that Ministry would be responsible for conducting the review.

**Rule 281 (4) Classification of guarantees.** For the purpose of record keeping, guarantees shall be classified as under:-



- (i) guarantees given to the RBI, other banks and industrial and financial institutions for repayment of principal and payment of interest, cash credit facility, financing seasonal agricultural operations and/or providing working capital to companies, corporations, cooperative societies and banks;
- (ii) guarantees given for repayment of share capital, payment of minimum annual dividend and repayment of bonds or loans, debentures issued or raised by the statutory corporations and central public sector undertakings;
- (iii) guarantees given in pursuance of agreements entered into by the Government of India with international financial institutions, foreign lending agencies, foreign governments, contractors, suppliers, consultants etc., towards repayment of principal, interest and/ or commitment charges on loans etc., and /or for payment against supplies of material and equipment;
- (iv) counter guarantees to banks in consideration of the banks having issued letters of credit or authority to foreign suppliers for supplies made or services rendered.
- (v) guarantees given to Railways for due and punctual payment of dues by Central Government companies or corporation;
- (vi) Others guarantees not covered under above five classes.

**Rule 282 Accounting for Guarantees.** In order to ensure greater transparency in its fiscal operations in the public interest, Rule 6 of the FRBM Rules, 2004 requires government to publish a disclosure statement on guarantees given by government, at the time of presenting the annual financial statement and demands for grants. This statement covers, inter alia, details regarding the class and number of guarantees, amounts guaranteed, outstanding, invocations, guarantee fee payable and other material details.

- (i) The statement is to be compiled by the Administrative Ministries/ Departments and submitted to Controller General of Accounts, for

onward submission to Budget Division. Based upon the inputs, a statement of Guarantees given by the Central Government is depicted as an annexure in the Receipt Budget.

- (ii) While furnishing the Statement of guarantees to the Ministry of Finance, the Administrative Ministries or Departments should ensure and certify that the amounts shown tally with the total figures in the statement to be included in the Detailed Demands for grants.
- (iii) While furnishing the summary statements, the Ministries or Departments should also certify that the information tallies with the material furnished to the Controller General of Accounts for the purpose of inclusion in the Finance Accounts of the relevant year and is compliant with Indian Government Accounting Standard- 1 (IGAS-1) relating to Government Guarantees.

**Rule 283 (1) Invocation of Guarantee.** A Guarantee Redemption Fund (GRF) has been established in the Public Account of India for redemption of guarantees given to CPSEs, Financial Institutions, etc., by the Central Government whenever such guarantees are invoked. The funding to the Guarantee Redemption Fund is to be done through budgetary appropriations, as considered appropriate, under the head 'Transfer to Guarantee Redemption Fund' through the Demands for Grants of the Department of Economic Affairs.

**Rule 283 (2)** The Administrative Ministries/ Departments should inform any case of impending/likely invocation, well in advance, to the Budget Division, along with the proposed corrective measures.

**Rule 283 (3)** In the event of invocation of a guarantee, the obligation may be discharged by sanctioning loan to the borrowing entity equal to the amount of guarantee outstanding with the approval of Budget Division, Ministry of Finance. However, any payment on this account will finally be charged to the Guarantee Redemption Fund maintained in the Public Accounts.





## MISCELLANEOUS SUBJECTS

### I. ESTABLISHMENT

**Rule 284 (1) Proposal for additions to Establishment.**

All proposals for additions to establishment shall be submitted to sanctioning authority in accordance with the instructions contained in Rule 11 of the Delegation of Financial Powers Rules and other such instructions which may be prescribed in this regard.

**Rule 284 (2) All proposals for creation of new posts or a revision in an existing establishment should contain, inter alia:-**

- (i) the present cost of the establishment in existence;
- (ii) cost implications of the change proposed giving details of pay and allowances of post(s) proposed;
- (iii) expenditure in respect of claim to pension or gratuity or other retirement benefits that may arise in consequence of the proposals;
- (iv) details on how the expenditure is proposed to be met including proposed re-appropriations.

**Rule 284 (3) Continuation of an existing post beyond the specified duration will be with explicit approval of Ministry of Finance, based on functional justification.**

**Rule 284 (4) All proposals for increase in emoluments for an existing post(s) shall be referred to the Ministry of Finance for approval.**

**Rule 285 All service matters from entry to exit, including leave, transfer, promotion, performance appraisal should be maintained in a digitised format.**

**Rule 286 (1) Transfer of Charge.** A report of transfer of a Gazetted Government servant duly made in Form GFR 16 and signed both by the relieved and relieving Government servants, shall be sent on the same day to the Head of the Department or other Controlling Officers concerned except in the following types of cases in respect of which report of transfer of charge need not be signed both by the relieving and relieved Government servants simultaneously and may be sent independently:-

- (i) Where a Gazetted Government servant assumes charge of a newly

created or vacant post or relinquishes charge of a post which has been abolished.

- (ii) Where a Gazetted government servant vacates a post for a short period and no formal appointment or officiating arrangement is made in his place.
- (iii) Where due to administrative exigencies a government servant is required to move to another post relinquishing his post against local arrangement.

**Rule 286 (2) In cases in which the transfer of charge involves assumption of responsibility for cash, stores, etc., the following instructions should be observed :-**

- (i) The Cash Book or imprest account should be closed on the date of transfer and a note recorded in it over the signatures of both the relieved and the relieving Government servants, showing the cash and imprest balances and the number of unused cheques/receipt books, if any, made over and received by them respectively.
- (ii) The relieving Government servant should bring to notice anything irregular or objectionable in the conduct of business that may have come officially to his notice to the incoming officer.
- (iii) In the case of any sudden casualty occurring or any emergent necessity arising for a Government servant to relinquish his charge, the next senior officer of the department present shall take charge. When the person who takes charge is not a Gazetted Government servant, he must at once report the circumstances to his nearest departmental superior and obtain orders as to the cash in hand, if any.

**Rule 286 (3) The additional procedure to be followed by an Audit Officer or Accounts Officer, etc., in making over charge of his functions in connection with the Charitable Endowments and other Trust Accounts is laid down in Appendix – 8.**

**Rule 287 Date of Birth.** Every person newly appointed to a service or a post under





Government shall, at the time of the appointment, declare the date of birth by the Christian era with confirmatory documentary evidence such as a Matriculation Certificate, where prescribed qualification for appointment is Matriculation or above. In other cases Municipal Birth Certificate or Certificate from the recognised school last attended shall be treated as a valid document.

**Rule 288 (1) Service Book.** Detailed Rules for maintenance of Service Books are contained in SRs. Service Books maintained in the establishment should be verified every year by the Head of Office who, after satisfying himself that the services of Government servants concerned are correctly recorded in each Service Book shall record the following certificate "Service verified from .....(the date record from which the verification is made) ..... upto .....(date)....."

**Rule 288 (2)** The service book of a government servant shall be maintained in duplicate. First copy shall be retained and maintained by the Head of the Office and the second copy should be given to the government servant for safe custody as indicated below :-

- (i) To the existing employees - within six months of the date on which these rules become effective, if not already given.
- (ii) To new appointees - within one month of the date of appointment.

**Rule 288 (3)** In January each year the Government servant shall handover his copy of the Service Book to his office for updation. The office shall update and return it to the Government Servant within thirty days of its receipt.

**Rule 288 (4)** In case the Government servants' copy is lost by the government servant, it shall be replaced on payment of a sum of Rs. 500/-.

**Rule 288 (5)** All Service Books should be digitised for easy reference and to avoid problems in case of loss of Service Books.

**Rule 289 Retrospective claim due from date of sanction.** In the case of sanction accorded with retrospective effect the charge does not become due before it is sanctioned. In such cases the time-limit specified in Rule

296 (1) should be reckoned from the date of sanction and not from the date on which the sanction takes effect.

**Rule 290 Due date of T. A. claim.** Travelling allowance claim of a government servant shall fall due for payment on the date succeeding the date of completion of the journey. He shall submit the travelling allowance claim within sixty days of its becoming due failing which it shall stand forfeited.

**Rule 291** Reckoning the date in case of T.A. claims by retired Government servants appearing in a Court of Law for defending himself.— Retired Government servants become eligible for reimbursement of Travelling expenses in respect of travel(s) for appearing in court of law for defending himself only when the judgement relating to his honorable acquittal is pronounced by the court. In such cases the date of pronouncements of the judgement shall be the reference point for submission and reimbursement of his T.A claim.

**Rule 292 Due date of Leave Travel Concession claim.** Leave Travel Concession claim of a government servant shall fall due for payment on the date succeeding the date of completion of return journey. The time limit for submission of the claims shall be as under :-

- (i) In case advance drawn : Within thirty days of the due date.
- (ii) In case advance not drawn : Within sixty days of the due date.

In case of (i) above if the claim is not submitted within one month of the due date, the amount of advance shall be recovered but the Government employee shall be allowed to submit the claim as under (ii) above. In case of failure to submit the claim in both the cases within the prescribed time lines, the claim shall stand forfeited.

**Rule 293 Due date of Over Time Allowance claims.** A claim for overtime allowance shall fall due for payment on first day of the month following the month to which the overtime allowance relates. The claim shall stand forfeited if not submitted within 60 days of the due date.

**Rule 294 Due date of a withheld increment.** In the absence of any specific order withholding an ordinary increment under



FR 24 before the date on which it falls due for payment, the period of one year should be counted from the date on which it falls due and not with reference to the date on which the Increment Certificate is signed by the competent authority. Even where an increment is withheld, the time-limit should be reckoned from the date on which it falls due after taking into account the period for which it is withheld.

**Rule 295 (1) Arrear Claims.** Any arrear claim of a Government servant which is preferred within two years of its becoming due shall be settled by the Drawing and Disbursing Officer or Accounts Officer, as the case may be, after usual checks.

**Rule 295 (2)** For the purpose of the above provisions, the date on which the claim is presented at the office of disbursement should be considered to be the date on which it is preferred.

**Rule 295 (3)**

- (i) A claim of a government servant which has been allowed to remain in abeyance for a period exceeding two years, should be investigated by the Head of the Department concerned. If the Head of Department is satisfied about the genuineness of the claim on the basis of the supporting documents and there are valid reasons for the delay in preferring the claims, the claims should be paid by the Drawing and Disbursing Officer or Accounts Officer, as the case may be, after usual checks.
- (ii) A Head of Department may delegate the powers, conferred on him by sub rule (i) above to the subordinate authority competent to appoint the Government servant by whom the claim is made.

**Rule 296 (1) Procedure for dealing with time-barred claims.**

Even a time barred claim of a Government servant, shall be entertained by the concerned authority provided that the concerned authority is satisfied that the claimant was prevented from submitting his claim within the prescribed time limit on account of causes and circumstance beyond his control.

**Rule 296 (2)** A time barred claim referred to in Rule 296 (1) shall be paid with the express

sanction of the Government issued with the previous consent of the Internal Finance Wing of the Ministry or Department concerned.

**Rule 297 Time barred claims of persons not in Government service.** The provisions of Rule 289 to Rule 296 shall apply mutatis mutandis to arrear claims preferred against Government by persons not in Government service.

**Rule 298 Retrospective sanctions.** Retrospective effect shall not be given by competent authorities to sanctions relating to revision of pay or grant of concessions to Government servants, except in very special circumstances with the previous consent of the Ministry of Finance.

**Rule 299 Currency of sanction of Provident Fund advance/withdrawal.** A sanction to an advance or a non-refundable part withdrawal from Provident Fund shall, unless it is specifically renewed, lapse on the expiry of a period of three month. This will, however, not apply to withdrawals effected in instalments. In such cases the sanction accorded for non-refundable withdrawals from Provident Fund will remain valid up to a particular date to be specified by the sanctioning authority in the sanction order itself.

## **II. REFUND OF REVENUE**

**Rule 300 Sanctions of refunds of revenue.** All sanctions to refunds of revenue shall be regulated by the orders of an Administrator or of the departmental authority, as the case may be, according to the provisions of the rules and orders contained in the departmental manuals etc.

**Rule 301 (1) Communication of refund sanctions to audit.** The sanction to a refund of revenue may either be given on the bill itself or quoted therein and a certified copy of the same attached to the bill in the latter case.

**Rule 301 (2) Suitable note of refund to be made in original Cash Book entry and other documents.** Before a refund of revenue is made, the original demand or realization, as the case may be, must be linked and a reference to the refund should be recorded against the original entry in the Cash Book



or other documents so as to make the entertainment of a double or erroneous claim impossible.

**Rule 301 (3) Remission of revenue before collection is not refund.** Remissions of revenue allowed before collection are to be treated as reduction of demands and not as refunds.

**Rule 301 (4) Refunds not regarded as expenditure for allotment.** Refunds of revenues are not regarded as expenditure for purposes of grants or appropriation.

**Rule 301 (5) Competent authority in case of credits wrongly classified.** In cases where revenue is credited to a wrong head of account or credited wrongly under some misapprehension, the authority competent to order refund of revenue shall, in such cases, be the authority to whom the original receipts correctly pertain.

**Rule 302 Compensation for accidental loss of property.** No compensation for accidental loss of property shall be paid to an officer except with the approval of the Ministry of Finance. Compensation will not ordinarily be granted to an officer for any loss to his property which is caused by floods, cyclone, earthquake or any other natural calamity or which is due to an ordinary accident, which may occur to any citizen, for example, loss by theft or as a result of a railway accident or fire etc. The mere fact that at the time of the accident, the Government servant is technically on duty or is living in Government quarters in which he is forced to reside for the performance of his duties will not be considered as a sufficient ground for the grant of compensation.

### III. DEBT AND MISCELLANEOUS OBLIGATIONS OF GOVERNMENT

**Rule 303 Public Debt.** The public debt raised by government by issue of securities shall be managed by the Reserve Bank. The Reserve Bank shall also manage securities created and issued under any other law or rule having the force of law, provided such law or rule provides specifically for their management by the Reserve Bank.

**Rule 304 (1) Provident Funds.** The procedure relating to the recovery of, subscriptions to

and withdrawals from, the Provident Funds established under accordance with the provisions of the respective Provident Fund Rules. Following instructions should be carefully observed by the Head of the Offices for correct preparation of the Provident Fund schedules:-

- (i) A complete list of subscribers to each fund should be maintained in each disbursing office in the form of the schedule.
- (ii) Each new subscriber should be brought on this list and any subsequent changes resulting from his transfer or in the rate of subscription etc. clearly indicated in the schedule.
- (iii) When a subscriber dies, quits service or is transferred to another office, full particulars should be duly recorded in the list.
- (iv) In the case of transfer of a subscriber to another office, the necessary note of transfer should be made in the list of both the offices.
- (v) From this list the monthly schedule to be appended to the pay bill should be prepared and tallied with recoveries made before the submission of the bill for payment.

Similar provisions shall also be made towards subscribers to New Pension System(NPS).

**Rule 304 (2) Crediting of Interest.** The deposit accounts of these funds on the Government book will be credited with interest at such rates and at such intervals as may be prescribed by Ministry of Finance in each case.

**Rule 305 (1) Maintenance of a register for recovery of Postal Life Insurance Premia.** All drawing officers should maintain in Form (GFR 20) record of Postal Life Insurance policy (PLI) holders.

**Rule 305 (2)** The register should be kept upto date, the names of the policy holders should be noted in alphabetical order according to surnames, leaving sufficient space between two entries to enable newcomers names being inserted in the right place.

- (i) A separate entry should be made in the register for each policy in the case of a policy holder having more than one policy.



- (ii) On receipt of an intimation from the Director, Postal Life Insurance, Kolkata, about the issue of a policy in favour of a subscriber authorizing the Drawing Officer to commence recovery from pay, or on receipt of a Last Pay Certificate in respect of the subscriber transferred from another office, the Drawing Officer should make a note of the particulars of the policy in the register. The name of the office from which the subscriber has been transferred should invariably be noted in the remarks column. Wherever a subscriber is transferred to another office or his policy is discharged, his name should be scored out from the register giving necessary remarks.
- (iii) After the preparation of the monthly pay bill, the amount of recovery on account of PLI premium shown in the bill should be posted in the monthly column in the register with proper reference to the bills or the vouchers. The fact of excess or non-recovery should be briefly noted in the remarks column. Extracts should be attached to the relevant bills in support of the recoveries. While taking extracts it should be seen that the names of those insurants from whom recoveries were made in previous months but no recoveries have been made during the current month either on account of transfer or discharge of that policy or on account of leave salary being not drawn or the official being on leave without pay, should be included in the current month's schedule and necessary remarks noted against their names.
- (iv) Similarly, the remarks 'New Policy' or Transferred from..... Office should be given in the schedule against the names of insurant entered for the first time in current month. Reasons for short or excess recovery should be noted briefly in the remarks column. In short, schedule of Postal Life Insurance recoveries to be attached to the bills, would be a record not only of those from whom the recovery has actually been affected but also of those from whom

recovery was being affected previously but has not been affected.

#### **IV. SECURITY DEPOSITS**

##### **Rule 306 (1) Furnishing of security by Government servants handling cash.**

Subject to any general or special instructions prescribed by Government in this behalf, every Government servant, who actually handles cash or stores shall be required to furnish security, for such amount and in such form as Central Government or an Administrator may prescribe according to circumstances and local conditions in each case, and to execute a security bond setting forth the conditions under which Government will hold the security and may ultimately refund or appropriate it.

**Rule 306 (2)** The amount of security to be obtained from a Government servant shall be determined on the basis of actual cash handled which shall not include account payee cheques and drafts.

**Rule 306 (3)** Security should be furnished in the form of a Fidelity Bond in GFR 17, the security bond should be executed in Form GFR 14. The Administration shall see that the government servant pays the premia necessary to keep the Bond alive, for which the government servant shall submit premium receipt in time. If the government servant fails to submit the premium receipt he shall not be allowed to perform the duties of his post and he shall be dealt with in accordance with the terms of his appointment.

**Rule 306 (4)** A Government servant who is officiating against the post of another cash or store handling Government servant shall be required to furnish the full amount of the security prescribed for the post. The Ministry or Department of Central Government, Administrators and the Comptroller and Auditor General in respect of persons serving in Indian Audit and Accounts Department may, however, exempt a Government servant officiating in such a short-term vacancy from furnishing security if the circumstances warrant such exemption provided that -

- (i) they are satisfied that there is no risk involved;



- (ii) such exemption is granted only in the case of a permanent Government servant; and
- (iii) the period of officiating arrangement does not exceed four months.

**Rule 307** Notwithstanding anything contained in **Rule 275**, security need not be furnished in cases of –

- (a) Government servants who are entrusted with the custody of stores, which in the opinion of the competent authority are not considerable.
- (b) Government servants, who are entrusted with the custody of office furniture, stationery and other articles required for office management, if the Head of Office is satisfied about the safeguards against loss through pilferage.
- (c) Librarian and Library Staff.
- (d) Drivers of Government vehicles.

**Rule 308** **Retention of Security.** A security deposit taken from Government servant shall be retained for at least six months from the date he vacates his post, but a security bond shall be retained permanently or until it is certain there is no further necessity for keeping it.

## V. TRANSFER OF LAND AND BUILDINGS

**Rule 309** Save as otherwise provided in any law, rule or order relating to the transfer of Government land, no land belonging to the Government or any of its bodies, including autonomous bodies, PSUs, etc. shall be sold without previous sanction of the Government.

**Rule 310** **(1) Transfer of Land.** Transfer of land from a Union Territory to a Central Government Department (i.e. Ministry or Department of the Union Government including Defence, Railways, and Posts and Telegraphs) or vice versa shall be on 'no profit no loss' basis.

**Rule 310** **(2)** Transfer of land from one Department of the Government (as defined in Rule 309) to another shall be on 'no profit no loss' basis.  
'No profit no loss' as indicated at rules 310(1) and 310(2) above does not necessarily mean transfer being effected with 'zero cost'. Transfer can be on the

basis of mutually agreeable terms and conditions or in exchange for equal value land or payment of value of land or cost of acquisition.

**Rule 310** **(3)** Transfer of buildings and superstructures on land shall be treated similar to transfer of land. Transfer of buildings and superstructures on land vide above shall be at the present day cost minus depreciation of these structure(s) standing on the land. Valuation for this purpose shall be obtained from the Central Public Works Department at the time of transfer.

**Rule 310** **(4)** The allotment of land to, and recovery of cost of buildings from the Public Sector Undertakings shall be at 'market value' as defined in paragraph - 2 of Appendix - 7.

**Rule 310** **(5)** The transfer of land and building between the Union and State Governments shall be regulated by the provisions of Articles 294, 295, 298 and 299 of the Constitution and subsidiary instructions issued by the Union Government which are reproduced as Appendix - 7.

## VI. CHARITABLE ENDOWMENTS AND OTHER TRUSTS

**Rule 311** Detailed instructions relating to Charitable Endowments and other Trusts are embodied in Appendix -8.

## VII. LOCAL BODIES

**Rule 312** **(1) Financial arrangements between Central Government and Local Bodies.** Unless any one of the following arrangements is authorized by specific orders of Government, a local body will be required to pay, in advance, the estimated amount of charges to be incurred or cost of services to be rendered, by Government on account of the fund:-

- (i) payments made by Government are debited to the balances of the deposits of the local fund with government; or
- (ii) payments are made as advances from public funds in the first instance pending recovery from the local funds.

**Rule 312** **(2)** Notwithstanding the provision contained in Rule 281 (1) in case of





emergency such as epidemics pre-payment will not be insisted upon from local bodies for supply of medicines from Medical Stores Depots of the Ministry of Health.

**Rule 313** Any amount or loan not paid on due date to Government by a local body, may be adjusted from any non-statutory grant sanctioned for payment to it.

**Rule 314 Taxes etc. collected by Government on behalf of Local Bodies.** Proceeds of taxes, fines or other revenues levied or collected by Government for or on behalf of local bodies shall not be appropriated direct to a local fund without passing them through the Consolidated Fund unless expressly authorised by law.

**Rule 315 Payments to Local Bodies.** Subject to provision of relevant act and rules, payments to local bodies in respect of revenue and other moneys raised or received by Government on their behalf will be made in such manner and on such date, as may be authorized by general or special orders of Government.

**Rule 316 Audit of Account of Local Bodies.** Subject to the provisions of any law made under Article 149 of the Constitution, the accounts of local bodies, other non-Government bodies, or institutions will be audited by the Indian Audit and Accounts Department under such terms and conditions as may be agreed upon between the Government and the Comptroller and Auditor General of India.

**Rule 317 Audit Fees.** Audit fees on the basis of daily rates prescribed by Government in consultation with the Comptroller and Auditor General of India from time to time shall be charged by the Indian Audit and Accounts Department for the audit of local and other non-Government funds, excluding funds for the audit of which the rates of fees recoverable are prescribed by law or by rules having the force of law.

Provided that nothing contained in this rule shall be held to override any special instructions of Government exempting any particular local body or institution wholly or partially from the payment of audit fees.

**Rule 318** In the case of Government Companies, the recovery of the cost of Supplementary Audit conducted under Section 143(6) of Companies Act, 2013 as amended from

time to time, should be waived in those cases where the audit is done by the Comptroller and Auditor General through his own departmental staff but should be enforced in cases where the Comptroller and Auditor General employs professional auditors for the Supplementary Audit.

**Rule 319** Financial transactions between Government and local bodies shall be rounded off to the nearest Rupee.

## VIII. MAINTENANCE OF RECORDS

**Rule 320 (1) Destruction of Records.** Subject to any general or special rules or orders applicable to particular departments as prescribed in their departmental manuals, no Government record connected with accounts shall be destroyed except in accordance with the provisions of Appendix -9.

**Rule 320 (2)** All the records prescribed for retention in Appendix - 9, if maintained in electronic form should mandatorily have a back up and adhere strictly to the retention period and the prescribed formats. The responsibility for verification and certification on a monthly/annual basis as prescribed under relevant rules should also be ensured.

## IX. CONTINGENT & MISCELLANEOUS EXPENDITURE

**Rule 321** Rules relating to contingent expenditure are available at Rule 13 of the Delegation of the Financial Powers Rules and Rules 96 to 98 of the Government of India (Receipts and Payments) Rules, 1983.

**Rule 322 Permanent Advance or Imprest.** Permanent advance or Imprest for meeting day to day contingent and emergent expenditure may be granted to a government servant by the Head of the Department in consultation with Internal Finance Wing, keeping the amount of advance to the minimum required for smooth functioning. Procedures for maintenance of permanent advance or Imprest are available in para 10.12 of the Civil Accounts Manual.

**Rule 323 (1) Advances for Contingent and Miscellaneous purpose.** The Head of the



Office may sanction advances to a Government Servant for purchase of goods or services or any other special purpose needed for the management of the office, subject to the following conditions:-

- (i) The amount of expenditure being higher than the Permanent Advance available, cannot be met out of it.
- (ii) The purchase or other purpose cannot be managed under the normal procedures, envisaging post-procurement payment system.
- (iii) The amount of advance should not be more than the power delegated to the Head of the Office for the purpose.
- (iv) The Head of the Office shall be responsible for timely recovery or adjustment of the advance.

**Rule 323** (2) The adjustment bill, along with balance if any, shall be submitted by the government servant within fifteen days of the drawal of advance, failing which the advance or balance shall be recovered from his next salary(ies).

**Rule 324** The Ministry or Department may sanction the grant of an advance to a Government Pleader in connection with law suits, to which Government is a party, up to the maximum limit of Rupees twenty-five thousand at a time. The amount so advanced should be adjusted at the time of settlement of Counsel's fee bills.



## **APPENDIX– 1**

[See Rule 37 ]

### **INSTRUCTIONS FOR REGULATING THE ENFORCEMENT OF RESPONSIBILITY FOR LOSSES, ETC.**

1. The cardinal principle governing the assessment of responsibility is that, every Government officer should exercise the same vigilance in respect of expenditure from public fund generally as a person of ordinary prudence would exercise in respect of the expenditure and the custody of his own money. While, the competent authority may, in special cases, condone an officer's honest errors of judgement involving financial loss if the officer can show that he has acted in good faith and done his best up to the limits of his ability and experience, personal liability shall be strictly enforced against all officers who are dishonest, careless or negligent in the duties entrusted to them.
2. In cases where loss is due to delinquencies of subordinate officials and where it appears that this has been facilitated by laxity of supervision on the part of a superior officer, the latter shall also be called strictly to account and his personal liability in the matter carefully assessed.
3. (a) The question of enforcing pecuniary liability shall always be considered as well as the question of other forms of disciplinary action. In deciding the degree of an officer's pecuniary liability, it will be necessary to look not only to the circumstances of the case but also to the financial circumstances of the officer, since it should be recognized that the penalty should not be such as to impair his future efficiency.  
(b) In particular if the loss has occurred through fraud, every endeavour should be made to recover the whole amount lost from the guilty persons and if laxity of supervision has facilitated the fraud, the supervising officer at fault may properly be penalized either directly by requiring him to make good in money a sufficient proportion of the loss or indirectly by reduction or stoppage of his increments of pay.  
(c) It should always be considered whether the depreciated value of the Government property or equipment lost, damaged or destroyed by the carelessness of individuals entrusted with their care should be recovered from the delinquent official. The depreciated value of the stores may be calculated by applying the 20% of depreciation in the case of vehicles, including cycles, and 15% in the case of calculating machines, on the reduced balance every year. The amount to be recovered may be limited to the Government servant's capacity to pay.
4. When a pensionable Government servant is concerned in any irregularity or loss, the authority investigating the case shall bear in mind the provisions contained in Central Civil Services (Pension) Rules 1972 as amended from time to time and immediately inform the Audit Officer and/or the Accounts Officer, as the case may be, responsible for reporting on his title to Pension or Death-Cum-Retirement Gratuity, and the authority competent to sanction Pension or Death-Cum-Retirement Gratuity and it will be the duty of the latter to make a note of the information and see that the Gratuity or Death-Cum-Retirement Gratuity is not paid before a conclusion is arrived at as regards the Government servant's culpability and final orders are issued thereon.
5. The fact that Government servants who were guilty of frauds or irregularities have been demobilized or have retired and have thus escaped punishment, should not be made a justification for absolving those who are also guilty but who still remain in service.
6. It is of the greatest importance to avoid delay in the investigation of any loss due to fraud, negligence, financial irregularity, etc. Should the administrative authority require the assistance of the Audit Officer and/or the Accounts Officer, as the case may be, in pursuing the investigation, he may call on that officer for all vouchers and other documents that may be relevant to the investigation; and if the investigation is complex and he needs the assistance of an expert Audit Officer/ Accounts Officer to unravel it, he should apply forthwith for that assistance to Government which will then negotiate with Audit Officer and/or the Accounts Officer concerned for the services of an investigating staff. Thereafter, the administrative authority and the Audit /Accounts authority shall be personally responsible within their respective spheres, for the expeditious conduct of the enquiry. In any case in which it appears that recourse to judicial proceedings is likely, the Special Police Establishment or the State Police should be associated with the investigation.
7. Depending upon the results of the inquiry, departmental proceedings and/or prosecution shall be instituted at the earliest moment against the delinquent officials concerned and conducted with strict adherence to the Central Civil Services (Classification, Control and Appeal) Rules, 1957, and other instructions prescribed in this regard by Government.



## APPENDIX– 2

[See Rule 52 ]

PROCEDURE FOR PREPARATION OF  
DETAILED ESTIMATES OF RECEIPTS

1. **Revenue receipts.** - These comprise (i) Central taxes, duties and cesses administered by the Central Board of Direct Taxes and the Central Board of Excise and Customs; (ii) local taxes and duties and other receipts in relation to the Union Territories without Legislature; (iii) interest receipts of loans and advances by the Central Government as also interest charged to commercial departments, etc., (iv) notional receipts from adjustments based on principles of accounting like grant assistance from foreign Governments or International institutions; and (v) all other revenue receipts including dividends on equity investments of the Central Government, cesses collected by the Ministries and Departments, etc.
2. **Capital Receipts.** These comprise (i) Internal debt (market loan, treasury bills, etc.); (ii) External debt; (iii) Repayment of loans and advances made by the Central Government; (iv) Disinvestment Receipts (v) Other Liabilities.
3. (1) Estimates of receipts of Central Taxes and Duties and External Aid receipts are prepared within the Ministry of Finance by the Central Board of Direct Taxes, the Central Board of Excise and Customs and the Controller of Aid Accounts and Audit. Estimates of internal debt (market loans) receipts are framed by the Budget Division.
3. (2) Estimates of revenue receipts of the Union Territory Administrations will be furnished to the Ministry of Finance by the concerned Audit Officer / Accounts Officer wherever departmentalization of accounts has not taken place and by the Controller of Accounts of the Union Territory Administrations where departmentalization of accounts has been introduced.
3. (3) Estimates of receipts in all other cases will be prepared by Controller of Accounts of each Department after obtaining necessary data by the 30th November from the various organizations / field units and such scrutiny as may be necessary in the light of policy decisions and other post Budget developments.
4. Estimates will be furnished to the Ministry of Finance in prescribed forms (GFR 2, 2-A and 2-B) by the prescribed date, each year for the ensuing Budget.
5. (1) In preparing the Revised Estimates, while previous year's actuals and current year's trends will be material factors to review the original Budget Estimates, special attention should be devoted to making as realistic an estimate as possible of receipts which are likely to materialize during the rest of the financial year.
5. (2) In framing the Budget Estimates for the ensuing year, the estimating authorities should exercise utmost care. While all receipts which can be foreseen in the light of latest trends, decisions and developments must be provided for, care should be taken to ensure that undue optimism does not influence these estimates. Similarly, where the receipts have a seasonal character, due note should be taken thereof in preparing the estimates.
5. (3) Receipts by way of recoveries from Central Government Ministries / Departments, are to be excluded in preparing Receipt Estimates. Other recoveries (from the State and Union Territory Governments, foreign Governments, companies and statutory bodies, individuals, etc.) will, however, be included in the Receipt Estimates.
5. (4) Estimates of receipts by way of interest on loans and advances will be based on the terms of the loans sanctioned, as entered in the Loan Registers, including defaults, if any. The estimates should be realistic; that is to say, that the estimates should reflect not merely what is due but what is likely to be realized during the year together with the reasons for non-recovery of the difference between receipts due and assumed in the estimates. In the case of Public Sector Units, interest receipts expected from their internal resources should be distinguished from notional recoveries offset by corresponding expenditure provisions in the form of subsidies and loans. Similarly, where repayments due are refinanced by further loans or by conversion of past loans into equity, the details should be furnished.
5. (5) In reporting estimates of receipts by way of foreign grant assistance in cash or in kind, care should be taken to classify foreign grant receipts in cash under the Major Head '1605 External Grant Assistance' and those in the form of commodities under the Major Head '1606 Aid Materials and Equipment'. In the case of commodities grants, identical provision will be made in expenditure estimates under the Major head '3606 Aid Materials and



Equipment's' (both as debits to represent the notional payment therefor and as credits - recoveries in reductions of expenditure - to reflect the counter-balancing entries), as well as under the final functional Head of Account showing the final destination and use of the aid materials and equipment. **(Refer to Form GFR 2A)**

**NOTE.** For utilization of cash grants, provision in expenditure estimates under the final functional Heads of Account will be necessary.

5. **(6)** In reporting the estimates, the estimating authorities should confine their estimates to those items of receipts which are to be accounted for finally in their own accounts and ultimately in the accounts of the Ministry/ Department to which they are subordinate. All other receipts/recoveries entering the accounts of another Ministry/ Department should be communicated to the concerned Ministry/Department for consolidation in their estimates (e.g., receipts of CGHS contributions and rent recoveries in respect of Government accommodation).





## APPENDIX– 3

[ Rule 52]

INSTRUCTIONS FOR PREPARATION OF DETAILED  
ESTIMATES OF EXPENDITURE FROM THE CONSOLIDATED FUND

1. For purpose of Budget Estimates, expenditure from the Consolidated Fund –with the merger of Plan and Non-Plan from Budget 2017-18 will comprise of expenditure on revenue account and on capital account including loans and advances, and shown in the separate categories as applicable, comprising of I. Central Expenditure: (i) Secretariat Expenditure; (ii) Central Sector Schemes and (iii) Other Central Expenditure and II. Transfers: (i) Centrally Sponsored Schemes (ii) Finance Commission Transfers and (iii) Other Transfers.

**A. GENERAL GUIDELINES FOR PREPARING EXPENDITURE ESTIMATES**

2. To facilitate appropriate scrutiny and consolidation of Expenditure Estimates for reporting to the Ministry of Finance, the Financial Adviser in each Ministry / Department will obtain detailed estimates and other supporting data from each of the estimating authorities under the control of the Ministry / Department, in appropriate forms, sufficiently in advance.
3. The framing of the Revised Estimates for the current year should always precede estimation for the ensuing year. The Revised Estimates should be framed with great care to include only those items which are likely to materialize for payment during the current year, in the light of (i) actuals so far recorded during the current year, compared with the actuals for corresponding period of the last and previous years, (ii) seasonal character or otherwise of the nature of expenditure, (iii) sanctions for expenditure and orders of appropriation or re- appropriation already issued or contemplated and (iv) any other relevant factor, decision or development.

The Budget Estimate for the ensuing year should likewise be prepared on the basis of what is expected to be paid, under proper sanction, during the ensuing year, including arrears of previous years, if any. Due attention to considerations of economy must be paid and while all inescapable and foreseeable expenditures should be provided for, care should be taken that the estimate is not influenced by undue optimism.

4. No lump sum provision will be made in the Budget except where urgent measures are to be provided for meeting emergent situations or for meeting preliminary expenses on a project/scheme which has been accepted in principle for being taken up in the financial year. In latter cases Budget provision will be limited to the requirements of preliminary expenses and for such initial outlay, as, for example, on collection of material, recruitment of skeleton staff, etc.

Provision for a 'token' demand should not be made in the Budget Estimates for the purpose of seeking approval in principle for big schemes without the full financial implications being worked out and got approved by the appropriate authorities. In accordance with instructions contained in Paragraph (viii) of Appendix (5), a 'token' demand can be made during the course of a year for a project / scheme when the details thereof are ready and funds are also available for undertaking it but it cannot be started without Parliament's approval, it being in the nature of a 'New Service/New Instrument of Services'.

5. All estimates should be prepared on gross basis and 'voted' and 'charged' portions must be shown separately; even expenditure met partly or fully from receipts taken in reduction of such expenditure or those counterbalanced by receipts credited as revenue to the Consolidated Fund, must be reported in such estimates on gross basis. Care should also be taken to ensure that all notional receipts reported in 'Receipt Estimates' (such as interest receipts fully or partly subsidized, loan repayment receipts partly or fully refinanced through further loans or conversions into equity, receipts of foreign grant assistance in the form of commodities or material, etc.) are properly matched by adequate provisions in expenditure estimates.
6. The estimates of expenditure should include all items which are fully accounted for in the accounts of the Ministry/Departments to which the estimating authority is subordinate; they shall also cover expenditure, if any, in Union Territories without Legislature, whether provided for in the demands of the said Ministry / Department or in the 'Area' demand of the concerned Union Territory. Estimates of 'Works Expenditure', if any, against the provisions in the demands of the Ministry of Urban Development, as well as expenditure on pensions (including commutation payments, gratuity payments, pension contributions, etc.) interest payments, loans and advances



to Government servants, etc., which are provided for in the centralized Grants/Appropriations controlled by the Ministry of Finance should be furnished to the Ministry of Urban Development and the Ministry of Finance.

7. The estimate of establishment charges should be framed taking into account the trends over preceding three years and other relevant factors like changes in rates of pay, allowances, number of posts and their filling and the economy instructions issued by the Ministry of Finance from time to time.
8. Expenditure estimates will be prepared with full accounts classification, i.e., Major/Sub-Major Head, Minor Head, Sub-Head, Detailed Head and Object Head of Account. The correctness of accounts classification must be ensured by the Principal Chief Controller / Chief Controller/ Controller of Accounts in each case. Doubts, if any, may be clarified beforehand in consultation with the Ministry of Finance, Budget Division and Controller General of Accounts. The relevant Grant number and title of Appropriation should also be mentioned to facilitate identification of the provision in Budget Estimates for the current year.
9. Unless otherwise indicated by the Ministry of Finance, estimates (both Revised Estimates for the current year and Budget Estimates for the ensuing year) should reach the Ministry of Finance, Department of Economic Affairs, Budget Division, by the date prescribed by the Ministry of Finance, each year, in triplicate in Form GFR 4, a separate form being used for each Major Head of Account.
10. To facilitate appreciation and scrutiny of the estimates, any major variations between the Budget and Revised Estimates for the current year and also between the Revised Estimates for the current year and Budget Estimates for the ensuing year should be explained cogently. In particular, all provisions for subsidy, capital investment or loan to a Public Sector Undertaking, must be explained by indicating their purpose and the extent to which they are intended to cover losses, working capital needs, debt or interest liabilities of the undertaking.
11. Wherever the proposed estimates attract the limitations of 'New Service/New Instrument of Service', the fact must be specifically highlighted. The guidelines to be followed in this regard are indicated in Annexure - I to this Appendix. For all 'new' schemes, other than purely 'works' projects, the estimates proposed should be supported by details set out in Annexure - II to this Appendix. In the case of provisions of 'Grants-in-aid' to non-Government entities, the full purpose thereof and the nature of the grants, whether recurring or non-recurring, should also be indicated.
12. All provisions for transfer of Government assets to Public Sector Undertaking and other non-Government entities must also be highlighted, indicating whether the transfer is by way of grants or by way of equity investment or loan. Similarly, in the case of nationalization or take-over of any private sector assets, the related provisions in estimates must be supported by full details, such as the effective date of take-over, the agreed compensation amount and the manner of its payment, etc. In cases of takeover, where the assets are simultaneously transferred to a Public Sector Undertaking, it must be ensured that the estimates provide for (i) payment of compensation for the take-over, (ii) for transfer of assets to the Public Sector Undertaking, by means of recovery of compensation payment to be taken in reduction of expenditure, and (iii) provisions for equity or loan to the Public Sector Undertaking.

## **B. SCHEME RELATED EXPENDITURE ESTIMATES**

13. The Budget Division through the yearly Budget Circular will prescribe the form and the manner in which proposals are required to be submitted to them for determining the scheme allocations, (both Central Sector Schemes and Centrally Sponsored Schemes) for the ensuing year. The Financial Adviser in each Ministry / Department of the Central Government will accordingly call for requisite data from the estimating authorities, public sector and other enterprises under the control of the Ministry / Department, etc. The approved allocations for Central Sector and Centrally Sponsored Schemes will be communicated by the Ministry of Finance to the



Central Ministries / Department. Ministries/ Departments will finalize the Statement of Budget Estimates, indicating the total outlay approved for each scheme / organization and the extent to which it is to be met from extra-budget resources and from provisions in the Demands for Grants.

14. Subject to such directions as may be issued by the Ministry of Finance from time to time, the Revised Estimates for the current year and Budget Estimates of the ensuing year, in respect of Scheme provisions, are to be sent to the Ministry of Finance in Form GFR 7. For furnishing these estimates, instructions for preparation and submission of Other than scheme Expenditure Estimates will apply to the extent relevant; in addition, the following points should also be borne in mind :-
- (i) Such part of the approved budgetary support for Scheme outlay as relates to 'works expenditure' and has been accepted by the Ministry of Urban Development for inclusion in their Demands for Grants should be excluded by the other Ministries / Departments in reporting the estimates to the Ministry of Finance in Form GFR 4.
  - (ii) In the case of, provisions for equity investments and loans to public sector and other enterprises, as well as those for grants-in-aid, specific schemes, for which the outlay is provided and the extent for each of them is also to be indicated clearly.
  - (iii) Provisions for Scheme expenditure on Central Sector Schemes and Centrally Sponsored Schemes, including such expenditures in Union Territories, are to be included in the relevant demand of the Administrative Ministry/ Department and not in 'Area' Demand of the concerned Union Territory.



## **ANNEXURE –I TO APPENDIX-3**

(Refer: Ministry of Finance, Budget Division's OM No. F.1(23)-B(AC)/2005 dated 25.05.2006  
[ See Paragraph 11 of Appendix – 3/Rule 63 ]

### **FINANCIAL LIMITS TO BE OBSERVED DETERMINING CASES RELATING TO “NEW SERVICE”/NEW INSTRUMENT OF SERVICE**

Nature of Transaction	Limits upto which expenditure can be met by re-appropriation of savings in a Grant subject to report to Parliament	Limits beyond which prior approval of Parliament is required for expenditure from the Consolidated Fund
1	2	3
<b>I. CAPITAL EXPENDITURE</b>		
<b>A. Departmental Undertakings</b>		
(i) Setting up a new undertaking, or taking up a new activity by an existing undertaking.	---	All cases
(ii) Additional Investment in an existing undertaking	Above Rs.2.50 crore but not exceeding Rs. 5 crore.	Above Rs. 5 crore
<b>B. Public Sector Companies/Corporations</b>		
(i) Setting up of a new Company or splitting up of an existing Company, or amalgamation of two or more Companies, or taking up a new activity by an existing Company	---	All cases
(ii) Additional investment in/ loans to an existing company		
a) Where there is no Budget Provision	Above Rs.50 lakhs but not exceeding Rs.1 crore	Above Rs. 1 crore
b) Where Budget Provision exists for investment and/or loans Paid up capital of the Company		
(i) Upto Rs. 50 crore	20% of appropriation already voted or Rs.10 crore, whichever is less	Above 20% of appropriation already voted or Rs.10 crore, whichever is less.
(ii) Above Rs.50 crore	20% of appropriation already voted or Rs.20 crore, whichever is less	Above 20% of appropriation already voted or Rs.20 crore, whichever is less.



<b>C. All bodies or authorities within the administrative control/management of Central Government or substantially financed by the Central Government.</b>		
Loans	Upto 10% of the appropriation already voted or Rs. 10 crore, whichever is less	More than 10% over the appropriation already voted by Parliament or Rs.10 crore. whichever is less
Note: Where a lumpsum provision is made for providing 'Loans' under a particular scheme, the details of substantial apportionment (10% of lumpsum or Rs. 1 crore, whichever is higher) should be reported to Parliament. In the case of lumpsum provision of loans to States, the State-wise distribution should be reported to Parliament.		
Nature of transaction	Limits upto which expenditure can be met by re-appropriation of savings in a Grant subject to report to Parliament	Limits beyond which prior approval of Parliament is required for expenditure from the Consolidated Fund
<b>D. Expenditure on new Works (Land, Buildings and/or Machinery)</b>	Above Rs.50 lakhs but not exceeding Rs. 2.5 crore or not exceeding 10% of the appropriation already voted, whichever is less.	Above Rs.2.5 crore or above 10% of the appropriation already voted.
<b>II REVENUE EXPENDITURE</b>		
<b>E. Grants-in-aid to any body or authority</b>	---	All cases
Note: Where a lumpsum provision is made for providing grants-in-aid under a particular scheme, the details of substantial apportionment (10% of lumpsum or Rs. 1 crore, whichever is higher) should be reported to Parliament. In the case of lumpsum provision of grants to States, the State-wise distribution should be reported to Parliament.		
<b>F. Subsidies</b>		
(i) New Cases	–	All cases
(ii) Enhancement or provision in the existing appropriation	Upto 10% of the appropriation already approved by the Parliament or Rs.10 crore, whichever is less.	More than 10 % of the appropriation already voted by Parliament or Rs.10 crore, whichever is less.
Payments against cess collections	Limits as applicable to grants-in-aid to statutory or public institutions will apply	All cases
New Commissions or Committees of Enquiry	–	Above Rs.20 lakhs (total expenditure)



<b>G. Write off of Government loans</b>	Above Rs 50,000 but not exceeding Rs. 1 Lakh (individual cases)	Above Rs.1 lakh (individual cases)
<b>H. Other cases of Government expenditure</b>	Each case to be considered on merits.	
I. Posts Railways Defence	The aforesaid limits, including those relating to Works expenditure, will also apply to these Departments subject to considerations of security in the case of Defence	The aforesaid limits, including those relating to Works expenditure, will also apply to these Departments subject to considerations of security in the case of Defence Services Estimates.
<p>Note 1: For investment in Ordnance Factories, the limit of Rs.5 crore mentioned in item A (ii) will be applicable with reference to investment in all the factories as a whole.</p> <p>Note 2: Civil Works, which do not form part of any project of the departmental undertakings (Ordnance Factories) should be treated as ordinary Defence works. As such, prior approval of Parliament will be necessary if the cost of individual works exceeds Rs.2.5 crore and in cases where the individual works cost Rs.50 lakhs or more but not exceeding Rs.2.5 crore, a report to Parliament will be required. A list of such works should, however, be supplied to Director of Audit, Defence Services.</p>		



**ANNEXURE - II TO APPENDIX - 3**

[ See Paragraph 11 of Appendix - 3/Rule 63 ]

**MEMORANDUM FOR PROPOSALS INVOLVING  
EXPENDITURE ON NEW SERVICE OR NEW INSTRUMENT OF SERVICE**

Government of India  
Ministry of.....  
Department of.....  
New Delhi, the.....

**MEMORANDUM****1. Statement of proposal :**

- (a) Title of the proposal / scheme.
- (b) Description of the proposal / scheme and its objects.
- (c) Justification for the proposal / scheme and what alternatives have been considered.
- (d) Description of the manner in which the proposal / scheme is proposed to be implemented including mention of agency through which the scheme will be executed.
- (e) Schedule of programme and target date of completion.

**2. Financial implications of the proposal:**

- (a) Nature of the scheme (Central Sector Scheme or Centrally Sponsored – or Others.)
- (b) Total outlay (recurring and non-recurring separately), its broad details and its year-wise phasing.
- (c) (i) Budget allocation, in a scheme; and  
(ii) Budget provision in the current financial year;  
if no Budget provision exists, how is the expenditure proposed to be met?
- (d) Foreign exchange component of the outlay and how it is proposed to be met.
- (e) Component of grant, loan and subsidy, if any, in the total outlay involved and their proposed terms. (f) Number of posts, their pay scales and the basis adopted for staffing (Statement attached).
- (g) Broad details of construction works, their justification and basis of estimates (Statement attached). (h) Requirement of stores and equipment together with justification and cost (Statement attached).
- (i) Achievement / return expected and other economic implications, if any.

**3. (a) Comments, if any, of the NITI Aayog (for Schemes only).**

- (b) Comments, if any, of other Ministries / Departments which may have been consulted.

**4. Supplementary information, if any.****5. Points on which decision / sanctions are required.**

Secretary to the Government of India.

Ministry of.....  
Department of.....



## **APPENDIX – 4**

[See Note below Rule 52]

### **PROCEDURE FOR COMPILATION OF DETAILED DEMANDS FOR GRANTS**

1. The Demand for Grants are presented to Parliament at two levels. The Main Demands for Grants are presented to Parliament by the Ministry of Finance along with the Annual Financial Statement while the Detailed Demands for Grants are laid on the Table of the Lok Sabha by the concerned Ministries a few days in advance of the discussion of the respective Ministries Demands in that House.

Both the Main Demands for Grants as also the Detailed Demands for Grants comprise three parts each, viz. -

Part - I shows the Service for which the Demand (or Appropriation) is intended and the estimates of the gross amount, separately for Voted and Charged Expenditure, under Revenue and Capital (including Loan) sections required in the ensuing year in respect of that Service.

Part - II shows break up of the estimates separately. In the Main Demands for Grants, the break up is exhibited up to the level of Major Heads of Account which correspond to functions of the Government.

In the Detailed Demands for Grants the break up in respect of activities/schemes/organization up to the object head level is given.

The Detailed Demands for Grants also exhibit actuals of the previous year in Part - II.

Both in the Main Demands for Grants as well as in the Detailed Demands for Grants, the details of recoveries taken in reduction of expenditure provided for in the Demand or Appropriation are also depicted.

2. All Detailed Demands for Grants of a Ministry / Department are consolidated in a single volume and presented to Lok Sabha by the concerned Ministry / Department. The Detailed Demands show 'actual expenditure' as per accounts in the previous year, Budget and Revised Estimates for the current years and Budget Estimates for the ensuing year.
  - (i) The process of compilation should start in July / August with the preparation of a manuscript skeleton. Manuscript skeletons of Detailed Demands for the ensuing year should be prepared by using the printed Detailed Demands for the current year by making necessary alterations therein. New sub-heads sanctioned by the Ministry of Finance, if any, and those expected to be required should also be added in the manuscript at appropriate places. The manuscript should then be sent to the designated press for a proof. Where necessary, a second proof may be obtained. The printed skeletons should be available with the Ministries/ Departments preferably by the 15th October each year.
  - (ii) Two copies of the Demand skeleton may then be sent to the Principal Accounts Officer, as the case may be, for filling the 'Actuals' column for the previous year and to return one copy duly filled in.
  - (iii) In the master copy of the Demand, the Ministry / Department will then post (1) the figures of actuals as reported by the Principal Accounts Officer / Accountant-General; (2) Revised Estimates for the current year and the Budget Estimates for the ensuing year from the office copy of the SBEs / Demands for Grants sent to Ministry of Finance. While posting these entries, care should be taken to ensure that –
    - (a) "Charged" items are shown in italics and are not mixed up with "Voted" provisions;
    - (b) posting is done accurately against the proper item / head of account including "recoveries", if any, taken as reduction of expenditure;
    - (c) new items are inserted at the proper place under the relevant minor head;
    - (d) totals of sub-heads, minor heads, major heads, etc., are correctly worked out and posted; that totals of Revenue section and Capital section as well as the grand totals are correct and show "Charged" and "Voted" figures distinctly; and
    - (e) new sub-head (opened through Supplementary Demands) or otherwise or any change in the numbering and nomenclature sanctioned by the Budget Division since the proof of the skeleton should also be incorporated in the Master Copy.



NOTE :-A sub-head should appear in the Demand only when there is provision thereunder, either in the current year(Budget or Revised) or the ensuing year. Wherever only actuals of the previous year pertaining to a sub-head are to be exhibited, this should be done by inserting suitable footnote on the relevant page.

(iv) The process of compilation and printing of the Demands should be undertaken in stages.

3. The first proof of individual Demands may be obtained after posting actuals of previous year and other than Scheme estimates (by 15th December). The second proof may be similarly obtained (by 15th January) after "Scheme" Revised estimates are posted in the first proof. As soon as "Scheme "provisions for the ensuing year are finalized and communicated by the Ministry of Finance, they should be posted in the second proof. Before obtaining the third proof, the following material may also be added.

**(A) Main Demands for Grants :**

- (i) Notes on the Demands for Grants highlighting the following :-
  - (a) The objectives of the concerned Ministry / Department, how the programmes undertaken or contemplated contribute towards attainment of such objectives and the agencies entrusted with the execution of such programmes;
  - (b) Details of important provisions included in Demands for Grants with particular emphasis on Scheme provisions and new items of expenditure;
  - (c) Cogent reasons for significant variations between the Budget Estimates and Revised Estimates for the current year and between the Revised Estimates, for the current year and the Budget Estimates for the ensuing year;
  - (d) Provisions for subsidy in lieu of interest on loans by the Government or token provisions for concessional rate of interest along with number of likely cases involved and financial implications, if determinable; and
  - (e) Complete details of the estimated cost of a project together with its economics and financial implications (whenever these estimates are revised and the cost of escalation exceeds 20 per cent of the sanctioned cost or Rs. 3 crores, whichever is more, full reasons therefor and the effect thereof on the economics of the projects should also be included in the Notes on Demands).
- (ii) A statement giving details of provisions in the Budget which attract limitations of "New Service"/"New Instrument of Service".

**(B) Detailed Demands for Grants :**

The Detailed Demands for Grants will be accompanied by the following schedules/ statements:-

- (i) Schedule showing the estimated strength of establishment and provision therefor.
- (ii) Statement showing project-wise provision for expenditure on externally aided projects in the Central Schemes.
- (iii) Schedule showing provision for payment of grants in aid to non-Government bodies.
- (iv) Statement showing details of individual works and projects costing Rs. 5 crore or above.
- (v) Statement showing revised cost estimates of projects of public sector enterprises and departmental undertakings.
- (vi) Statement showing transfer or gift of Government properties of value exceeding Rs. 5 lakhs to non-Government bodies.
- (vii) Statement showing contributions to International bodies. This statement will include only items of contribution, membership fees to international bodies, which constitute revenue expenditure. Subscriptions to international bodies, which represent investments and are accounted for in the Capital section, are to be excluded from it.



- (viii) Statement showing guarantees given by the Central Government and outstanding as on 31st March of the preceding year.
- (ix) Statement showing grants-in-aid exceeding Rs. 5 lakhs (recurring ) or Rs. 10 lakhs (non-recurring) actually sanctioned to private institutions/organizations/ individuals.
4. In addition the Detailed Demands for Grants will also include where necessary, "Notes on Important Projects and Schemes", e.g., where the Ministry / Department do not bring out performance Budgets.
  5. The third proof on receipt from the press should be thoroughly checked for accuracy of all estimates and other data, as these must necessarily conform with the main Demands for Grants. Therefore for obtaining page proof, all pages should be serially numbered and table of contents prepared. The page proof received from the Press should be fully scrutinized.
  6. A sample printed copy of the Demands should be scrutinized on receipt from Press and where necessary an errata may be prepared, got printed and pasted by the Press in individual copies of the Printed Demands.
  7. The Demands of smaller Departments like Lok Sabha, Rajya Sabha, Department of Parliamentary Affairs, Staff, Household and Allowances of the President, Secretariat of the Vice-President and Union Public Service Commission which are clubbed in a single volume are to be prepared and presented by the Ministry of Finance.

**APPENDIX – 5**

[Rule 66]

**PROCEDURE TO BE FOLLOWED IN CONNECTION  
WITH THE DEMANDS FOR SUPPLEMENTARY GRANTS**

An excess over the sanctioned Grant or Appropriation may arise owing to either –

- (a) an unforeseen emergency; or
- (b) under-estimated or insufficient allowance for factors leading to the growth of expenditure. In the case of an excess of either type the Head of the Department or the Controlling Officer concerned should proceed as follows :-
  - (i) He should, in the first place, examine the allotments given to other Disbursing Officers under the same detailed head within the unit of appropriation, and transfer to the Disbursing Officer who requires an additional allotment such sum as can be permanently or temporarily spared. Since appropriation audit is ordinarily conducted against total allotments for a unit, reappropriation in the technical sense of the word is not involved in such cases. The process amounts only to redistribution which the Controlling Officer can ordinarily effect without reference to any other authority.
  - (ii) Should he find such redistribution impossible he should examine the allotments against other detailed heads inside the primary units of appropriation, with the object of discovering probable savings and effecting a transfer. Where such redistribution is feasible, he should if he has been vested with the necessary powers, carry it out. Otherwise, he should obtain the sanction of the competent authority.
  - (iii) If the provision of funds from within the primary units proves to be impossible, an examination of the whole grant should be undertaken to see whether there are likely to be savings under any of the other units of grant or appropriation which can be utilized to meet it. If so, he should proceed as indicated in Clause (ii) above.
  - (iv) If such savings are not available, it should be seen whether special economies can be effected under other primary units of appropriation. If funds cannot be provided by either of these methods, it will have to be considered whether the excess should be met by postponement of expenditure or whether an application for supplementary grant or appropriation should be made.
  - (v) The Supplementary Demand for Grants shall be presented to the Parliament in a number of batches as decided by the Ministry of Finance, Department of Economic Affairs. The first batch shall normally consist of requirements of the following nature :-
    - (a) Cases where advances from Contingency Fund of India have been granted, which are required to be recouped to the Fund.
    - (b) Payment against a court decree, which cannot be postponed; and
    - (c) Cases of additional requirement of funds for making immediate payments, which can be met by re-appropriation of savings in the Grant but attract the limitation of New Service / New Instrument of Service.
  - (vi) All applications for supplementary grants or appropriations should be submitted by the Department of the Central Government administratively concerned to the Ministry of Finance on such dates and in such forms / batches as may be prescribed by the latter from time to time.
  - (vii) On receipt of an application for a supplementary grant, the Ministry of Finance will review the position of the grant of appropriation as a whole with reference to the known actuals of the year to date and the actuals and estimates for previous years. If after this examination, the Ministry of Finance comes to the conclusion that it should be possible for the Administrative Department to meet the expenditure from within the sanctioned grant either from normal savings or by special economies or in the last resort by judicious postponement of other expenditure or in the last resort by judicious postponement of other expenditure, the Administrative Department will be so informed and no supplementary demand will be presented to Parliament. If, on the other hand, the Ministry of Finance considers that a supplementary grant will be necessary, a demand will be placed before Parliament.



(viii) If during the course of the year it is found necessary to incur expenditure on a 'New Service' not provided for in the annual budget the Administrative Department shall explain to the Ministry of Finance why the expenditure was not provided for in the original budget and why it cannot be postponed for consideration in connection with the next budget. The Ministry of Finance, if satisfied on these points, will consider whether it would not be reasonable to ask the department concerned to curtail its other expenditure so as to keep the total within the grant. Ordinarily, no "new service" or item will be accepted by the Ministry of Finance, unless the department concerned can guarantee that the extra expenditure will be met from normal savings or by special economies within the grant. Cases which involve additional grant will normally be accepted by the Ministry of Finance only if they relate to matters of real imperative necessity or to the earning or safeguarding of revenue. The demand for a supplementary grant of appropriation or a token vote in respect of a "new service" will be presented to Parliament as soon as practicable after the need arises.

NOTE. –The expression 'New Service' wherever used in this Appendix includes – 'New Instrument of Service'.





## APPENDIX – 6

[Rule 67. (4)]

## THE CONTINGENCY FUND OF INDIA RULES

**SRO 1358.** - In exercise of the powers conferred by Section 4 of the Contingency Fund of India Act, 1950 (XLIX of 1950), the Central Government hereby makes the following rules:-

## CONTINGENCY FUND OF INDIA RULES

1. These rules may be called the Contingency Fund of India Rules.
2. The Contingency Fund of India shall be held on behalf of the President by the Secretary to the Government of India, Ministry of Finance, Department of Economic Affairs.
3. From out of the Balance in the Fund, such amounts as may be agreed upon from time to time shall be placed at the disposal of the Financial Commissioner of Railways for the purpose of meeting the unforeseen expenditure of the Railways.
4. Subject to the provisions of Rule 5 below, all applications for advances from the Fund shall be made to the Secretary to the Government of India, Ministry of Finance, Department of Economic Affairs. The applications shall give -
  - (i) brief particulars of the additional expenditure involved,
  - (ii) the circumstances in which provision could not be included in the budget,
  - (iii) why its postponement is not possible,
  - (iv) the amount required to be advanced from the Fund with full cost of the proposal for the year or part of the year, as the case may be, and
  - (v) the grant or appropriation under which supplementary provision will eventually have to be obtained.
5. Applications for advances required by Railways shall be made to the Financial Commissioner of Railways in the manner provided for in Rule 4.
6. Advances from the Fund shall be made for the purpose of meeting unforeseen expenditure including expenditure on a new service not contemplated in the annual financial statement.
7. A copy of the order sanctioning the advance, which shall specify the amount, the grant or appropriation to which it relates and give brief particulars by sub-heads and units of appropriation of the expenditure for meeting which it is made, shall be forwarded by the Ministry of Finance or the Financial Commissioner of Railways, as the case may be, to the Audit and Accounts Officers concerned. In addition, the Ministry of Finance and the Financial Commissioner of Railways shall forward copies of such orders to the Accountant- General, Central Revenues and the Director of Railway Audit respectively.
8. (1) Supplementary Estimates for all expenditure so financed shall be presented to Parliament at the first session meeting immediately after the advance is sanctioned unless such advance has been resumed to the Contingency Fund in accordance with the provisions of sub-rule (2).

**NOTE 1.** -While presenting to Parliament Estimates for expenditure financed from the Contingency Fund, a note to the following effect shall be appended to such Estimates :-

'A sum of Rs. .... has been advanced from the Contingency Fund in ..... and an equivalent amount is required to enable repayment to be made to that Fund.'

**NOTE 2.** -If the expenditure on a new service not contemplated in the Annual Financial Statement can be met, 'wholly or partly' from savings available within the authorized appropriation, the note appended to the Estimates submitted shall be in the following form :-

'The expenditure is on a new service. A sum of Rs. .... has been advanced from Contingency Fund in ..... and an equivalent amount is required to enable repayment to be made to that Fund.' The amount, viz., Rs. .... can be found by re-appropriation.



'A part of that amount, viz., Rs. .... of savings within the grant and a token vote only is now required, viz., Rs. .... only.

a vote is required for the balance

- (2) As soon as Parliament has authorized additional expenditure by means of a Supplementary Appropriation Act, the advance or advances made from the Contingency Fund, whether for meeting the expenditure incurred before the Supplementary Estimates were presented to the Parliament or after they were so presented, shall be resumed to the Fund to the full extent of the appropriation made in Act.
8. A. If in any case, after the order sanctioning an advance from the Contingency Fund has been issued in accordance with Rule 7 and before action is taken in accordance with Rule 8, it is found that the advance sanctioned will remain wholly or partly unutilized, an application shall be made to the sanctioning authority for cancelling or modifying the sanction, as the case may be.
8. B. All advances sanctioned from the Contingency Fund to meet expenditure in excess of the provision for the service included in an Appropriation (Vote on Accounts) Act shall be resumed to the Contingency Fund as soon as the Appropriation Act in respect of the expenditure on the service for the whole year, including the excess met from the advances from the Contingency Fund has been passed.
8. C. If during an Election year, two Budgets are presented to the Parliament, all advances, sanctioned from the Contingency Fund of India during the period between the presentation of first and second Budgets or during the period between the presentation of the second Budget and the passing of the connected Appropriation Act to meet expenditure on a service not included in an Appropriation (Vote on Account) Act and the advances outstanding at the end of the preceding financial year being advances the estimates for which are included in the second Budget, shall be resumed to the Contingency Fund as soon as the Appropriation Act in respect of the expenditure on the service for the whole year has been passed.
- NOTE.** -A suitable explanation regarding the advance and the recoupment thereof shall be incorporated in the "Notes on Demands for Grants". Wherever required, such a case will be included in the statement of 'New Service' / 'New Instrument of Service' appended at the end of the demands.
9. A copy of the order resuming the advance, which shall give a reference to the number and date of the order in which the original advance was made and to the Supplementary Appropriation Act referred to in Rule 8, shall be forwarded by the Ministry of Finance and the Financial Officers concerned, in addition, to the Audit and Accounts Officers concerned. In addition, the Ministry of Finance shall forward copies of such orders to the Accountant General, Central Revenues, and the Director of Railways Audit if pertaining to the Railways.
10. An account of the transactions of the Fund shall be maintained by the Ministry of Finance in Form 'A' annexed to these rules.
11. Actual expenditure incurred against advances from the Contingency Fund shall be recorded in the account relating to the Contingency Fund in the same details as it would have been shown if it had been paid out of the Consolidated Fund.



## ANNEXURE FORM 'A'

[See Paragraph 10 of Appendix-6 ]

### CONTINGENCY FUND OF INDIA

Amount of the Fund

Rs.....

Sl. No.	Date of transaction	Number and name of Grant of appropriation	Number and date of the application for advance	Number and date of the order making the advance	Amount of advance resumed	Supplementary Appropriation act providing for the Additional Expenditure	Amount of advance resumed	Balance after each transaction	Initials of Officer-in-charge	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

**NOTE1.-** The balance should be struck after each transaction.

**NOTE2.-** The amount of the advances should be entered in black ink when made and in red ink when resumed.



## **APPENDIX - 7**

[See Rule 310 (4) and 310 (5) ]

### **TRANSFER OF LAND AND BUILDINGS BETWEEN THE UNION AND STATE GOVERNMENTS**

1. These rules apply to the transfer of land and buildings between the Union and the State Governments and also to the surrender to the State Governments of land belonging to Railways.  
The general position under Article 294 of the Constitution is that as from the commencement of the Constitution -
  - (a) all property and assets which immediately before such commencement were vested in His Majesty for the purposes of the Government of the Dominion of India and all property and assets which immediately before such commencement were vested in His Majesty for the purpose of the Government of each Governor's Province, shall vest respectively in the Union and the corresponding State; and all rights, liabilities and obligations of the Government of the Dominion of India and of the Government of each Governor's Province, whether arising out of any contract or otherwise, shall be the rights, liabilities and obligations respectively of the Government of India and the Government of each corresponding State subject to any adjustment made or to be made by reason of the creation before the commencement of the construction of the Dominion of Pakistan or of the Province, of West Bengal, West Punjab and East Punjab. Article 294, as is evident, relates to succession to property, assets, rights, liabilities and obligations in certain cases only; Article 295 of the Constitution which relate to succession to property, assets, rights, liabilities and obligations in other cases, provides that -
    - (i) As from the commencement of the Constitution :
      - (a) all property and assets which immediately before such commencement were vested in any Indian State corresponding to a State specified in Part -B of the First Schedule shall vest in the Union if specified in Part - B of the First Schedule shall vest in the Union if the purpose for which such property and assets were held immediately before such commencement will thereafter be purposes of the Union relating to any of the matters enumerated in the Union List; and
      - (b) all rights, liabilities and obligations of the Government of any Indian State corresponding to a State specified in Part -B of the First Schedule, whether arising out of any contract or otherwise, shall be the rights, liabilities and obligations of the Union Government, if the purposes for which such rights were acquired or liabilities or obligations were incurred before such commencement will thereafter be purposes of the Union Government relating to any of the matters enumerated in the Union List: subject to any agreement entered into in that behalf by the Union Government with the Government of that State.
    - (ii) Subject as aforesaid, the Government of each State specified in Part 'B' of the First Schedule shall, as from the commencement of the Constitution, be the successor of the Government of the corresponding Indian State as regards all property and assets and all rights, liabilities and obligations, whether arising out of any contract or otherwise, other than those referred to in Clause (1).  
All property and assets, which include land and buildings, and which vest in the State Government under Articles 294 and 295 of the Constitution or otherwise shall be at the disposal of the respective State Governments, who will be at liberty to dispose them of by sale, mortgage, etc., and the proceeds thereof shall be credited to the revenues of the respective State Governments.  
From the commencement of the Constitution, the transfer of land between the Union and the State Government shall be regulated by mutual agreement except when they are acquired under some Act. The Union Government have laid down the following principles to be observed in regard to certain points :-
      - (i) (a) When land belonging to a private party has to be acquired on behalf of the Union Government acquisition shall be at the expense of that Government.
      - (b) In cases where the Union Government require any land, which is in occupation of the State Government, to be transferred to them, the amount payable by the Union



Government will ordinarily be the market value of the land and buildings, if any, thereon.

- (c) The amount payable will include the capitalized value of land revenue assessable on the land when the transfer causes actual loss of land revenue to the State Government.
- (d) Solatium of 15 per cent payable under the Land Acquisition Act will not apply to such transfers.
- (ii) *Land surplus to the requirements of the Union Government :-* When the Union Government no longer required land in their possession, the Government of the State in which it is situated will be given the option of assuming possession of the whole or any portion thereof subject to the following conditions :-
  - (a) the Union government themselves shall be the judges of whether they require to retain any particular land or not;
  - (b) if the State Government desire to assume possession of the land, the option to do so shall be exercised within six months of the date on which the Union Government signify their intention of surrendering the land;
  - (c) the amount payable for the land will in all cases be its market value at the date of transfer;
  - (d) when the State Government desire to assume possession of only a portion of the land surrendered, they shall be entitled to do so only if the value of the land as a whole is not materially reduced by the division; and
  - (e) if the State Government do not desire to assume possession of any land on the foregoing terms, the Union Government will be free to dispose it of to a third party. Before, however, so disposing of the land, the Union Government will consult the State Government as to the levy of ground rent or assessment and the conditions, if any, subject to which it should be sold and they will, as far as possible, dispose of the land subject to the conditions which the State Government may desire to impose. The Union Government are not, however, bound to obtain the concurrence of the State Government in all cases, and in cases of disagreement the Union Government shall be the sole judge of the terms and conditions to be imposed.
- (iii) *Determination of Disputes as to Titles.* - Disputes as to title between the Union Government and a State Government shall be determined by the Supreme Court.
- 2. *Market value defined.* -Market value when applied to land may be defined as the price which the land would fetch if sold in the open market subject to the ground rent or assessment shown against it in the revenue registers, or, if no ground rent or assessment shown against it in the revenue registers, subject to a ground rent or assessment levied at the rate at which ground rent or assessment is actually being levied on similar lands in the neighbourhood excluding all cases in which such similar lands in the neighbourhood are held free of ground rent or assessment at favourable or unfavourable rates of ground or assessment. This is the market value which has to be credited or debited, as the case may be, in the case of all transactions between the State Governments and the Union Government or between the Union Government and State Governments or the Railways.



## **APPENDIX - 8**

[ See Rule 286. (3) and Rule 311 ]

### **CHARITABLE ENDOWMENTS AND OTHER TRUSTS**

#### **I. CHARITABLE ENDOWMENTS**

1. The duties of the Treasurer of Charitable Endowments for India are prescribed in the Charitable Endowments Act, 1890 (Act VI of 1890), and the rules framed thereunder, which are printed as an Annexure hereto.
2. Under sub-section (1) of Section 3 of the Charitable Endowments Act, the Deputy Secretary/Director (Budget) in the Ministry of Finance, Department of Economic Affairs, nominated for the purpose, has been appointed ex officio to be the Treasurer of Charitable Endowments for India with effect from the 1st April, 1954. All the property of Charitable Endowments, the objects of which extend beyond a single State or which are objects to which the executive authority of the Central Government extend, vest in him.

The Treasurer of Charitable Endowments for India is authorized to employ the agency of the Treasurer of Charitable Endowments of a State, with the consent of the State Governments, for discharging any of the functions assigned to him under the rules referred to in Paragraph 1 above.

3. When a copy of a vesting order is received by the Treasurer of Charitable Endowments for India, he should at once place himself in communication with the persons who appear from the order to be the holders of the documents of title relating to the property or of the securities mentioned in the order, and request them to forward the Title Deeds, or securities in a registered cover and to insure the cover for Rs. 100. These do not require to be endorsed, as the vesting order operates to transfer the securities to the Treasurer.
4. At every change of Office of the Deputy Secretary/Director (Budget) in the Ministry of Finance, Department of Economic Affairs nominated for the purpose, a formal transfer of charge of the Treasurer of Charitable Endowments for India should also take place and as separate charge report, supported by a statement of the total of the balances of the Funds vested in the Treasurer, duly signed by the relieved and the relieving Treasurers should be sent to Government.

A list of receipts granted by the Reserve Bank in acknowledgement of the securities forwarded to it for safe custody as also of the securities kept in the custody of the Treasurer should also be prepared and signed by the relieved and the relieving Treasurers, and sent to Government along with the charge report.

**NOTE.** -Whenever there is a change in the Office of a Treasurer of Charitable Endowments of a State who has been acting as an agent of the treasurer of Charitable Endowments for India, a charge report prepared in the manner indicated in this paragraph should be furnished to the latter.

#### **II. MISCELLANEOUS TRUST ACCOUNTS**

5. If, under any general or special orders of Government, an Audit Officer / Accounts Officer or any other Government officer is required to act in his official capacity as a Trustee or Depository of any public or quasi-public fund, which does come within the scope of the accounts of Government, or of any Charitable Endowment and is not a Government security held in trust under the rules in Chapter IX of the Government Securities Manual, such an officer should endeavour to have the trust vested, if possible, in the Treasurer of Charitable Endowments for India; but, if that course is not possible, he should open an account with the State Bank of India, or with any other approved Bank, for the deposit of moneys received by him on account of Trust. Full and clear record of all transactions relating to the trust fund should be kept in the books of accounts in his personal custody in a form complying with the terms and conditions of the Trust. The securities, if any, deposited with him should be dealt with in accordance with the instructions contained in Chapter IX of the Government Securities Manual.
6. The books of accounts should be supported by a short statement descriptive of the nature and obligation of the Trust, with reference to the documents bearing upon it, so that any other Government officer on receiving charge may know by reference to it exactly what his obligations are in the matter.





**NOTE.** -The receipt and disposal of interest should be recorded in these accounts which are meant for the principal of the Trusts only.

7. The accounts should be balanced and closed every 31st day of March. They should also be balanced and closed when the Government officer acting as the Trustee makes over charge of his office to a successor or substitute, a balance sheet being appended to the charge report and signed both by the officer receiving and the officer giving over charge.
8. The accounts will be subject to such audit check as may be prescribed by Government.



## **ANNEXURE**

[ See Paragraph 1 of Appendix -8 ]

In exercise of the powers conferred by Section 13 of the Charitable Endowments Act, 1890 (VI of 1890), and in supersession of the late Home Department Notification No. 1569 - Judicial, dated the 24th October, 1890, the Central Government is pleased to make the following rules and forms :-

### **THE CHARITABLE ENDOWMENTS (CENTRAL) RULES, 1942**

#### **1. Short Title. -**

- (1) These rules may be called the Charitable Endowments (Central) Rules, 1942.
- (2) They apply to charitable endowments the objects of which extend beyond a single State or are objects, to which the executive authority of the Central Government extends.

#### **2. Interpretation.- In these rules -**

- (a) "the Act" means the Charitable Endowments Act, 1890;
- (b) "Treasurer" means the Treasurer of Charitable Endowments for India for the time being, appointed under sub-section (1) of Section 3 of the Act, and includes such other officer as the Treasurer may appoint to discharge any of the functions assigned to him under these rules;
- (c) "Form" means a form appended to these rules.

#### **3. Previous publication of vesting orders and schemes.-**On cases in which private persons apply for a vesting order or a scheme or modification of a scheme, and in all cases in which it is proposed to depart in any respect from the ascertained wishes or presumable intentions of the founder of an endowment, there shall ordinarily, and unless the Central Government otherwise directs, be previous publication of the proposed vesting order or scheme or modification.

#### **4. Mode of previous publication.**

- (1) Unless the Central Government is of opinion that a proposed vesting order or proposed scheme or modification of a scheme may be made or settled without previous publication, it shall publish a draft of the proposed order, scheme or modification or a sufficient abstract thereof, for the information of persons likely to be affected thereby.
- (2) The publication shall be made in the Official Gazette and in such other manner as the Central Government may direct.
- (3) A notice specifying a date on or after which the proposed order, scheme or modification will be taken into consideration by the Central Government should be published with the draft or abstract.
- (4) The Central Government shall consider any objection or suggestion which it may receive from any person with respect to the proposed order, scheme or modification thereof before the date specified in the notice under sub-rule (3).

#### **5. Costs.** The cost of the previous publication under Rule 4 of any proposed order, scheme or modification of a scheme, and any other costs incurred or which may be incurred in the making of the orders or in the settlement of a scheme or modification of a scheme, shall be paid by the applicant for the order, scheme or modification, as the case may be, and, if the Central Government so directs may be paid by him out of any money in his possession pertaining to the trust to which his application relates.

#### **6. Securities which may vest in the Treasurer.-**No securities for money except the securities mentioned in Clauses (a), (b), (bb), (c) and (d) of Section 20 of the Indian Trusts Act, 1882 (II of 1882), shall be vested in the Treasurer.

#### **7. Accounts of trusts consisting of immovable property.-**In the case of property vested in the Treasurer other than securities for money, the person acting in the administration of the trust and having, under sub-section (3) of Section 8 of the Act, the possession, management and control of the property and the application of the income thereof, shall in books to be kept by him, regularly enter or cause to be entered full and true accounts of all moneys received and paid respectively on account of the trust, and shall, on the demand of the Central Government, submit annually to such public servant as the Central Government may appoint in this behalf, in such form and at such time as the Central Government may prescribe, an abstract of those accounts and such returns as to other matters relating to the administration of the trust as the Central Government may from time to time see fit to require.

**8. Fees.**

- (1) The following are prescribed as the fees to be paid to the Central Government in respect of any property vested under the Act in the Treasurer :-
  - (i) In the case of property other than securities for money, the actual charge incurred by the Treasurer in the discharge of his functions in respect of the property.
  - (ii) In the case of securities for money, at the rate of one Paisa for every rupee of interest collected.  
The fee shall be charged on interest by rounding off the amount to the nearest rupee, fractions of a rupee below fifty Paisa or more being reckoned as one rupee.
- (2) The Treasurer may deduct any fees payable to the Central Government under this rule on account of any endowment from any money in his hands on account of such endowment. If he holds no such moneys the amount shall be claimed from the administrators of the endowment.

**9. Vesting orders how filed.** - All copies of vesting orders received by the Treasurer shall be filed together and shall be numbered in consecutive order of their receipt; when a sufficient number have been received they shall be bound in volumes. A note shall be made on each vesting order of any entries in the registers prescribed under these rules relating to the property vesting in the Treasurer under the order.

**10. Registers of securities.** - On the receipt of any securities for money, or on their purchase by himself, the Treasurer shall record their receipt in a register in Form 1. He shall also keep a separate account for each endowment in Form 2, in which he shall record all receipts including any amount sent for investment, and all disbursements. In the cash account in Part - II of Form 2 the Treasurer shall record only his own transactions (such as the payment of the money to the administrator), and not the transactions of the administrators of the endowment fund.

**11. Stock Disposal Register.** - The Treasurer shall enter all securities returned or sold by him in a register in Form 3. Returns shall also be entered in Form 2, where the amount returned will be deducted from the capital of the endowment concerned.

**12. Custody of Securities.** - On the issue of a vesting order under Section 4 of the Act in respect of any securities for money, the person authorized under Section 6 of the Act to make the application for such vesting order shall, as soon as practicable, forward to the Treasurer the said securities. The Treasurer shall, after recording the receipt of the said securities in the registers kept under Rule 10, take steps, as soon as practicable, to have them converted into stock and keep the stock certificate in his custody. After conversion, entries shall be made in the Treasurer's Stock Register in Form 7. A consolidated register showing the securities (e.g., Promissory Notes and the Stock Certificates) in the custody of the Treasurer shall also be maintained in Form 8.

**13. Accounting of Interest.** - The Treasurer, on receipt of any interest securities, shall pass it through his General Trust Interest Account under a special Sub-Head "Interests on Charitable Endowments under Act VI of 1890". The interest will then be distributed to the various ledger accounts in the register in Form 2, in which the gross amounts shall be shown, any deductions for fees, etc., being shown as a charge, and the payment of the balance to the administrators being shown as a disbursement. The Treasurer shall maintain personal, ledger account in the Reserve Bank and shall make payment to the administrators by cheques. The entries in the ledger of interest received shall be taken out and agreed annually with the total amount of the interest drawn.

**14. Balance Sheet.** - The registers in Form 1 shall show all securities vested in the Treasurer as such. In order to prove the balance actually held by the Treasurer in his own hands, a balance sheet in Form 4 shall be made out actually and agreed with the actual securities in the Treasurer's possession. Such agreement shall be certified on the balance sheet.

**15. Publication of accounts.** - A list of all properties vested in the Treasurer and an abstract of the accounts of the interest and the annual agreement of balance shall be published in the Official Gazette on the 15th June of each year.

**16. Register of property other than securities.** - The Treasurer shall enter in a register in Form 5 any property other than securities which becomes vested in him, and shall record in the same register against the original entry a note of any property of which he is divested.

**17. Form of publication of list and abstract.** - The list of properties vested in the Treasurer to be published annually under Rule 15 shall be in Form 6. Part - I will relate to properties other than securities; Part - III will relate to securities and will also contain the abstract of accounts required by the Act to be published. The Treasurer shall demand and receive acknowledgements of the correctness of the balances when so published, from the administrators of endowment funds or from any one or more of their body who may have been authorized by the administrators to give such acknowledgements and such acknowledgements shall be furnished within 3 months from the date of publication of accounts in the Official Gazette.

**18. Audit.** - Arrangements for annual audit of the Treasurer's accounts shall be made by the Comptroller and Auditor General.



**FORM 1**

**REGISTER OF SECURITIES HELD UNDER ACT VI OF 1890**

Sl. No.	Date of Receipt	Number or brief description of Charitable Endowments	Particulars of Securities received						Leger Folio	Remarks
			From whom received	No. and date of forwarding letter	Nature of Securities, e.g. Government securities 3 ½ per cent Loan of 1865, Guaranteed Railway Debentures, etc.	Distinguishing number of each security	Nominal value of each security	Total nominal value of each separate endowment		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.



## FORM 2

## LEDGER ACCOUNT OF SECURITIES HELD UNDER ACT VI OF 1890.

- 1.Name of Endowment.....
- 2.Particulars of vesting order.....
- 3.When vested in Treasurer.....
- 4.Name of Administrators.....
- 5.To whom interest is to be sent.....

## PART - I - Account of Capital

Sl. No. Form 1	Particulars (e.g. received or returned)	Details of securities (distinguishing number, etc.)	Value of each security (separate column for each kind)					Amount of half yearly interest	Date to which interest has been paid on receipt	Initials of Treasurer or Assistant-in- Charge
			3 ½ per cent Loan of 1865	Guaranteed Railway Debentures						
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.

NOTE.- The balance of the value columns must be worked out on every day on which there is a new entry.



## PART-II-CASH ACCOUNT

## RECEIPTS

Date	Particulars	Amount

## EXPENDITURE

Date	Particulars	Amount

NOTE. To be closed annually to balance. The transactions will not be numerous. A few pages of the ledger (rule only for the Cash Account) may be left for each account, so that the account may be carried on for several years without opening a fresh Ledger Account.





## FORM 3

## STOCK DISPOSAL REGISTER

Sl. No.	Date of entry	Name of the Fund or Trust	No. of entries in Stock Register	Amounts disposed of	How disposed of	GO's initials	Official Designation of Officer



**FORM 4**

**BALANCE SHEET OF SECURITIES HELD UNDER ACT VI OF 1890**

Particulars	3 ½ per cent Loan of 1865		(A pair of columns for each different kind of security held)	Total	
	No.	Value		No.	Value
Opening Balance (from last year)					
.....Securities received.....					
.....Stock Certificates received .....					
.....					
<b>GRAND TOTAL</b>					
Deduct -					
Sent to the PDO Reserve Bank of India for conversion into stock.....					
<b>BALANCE</b>					
Deduct -					
Returned or sold.....					
<b>BALANCE</b>					
Add -					
Sent for conversion out of which stock certificates have not been received					
.....					
<b>CLOSING BALANCE</b>					

Certified that the above closing balance has been compared with the Securities in Treasurer's possession and has been found to be agree both as to number and value.



## FORM 5

REGISTER OF PROPERTIES OTHER THAN SECURITIES  
HELD UNDER ACT VI OF 1890

Sl. No.	Particulars of vesting order		Name of endowment	Administrators of property	Property held		
	No.	Date			Description	Value	Annual income if known
1	2	3	4	5	6	7	8

Description	Title Deeds held					Initials of Treasurer or Assistant-in-Charge	Remarks
	Date of receipt	Where deposited	Date of return	To whom returned	Authority for return		
9	10	11	12	13	14	15	16



**FORM 6**

**LIST AND ABSTRACT ACCOUNT OF  
PROPERTIES HELD UNDER ACT VI OF 1890**

**PART - I - LIST OF PROPERTIES, OTHER THAN SECURITIES**

Sl. No.	Particulars of vesting order		Name of endowment	Administrators of property	Property held			Remarks
	No.	Date			Descri- ption	Value	Annual income if known	
1	2	3	4	5	6	7	8	9

**LIST OF ABSTRACT PART ACCOUNT-II-OF SECURITIES**

Case No.	Name of endow- ment	Persons in whose behalf held	Particulars of Securities	Total of Securities	Cash Receipts			Cash expenditure Payments*	Balance in cash	Remarks
					Interest or dividend realised	Other Cash Receipts*	Total cash Receipts			
1	2	3	4	5	6	7	8	9	10	11

\* Enter details in these columns



# FORM 7

## TREASURER'S STOCK REGISTER OF

per cent loan of

No. of Case in Form No.	Serial No.	Date of entry	To what fund or trust the investment belongs	To whom interest is to be remitted	Amount of investment	Amount of half-yearly interest	(Pair of columns for noting interest payment order)	Remarks
1	2	3	4	5	6	7	8	9
					Rs. P.	Rs. P.	Rs. P.	



**FORM 8**

**REGISTER OF CLEAN GOVERNMENT PROMISSORY NOTES AND  
STOCK CERTIFICATES HELD BY THE TREASURER  
OF CHARITABLE ENDOWMENTS FOR INDIA**

Sl. No.	Date of entry	In conversion of	Particulars				A pair of columns for noting interest for half-year ending	Remarks
			Receipts		Disposals			
			No.	Amounts	No.	Amounts		
1	2	3	4	5	6	7	8	9



**APPENDIX - 9**

[ See Rule320]

**DESTRUCTION OF OFFICE RECORDS CONNECTED WITH ACCOUNTS**

The destruction of records (including correspondence) connected with accounts shall be governed by the following Rules and such other subsidiary rules consistent therewith as may be prescribed by Government in this behalf with the concurrence of the Comptroller and Auditor-General.

1. The following shall on no account be destroyed :-

- (i) Records connected with expenditure, which is within the period of limitation fixed by law.
- (ii) Records connected with expenditure on projects, schemes or works not completed, although beyond the period of limitation.
- (iii) Records connected with claims to service and personal matters affecting persons in the service except as indicated in the Annexure to this Appendix.
- (iv) Orders and sanctions of a permanent character, until revised.
- (v) Records in respect of which an audit objection is outstanding.

2. The following shall be preserved for not less than the period specified against them :-

		Description of records		
Sl. No.	Main-Head	Sub-Head	Retention Period	Remarks
(1)	(2)	(3)	(4)	(5)
1.	Payments and recoveries.	(i) Expenditure Sanctions not covered by Paragraph 1 above (including sanctions relating to grants-in-aid) (ii) Cash Books maintained by the Drawing and Disbursing Officers under Central Government Account (Receipts and Payments) Rules, 1983. (iii) Contingent expenditure.  (iv) Arrear claims (including sanction for investigation, where necessary). Papers relating to : (v) GPF Membership. (vi) GPF Nomination.  (vii) Adjustment of missing credits in GPF Accounts.	2 years, or one year after completion of audit, whichever is later.  10 years.  3 years, or one year after completion of audit, whichever is later. 3 years, or 1 year after completion of audit, whichever is later.  1 year. 1 year - after final settlement of GPF Account. 1 year.	Subject to: (a) Original nomination being placed in Vol. II of the Service Book of Group 'D' Government servants; and (b) Nomination in original or an authenticated copy thereof being placed in Vol. II of the Service Book/Personal File in case of other Government servants. Subject to an authenticated copy of the sanction being placed on the personal file.



Sl. No.	Main-Head	Description of records		Retention Period	Remarks
		Sub-Head			
(1)	(2)	(3)		(4)	(5)
2.	Budget Estimates / Revised Estimates.	(viii) Final withdrawal from GPF, e.g., for house building, higher technical education of children, etc. (ix) GPF annual statements. (x) T.A./Transfer T.A. claims		1 year.	The retention period here related to the Budget / Revised Estimates as compiled by the Budget / Accounts Section for the Department as a whole.
3.	Service Books of:			1 year.	
	(a) Officials entitled to retirement / terminal benefits.			3 years, or one year after completion of audit, whichever is later.	
	(b) Other employees.			3 years.	
4.	Leave Account of:			3 years after issue of final pension/ gratuity payment order.	
	(a) Officials entitled to retirement / terminal benefits.			3 years after they have ceased to be in service.	Subject to the nomination in original or an authenticated copy thereof (where original kept with the audit) as the may be being placed in Vol. II of the Service Book/ Personal File.
	(b) Other employees.			3 years after issue of final pension/ gratuity payment order.	
5.	Service records.	(a) Nomination relating to family pension in and DCR gratuity. (b) Civil List Gradation/ Seniority list-		3 years after they have ceased to be in service.	
		(i) in the case of Departments preparing bringing out the compilation.		1 year - after settlement of benefits.	
		(ii) In the case of other Departments (i.e., those supplying information for such compilation)		3 years.	
				1 year after issue of relevant compilation.	



Sl. No.	Main-Head	Description of records	Retention Period	Remarks
(1)	(2)	(3)	(4)	(5)
6.	Expenditure statements.	(c) Alteration in the date of birth.  (d) Admission of previous service not supported by authenticated service record, e.g., through collateral evidence. (e) Verification of service. (a) In respect of lower formations. (b) In respect of Department itself. (c) Register of monthly expenditure (Form GFR 9)	3 years.  3 years; or 1 year after completion of audit, whichever is later  5 years. To be weeded out at the end of financial year. To be weeded out after the Appropriation Accounts for the year have been finalized To be weeded out the Appropriation Accounts for the year have been finalized.	Subject to suitable entry being made in the appropriate service record and an authenticated copy of the order being kept in Vol. II of Service Book/Personal file – do –  Subject to a suitable record being kept somewhere, e.g., in the Service Book or History Sheet.
7.	Surety Bonds executed in be favour of a temporary or a retiring Government servant.		3 years after the Bond ceases to enforceable.	
8.	(a) Pay Bill register. (b) Office copies of Establishment pay bills and related schedules (in respect of period for which pay bill register is not maintained). (c) Schedules to the Establishment pay bills for the period for which pay bill register is maintained. (d) Acquaintance Roll.		35 years 35 years  3 years, or one year after the completion of audit, whichever is later  3 years, or one year after the completion of audit, whichever is later.	



Sl. No.	Main-Head	Description of records		Retention Period	Remarks
		Sub-Head			
(1)	(2)	(3)		(4)	(5)
9.	Muster Rolls.			Such period as may be prescribed in this behalf in the departmental regulations subject to a minimum of three financial years of payment excluding the financial year of payment	
10.	Bill Register maintained in Form TR-28-A			5 years.	
11.	Paid cheques returned by the Bank to the Audit/Accounts Office.			5 years	The counter foils of paid cheques should be preserved for the same period as prescribed for preservation of paid cheques, viz., 5 years. However, in cases where the counter foils are required to be preserved in connection with settlement of some enquiry, etc., these should not be destroyed unless otherwise advised by the authorities conducting the enquiry. The other instructions contained in this Appendix will continue to be applicable in this case before the counterfoils which are more than five years old are actually destroyed.
12.	Files, papers and documents relating to contracts, agreements, etc.			5 years after the contract/ agreement is fulfilled or terminated. In cases where audit objections have been raised, however, the relevant files and documents shall not, under any circumstances, be allowed to be destroyed till such time as the objections have been cleared to the satisfaction of the audit authorities or have been reviewed by the Public Accounts Committee.	
13.	Sub-vouchers relating to the Secret Service Expenditure.			3 years after the expiry of the financial year in which the expenditure was incurred, subject to completion of administrative audit and issue of audit certificate by the nominated Controlling Officer.	

**INSTRUCTIONS**

1. The retention period specified in Column (4), in the case of a file, is to be reckoned from the year in which the file is closed (i.e., action thereon has been completed) and not necessarily from the year in which it is recorded.
2. In the case of records other than files, e.g., registers, the prescribed retention period will be counted from the year in which it has ceased to be current.
3. In exceptional cases, a record may be retained for a period longer than that specified in the schedule, if it has certain special features or such a course is warranted by the peculiar needs of the department. In no case, however, will a record be retained for a period shorter than that prescribed in the schedule.
4. If a record is required in connection with the disposal of another record, the former will not be weeded out until after all the issues raised in the latter have been finally decided, even though the retention period marked on the former may have expired in the meantime. In fact, the retention periods initially marked on such records should be consciously reviewed and, where necessary, revised suitably.

**NOTES.-**

- (1) Before any pay bills/pay registers are destroyed, the service of the Government servants concerned should be verified under Rule 257 in accordance with (1) with .
- (2) The periods of preservation of account records in Public Works Offices are prescribed separately by Government.
- (3) Where a minimum period after which any record may be destroyed has been prescribed, the Head of a Department or any other authority empowered by him to do so, may order in writing the destruction of such record in their own and subordinate offices on the expiry of that period counting from the last day of the latest financial year covered by the record.
- (4) Heads of Departments shall be competent to sanction the destruction of such other records in their own and subordinate offices as may be considered useless, but a list of such records as property appertain to the accounts audited by the Indian Audit and Accounts Departments shall be forwarded to the Audit Officer and or the Accounts Officers, as the case may be, for his concurrence in their destruction before the destruction is ordered by the Head of Department.
- (5) Full details shall be maintained permanently, in each office, of all records destroyed from time to time.



## ANNEXURE TO APPENDIX – 9

### Destruction of records referred to in Para. 1 (iii) of this Appendix

Description of records				
Sl. No.	Main-Head	Sub-Head	Retention Period	Remarks
(1)	(2)	(3)	(4)	(5)
1.	Creation & Classification of posts.	(i) Continuance / revival of posts.  (ii) Conversion of temporary posts. (iii) Creation of posts. (iv) Revision of scales of pay.  (v) Upgrading of posts.	1 year  10 years  10 years Permanent in the case of Departments issuing orders and Departments concerned; other Departments need keep only the standing orders, weeding out superseded ones as and when they become obsolete. 10 years	Subject to particulars of sanction being noted in Establishment/ Sanction Register. – do –  – do – – do –  – do –
2.	Review for determining suitability of employees for continuance in service.	Establishment / Sanction Register.	Permanent.	Where, for any reason the register is re-written, the old volume will be kept for 3 years.
3.	Arbitration and litigation cases.		3 years	Subject to: (a) the file not being closed until the award/ judgment become final in all respects by limitation or final decision in appeal/ revision; and (b) cases involving important issues or containing material of a high precedent / reference value being retained for an appropriately longer period either initially or at the time of review.





Description of records				
Sl. No.	Main-Head	Sub-Head	Retention Period	Remarks
(1)	(2)	(3)	(4)	(5)
4.	Notices under Section 80 of Civil Procedure Code.		1 year	If such a notice is followed up by a civil suit, it would become arbitration/ litigation case and would, therefore, need to be retained for 3 years.
5.	Recruitment.	Condonation of break in service.	5 years	Subject to a suitable entry being made in the appropriate service record and an authenticated copy of the order being kept in Vol. II of Service Book Personal File.
6.	Advance. house building	(i) Car Advance Rules (ii) Conveyance Advance Rules. (iii) Cycle Advance Rules (iv) Festival Advance Rules (v) GPF Advance Rules (vi) House Building Advance Rules (vii) Motor Cycle / Scooter Advance Rules (viii) Pay Advance Rules (ix) T. A. Advance Rules (x) Travel Concession Rules (xi) Other Advance Rules (xii) Grant of car Advance (xiii) Grant of conveyance allowance	<div>Permanent in the case of Departments issuing the rules, orders and instructions; other Departments need keep only the standing rules, etc., weeding out the superseded ones as and when they become obsolete.</div> <div>1 year</div>	Subject to : (i) suitable entries being made in pay bill register; and (ii) in case of motor car/motor cycle / scooter and house building advances.



Description of records				
Sl. No.	Main-Head	Sub-Head	Retention Period	Remarks
(1)	(2)	(3)	(4)	(5)
		(xiv) Grant of cycle advance (xv) Grant of festival advance (xvi) Grant of GPF advance advance (xvii) Grant of (xviii) Grant of motor cycle/scooter advance (xix) Grant of pay advance (xx) Grant of T. A. advance (xxi) Grant of LTC advance (xxii) Grant of other advance	<div>1 year</div> <div>1 year</div>	(a) copies of sanction being placed on personal files; and (b) mortgage deeds and other agreements executed being kept separately in safe custody for the period they are valid.
7.	Surety Bonds executed in favor of a temporary or a retiring Government servant.		3 years after the Bond ceases to be enforceable.	
8.	Pension / retirement.	(i) Rules and Orders (general aspects.)  (ii) In respect of Groups 'A', 'B' and 'C' Government servants.  (a) Pre-verification of pension cases. (b) Invalid pension (c) Family pension (d) Other pensions  (e) Gratuity (f) Commutation of pension after the Bond ceases to be enforceable.	Permanent in the case of Departments issuing the rules, orders and instructions; other Departments need keep only the standing rules and orders weeding out the superseded ones as and when they become obsolete. 3 years  <div>Till one year after the last beneficiary of the family pension ceases to be entitled to receive or 5 years whichever is later.</div> 5 years  15 years	



**Note** – The principle to be adopted in respect of files having financial implications and hence liable to be called by audit for inspection is that such files should be retained for a period of five years after they have been recorded. If, at any time during the period of five years, an audit objection having reference to the transaction dealt with in that file arises, is received, the file will not be destroyed until after the audit objection has been settled to the satisfaction of the audit. Also, if local audit does not take place within the period of five years, the Head of the Office should ascertain from the audit authorities whether they have any objection to the files relating to the earlier years, due for weeding out by the application of the five year formula, being destroyed or retained for a further period for scrutiny by the audit party and, if so, for what period.

While records may be reviewed and weeded out at periodical intervals in the light of the retention periods prescribed to avoid their build-up, the attempt should be to make a continuous and conscious effort throughout the year to weed out unnecessary records. In other words, the working rules should be “weed as you go”.

#### INSTRUCTIONS:

1. The retention period specified in Column (4) in the case of a file, is to be reckoned from the year in which the file is closed (i.e., action thereon has been completed) and not necessarily from the year in which it is recorded.
2. In the case of records other than files, e.g., registers, the prescribed retention period will be counted from the year in which it has ceased to be current.
3. In exceptional cases, a record may be retained for a period longer than that specified in the Schedule, if it has certain special features or such a course is warranted by the peculiar needs of the Department. In no case, however, will a record be retained for a period shorter than that prescribed in the schedule.
4. If a record is required in connection with the disposal of another record, the former will not be weeded out until after all the issues raised on the latter have been finally decided, even though the retention period marked on the former may have expired in the meantime. In fact, the retention periods initially marked on such records should be consciously “reviewed and where necessary revised suitably”.



## **APPENDIX - 10**

[See Rule 61 and Rule 69]

### **“CHECK AGAINST PROVISION OF FUNDS”**

The pre-check to be applied to all payments by the departmentalized Accounts Officers includes a check against provision of funds also. It is an important part of the functions of the Accounts Office to see that no payment is made in excess of the budget allotment. In order to exercise an effective check in this behalf, a separate register (DDO-wise Bill Passing-cum-Expenditure Control Register –Form CAM –9) should be maintained in the Accounts Officer for each Drawing Officer and by sub-heads and units of appropriation so as to ensure at the time of passing each bill that the amount of the bill under check is covered by Budget allotment. If the amount of any bill leads to excess over the Budget allotment or is not covered by an advance from the Contingency Fund, the Accounts Officer should decline payment under advice to the authority controlling the grant so that the latter could arrange for additional funds. An Appropriation Audit Register (Form CAM – 62) shall be maintained.

NOTE. – In cases where payment of a bill/claim would lead to excess over the provision under any unit of appropriation the payment may be made by the Pay and Accounts Office only on receipt of an assurance in writing from the Ministry/Head of Department controlling the grant that the expenditure involved is not on a New Service, or New Instrument of Service; that necessary funds to accommodate the expenditure will be provided for in time by issue of re- appropriation order, etc., that a note to the effect has been kept for further action, and that the grant as a whole (i.e., separately under Revenue and Capital Sections) is not likely to be exceeded. This applies in respect of any new item of expenditure, provision for which does not exist in the Budget (as distinct from expenditure on “New Service” or “New Instrument Service” not provided in the Budget) as well as in cases where the existing provisions is not sufficient to cover the payments. **In case of an urgent requirement of expenditure attracting the provisions of New Service/New Instruments of Service and thereby supplementary demands through the approval of Parliament, the same should be referred to Ministry of Finance. The excess expenditure in such cases can be allowed by the concerned Financial Advisers only on the specific approval of Secretary (Expenditure) that the necessary funds will be made available through the next batch of supplementary demands for grant.**

If such a contingency in regard to inevitable payment of a bill should arise towards the close of financial year and the grant as a whole is likely to get exceeded thereby, order of the FA on behalf of the Chief Accounting Authority would have to be sought.

In case the additional funds required are to be made available merely by reallocation (and not by re- appropriation) of savings, if any, under the same sub-head of appropriation, the related claim will be passed for payment only after additional funds therefor are allocated in writing by the Controlling Officer.



## APPENDIX - 11

[ See Rule 225 (viii) (b) ]

### FORMULA FOR PRICE VARIATION CLAUSE

The formula for Price Variation should ordinarily include a fixed element, a material element and a labour element. The figures representing the material element and the labour element should reflect the corresponding proportion of input costs, while the fixed element may range from 10 to 25%. That portion of the price represented by the fixed element will not be subject to variation. The portions of the price represented by the material element and labour element alone will attract Price variation. The formula for Price variation will thus be :

$$P1 = P0 \left[ F + a \left[ \frac{M1}{M0} \right] + b \left[ \frac{L1}{L0} \right] \right] - P0$$

Where P1 is the adjustment amount payable to the supplier (a minus figure will indicate a reduction in the Contract Price)

P0 is the Contract Price at the base level.

F is the Fixed element not subject to Price variation.

a is the assigned percentage to the material element in the Contract price.

b is the assigned percentage to the labour element in the Contract Price.

L0 and L1 are the wage indices at the base month and year and at the month and year of calculation respectively. M0 and M1 are the material indices at the base month and year and at the month and year of calculation respectively.

If more than one major item of material is involved, the material element can be broken up into two or three components such as Mx, My & Mz. Where price variation clause has to be provided for services (with insignificant inputs of materials) as for example in getting Technical assistance normally paid in the form of per diem rates, the price variation formula should have only two elements viz. a high fixed element and a labour element. The fixed element can in such cases be 50% or more, depending on the mark-up by the supplier of the Periderm rate vis-à-vis the wage rates.



## **APPENDIX - 12**

[See Rule 279 (1).]

### **RATES OF GUARANTEE FEE**

<b>S. No.</b>	<b>Type of Borrowing</b>	<b>Rate of Fee (Per Annum)</b>
1.	Borrowing under the market borrowing programme approved by the RBI	0.25 %
2.	Borrowing under inter corporate transfers envisaged in the Annual Plan	0.25 %
3.	Other Domestic Borrowings : (i) Public Sector including the cooperative sector. (ii) Other sectors	1.00 % 2.50 %
4.	External borrowings	1.20 %





## FORM GFR 1

[ Rule 65 (4) ]

APPLICATION FOR AN ADDITIONAL APPROPRIATION,  
YEAR ..... FOR DEPARTMENT

Budget Head Major and Minor Heads of Account and Primary unit of Appropriation	Original Appropriation as years modified by competent authority	Expenditure		Additional appropriation applied for	Expenditure during the past three			
		Amount up to the month	Necessary for remaining month		20	20	20	20
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.

No....., dated ..... 20.

Explanation of insufficiency of grant, recommendations and proposals for re-appropriation by -

- (1) Disbursing Officer :  
 (2) Controlling Officer :  
 (3) Head of Department :  
 (4) Secretary to Government in Administrative Department. No....., dated  
 ..... 20.

Order of sanction with details

Additional appropriation of Rs. ....of source of appropriation Sanctioned.

The amount will be met by re-appropriation form .....

Signature .....

Designation .....



## FORM GFR 2

[ See Paragraph 4 of Appendix - 2 ]

### REVENUE RECEIPTS

Ministry / Department / Union Territory :  
Major Head :

(In thousands of Rupees)

ACCOUNTS Third Last year	First Month		Last Month		Total
	Eight	Seven	Five	Four	
Second Last year					
Last year					
Current Year ] Budget Year ] Revised					
Ensuing Year ] Budget					

Accounts 7 months		Minor Heads	Accounts			Current year		Ensuing Year
Last year	Current year		Third Last Year	Second Last Year	Last Year	Budget Estimate	Revised Estimate	Budget Estimate

Explanation for increase / decrease (Minor Headwise)

Signature .....  
Designation .....  
Date .....

**FORM GFR 2-A**

[ See Paragraph 4 of Appendix - 2 ]

**ESTIMATES OF FOREIGN GRANTS CONCERNING  
THE MINISTRY / DEPARTMENT .....**

(In thousands of Rupees )

Name of the grant or country/ body	Date of aid agreement	Particulars of assistance to be received	Total assistance expected	Receipt Major Head	Amounts to be provided in			Manner of utilization of aid*
					Current Year BE	Current Year RE	Ensuring Year BE	
1	2	3	4	5	6	7	8	9

Signature .....

Designation .....

Date .....

\* A brief note may be added indicating the project on which aid is to be utilized. In the case of material and equipment, the relevant grant and expenditure Heads of Account under which (i) utilization of material by Central Government Departments / Projects, (ii) transfer of material to States, Union Territories and other Bodies will be adjusted and also whether the utilization on transfer will be on Central Sector Scheme or Centrally Sponsored Schemes should also be indicated. In cases where the aid material is proposed to be sold the Receipt Major Head under which the proceeds will be credited should be indicated.

NOTE : Cash grants and assistance in the form of material and equipment should be indicated separately in Columns 3 to 8.



## FORM GFR 2 - B

[ See Paragraph 4 of Appendix - 2 ]

### ESTIMATES OF INTEREST RECEIPTS AND LOAN REPAYMENTS

Ministry / Department .....

(In thousands of Rupees)

	Interest Receipts			Loan Repayments		
	BE Current Year	RE Current Year	BE Ensuing Year	BE Current Year	RE Current Year	BE Current Year
1. State Governments*. 2. Union Territory Governments*. 3. Interest on Capital Outlay in departmental commercial undertakings. 4. Foreign Governments*. 5. Industrial/Commercial/Financial undertakings (undertaking-wise details to be given) : (a) Public Sector Undertakings. (b) Private Sector Undertakings. 6. Statutory Bodies (Port Trusts, Municipalities, KVIC, Tea/Coffee Boards, etc.) 7. Railways / P&T Reserve Funds. 8. Other parties (Co-operatives, Educational Institutions, displaced persons and other individual loanees except Governments servants)* 9. Government servants.						
Total						

\* Estimates for each State / Union Territory / Foreign Government / Statutory Body or Institution should be separately appended to the Annexure.

No.....

Ministry / Department .....

Date the .....

Forwarded in duplicate to the Ministry of Finance, Budget Division.

Signature .....

Designation.....

**FORM GFR 3**

[ See Rule 58 and Rule 64(1) ]

Office of .....

Grant No .....

**LIABILITY REGISTER FOR THE YEAR .....**

Sl. No.	Designation of Disbursing Officer	Month of Report	Serial number in Liability Statement	Nature of Liability	No. & date of indent or connected letter	Agency on which indent is placed	Estimated Cost	Permissible excess over the estimated cost, in any	Total Liability (Cols. 8+9)
1	2	3	4	5	6	7	8	9	10



Probable month and year in which the expenditure will be accounted for in the departmental expenditure statement		Initials of the Branch Officer	Record of Payment		Balance commitments [Col. 10 minus Col. 14(b)]		Initials of the Branch Officer	Remarks
Month and year	Amount of expenditure to be incurred		(a) Month and year	(b) Amount	(a) Amount	(b)* Year(s) in which it is likely to be discharged		
11	12	13	14	15	16	17	18	19

NOTE :- Cols. 2, 3 and 4 will be operated upon only in the Register of Liabilities maintained by the Controlling Officers in respect of the case reported by their Disbursing Officers.

\* If the balance of commitment is to be discharged during more than one financial year, the year-wise break-up of the amount should be indicated.



**FORM GFR 3-A**

[See Rule 58]

Office of .....

Grant No .....

**LIABILITY STATEMENT FOR THE MONTH OF .....****Part - I - Statement of Liabilities incurred during the month of report**

Sl. No.	Nature of liability	No. and date of indent or connected letter	Agency on which indent is placed or demand is made	Estimated cost	Permissible excess over the estimated cost, if any	Total liability (Col. 5 + Col. 6)	Probable month in which the expenditure will be accounted for in the departmental expenditure statement		Remarks
							Month	Expenditure likely to be incurred	
1	2	3	4	5	6	7	8	9	10



**Part - II - Payments made against Liabilities and Liabilities  
cancelled or finally paid off**

Month in which Liability was reported	Serial No.	Record of payment		Balance commitment		Remarks
		(a)	(b)	(a)	(b)*	
		Month and year	Amount	Amount	Year(s) in which the balance of Commitments is likely to be discharged.	
1	2	3	4	5	6	7

**NOTE 1-** In Col. 2, the number to be entered will be the serial number of the liability in the Liability Statement in which is was first reported.

**NOTE 2 -** In the Remarks column, the following information should also be given :-

- If payment against a liability is likely to be made, not in the month originally indicated, but in some other month, the latter should be indicated. If change in the month of payment is the only information to be given in respect of a liability, the Columns to be used will be 1, 2 and 5.
- Similarly, if the whole or part of a liability has been cancelled or otherwise extinguished, the fact may be mentioned and brief reasons given.

\* If the balance of commitments is to be discharged during more than one financial year, the year -wise break- up of the amount should be indicated.



## Part - III - Progressive amount of outstanding

Month in which liability was reported	Serial No.	Balance commitments	
		(a)	(b)*
		Amount	Year(s) in which the balance of commitments is likely to be discharged
1	2	3	4
Total			

**NOTE. 1** - This is a list of liabilities which are pending, that is, those which have not been paid off or otherwise extinguished or cancelled.

**NOTE. 2** - In Column 2, the number to be entered will be the serial number of the liability in the Liability Statement in which it was first reported.

\* If the balance of commitments is to be discharged during more than one financial year, the year -wise break- up of the amount should be indicated.



**FORM GFR 4**

[ See Paragraph 9 of Appendix - 3 ]

**STATEMENT OF PROPOSALS FOR PRE-BUDGET DISCUSSION**

**STATEMENT OF BUDGET ESTIMATES**

**Demand No.**  
**(in crores of Rupees)**

Sl. No.	Description as shown in the Exp.Bud.Vol.2 (SBE)	Actuals For the last two Preceding years	Actuals	B.E. current year	Actuals upto September of current year	R.E. current year	B.E current year
1	2	3	4	5	6	7	8

**APPENDIX I**  
**(See Paragraph 3.5)**

**Expenditure SBE**

**Ministry/ Department**

**Demand No.**  
**(Rs.in crore)**

	Actuals		BE		RE		BE	
	For the last two Preceding years		(current year)		(current year)		(next year)	
	Revenue	Capital	Revenue	Capital	Revenue	Capital	Revenue	Capital
A CENTRE'S EXPENDITURE								
I. Establishment Expenditure								
II. Central Sector Schemes								
III. Other Central Expenditure								
B. TRANSFERS TO STATES								
IV. Centrally Sponsored Schemes								
V. Finance Commission Transfers								
VI. Other Transfers to States								

**FORM GFR 4**

[ See Paragraph 3.5 ]

**OBJECT HEAD WISE SUMMARY EXPENDITURE****PART C-OBJECT HEADWISE SUMMARY****Demand No.**  
**(Rs.in crore)**

Object Head Code	Object Head Name	Actual 2015-16	BE		Actual Expenditure till September		RE		BE
			Revenue	Capital	Revenue	Capital	Revenue	Capital	



**FORM GFR 5**

[ See Rule 57 (4) (ii) and Rule 57 (5) (iii)]

**REGISTER SHOWING EXPENSES BY HEADS OF ACCOUNT**

Office of .....

Head of Account.....

Major Head.....

Minor Head.....

Sub-Head .....

Month

Year

(Unit of Appropriation)

	Allotment	Sub-Head of Grants					Deduction, if any	Net amount of the bill
Sl. No.	Voucher No./Token No. & Date/Serial No. in Bill Register*							
1.								
2.								
3.								
4.								
Add adjustment communicated by PAO								
Total for the month								
Total from 1st April Balance of the appropriation								

NOTE 1. If an allotment is changed, necessary correction in the register should be made in red ink.

NOTE 2. Allotment of expenditure under 'Charged' portion should be indicated distinctly.

NOTE 3.- This account should be despatched on the 3rd of the following month.

\* Serial No. in Bill Register to be entered only in respect of bills passed by Cheque Drawing DDOs under their cheque-drawing powers.

Signature.....

Designation.....

Date.....



**FORM GFR 6**

[ See Rule 57 (4) (iv) ]

**BROADSHEET FOR WATCHING RECEIPT OF  
ACCOUNT FROM DISBURSING OFFICERS**

Office of .....

Major Head.....

Minor Head .....

Sub-Head .....

Serial No.	Names of Disbursing Officers	District	Date of receipt of account		
			March	April	May

NOTE 1. Districts are to be arranged according to alphabetical order.

NOTE 2. Dates of receipts should be noted in monthly columns. Reminder should be sent if not received by the 7th of the month.



**FORM GFR 7**

[ See Rule 57 (4) (vi) ]

**COMPILATION SHEET**

Major Head.....

Minor Head.....

Sub-Head.....

Month	Serial No. of the Disbursing Officers						Total for each officer	Remarks
	Total expenditure ..... Add Adjustment communicated by Accounts Officer and not reckoned by DDOs ..... ..... Grand Total.....  Add Total up to previous month..... ..... Progressive Total up-to-date ..... .....							

**FORM GFR 8**

[ See Rule 57 (4) (viii), (5) (iv) &amp; (6)]

**CONSOLIDATED ACCOUNTS**

Name of Office..... Grant No.....  
Appropriation.....  
Financial Year.....

Units of appropriation (Part -III of Demands for Grants)	Grants sanctioned		Grants distributed		Proportionate Grant from April to date		Actual Expenditure April	
1	2		3		4		5	
(i) Salaries	Charged	Voted	Charged	Voted	Charged	Voted	Charged	Voted
(ii) Total of all units of appropriation								

Units of appropriation (Part -III of Demands for Grants)	Actual Expenditure							
	May		Progressive expenditure upto end of May		June		Progressive expenditure	
	6		7		8		9	
(i) Salaries	Charged	Voted	Charged	Voted	Charged	Voted	Charged	Voted
(ii) Total of all units of appropriation								

NOTE 1. Subsequent charges, if any, under Column 2 are to be made in red ink.

NOTE 2. Figures under Column 4 may be entered in pencil for facility of updating from month to month.

NOTE 3. Wherever variations between actual expenditure and proportion grant are large, suitable explanations should be given in a "Remarks" column.



**FORM GFR 9**

[ See Rule 57 (8) ]

**BROADSHEET FOR WATCHING RECEIPT OF THE RETURNS FROM THE HEADS OF DEPARTMENTS UNDER A DEPARTMENT OF THE CENTRAL GOVERNMENT**

Sl. No.	Grant No.	Date of receipt of returns											
		April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March

NOTE 1. Dates of receipt should be noted in monthly columns. Reminders should be sent if returns are not received by the prescribed date.

NOTE 2. Returns relating to the Secretariat proper should also be maintained in the above form.

**FORM GFR 10**

[ See Rule 217 (iii) ]

**REPORT OF SURPLUS, OBSOLETE AND  
UNSERVICEABLE STORES FOR DISPOSAL**

Item No.	Particulars of stores	Quantity/ Weight	Book Value/ Original purchase price	Condition and year of purchase	Mode of disposal (sale, public auction or otherwise)	Remarks
1	2	3	4	5	6	7

Signature.....

Designation.....

Date.....



## FORM GFR 11

[ See Rule 222]

### SALE ACCOUNT

Item No.	Particulars of Stores	Quantity/Weight	Name and full address of purchaser	Highest bid accepted	Highest bid rejected	Earnest money realized on the spot	Date on which the complete amount is realized and credited into treasury	Whether the articles were actually handed over on the spot. If not, the actual date of handing over of the articles with quantities	Auctioneer's Commission and acknowledgement for its payment
1	2	3	4	5	6	7	8	9	10

Signature.....

Designation.....

Date.....

**GFR 12 – A**

[(See Rule 238 (1))]

**FORM OF UTILIZATION CERTIFICATE  
FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION**

UTILIZATION CERTIFICATE FOR THE YEAR..... in respect  
of recurring/non-recurring  
GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

1. Name of the Scheme.....
2. Whether recurring or non-recurring grants.....
3. Grants position at the beginning of the Financial year
  - (i) Cash in Hand/Bank
  - (ii) Unadjusted advances
  - (iii) Total
4. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balances of Grants received years [figure as at Sl. No. 3 (iii)]	Interest Earned thereon	Interest deposited back to the Govern- ment	Grant received during the year			Total Available funds (1+2- 3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No. (i)	Date (ii)	Amount (iii)			

Component wise utilization of grants:

Grant-in-aid– General	Grant-in-aid– Salary	Grant-in-aid–creation of capital assets	Total

Details of grants position at the end of the year

- (i) Cash in Hand/Bank
- (ii) Unadjusted Advances
- (iii) Total





Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

- (i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
- (ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
- (iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.
- (iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.
- (v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.
- (vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.
- (vii) It has been ensured that the physical and financial performance under..... (name of the scheme has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure – I duly enclosed.
- (viii) The utilization of the fund resulted in outcomes given at Annexure – II duly enclosed (to be formulated by the Ministry/Department concerned as per their requirements/specifications.)
- (ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure –II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:

Place:

Signature

Signature

Name.....

Name.....

Chief Finance Officer

Head of the Organisation

(Head of the Finance)

(Strike out inapplicable terms)

**GFR 12 – B**

[ See Rule 256 (2) ]

**FORM OF UTILIZATION CERTIFICATE**

(1) Certified that out of the Loan of Rs. .... SANCTIONED under ....., dated....., in favour of ..... during the year ..... an amount of Rs. .... has been utilized for the purpose for which it was sanctioned, and that the balance of Rs. .... remaining unutilized at the end of the year ..... has been surrendered to the Government (vide No. ...., dated..... ) / will be adjusted towards the loan payable during the next financial year.

(2) Certified that I have satisfied myself that the conditions on which the loan was sanctioned have been duly fulfilled/are being fulfilled and that I have exercised the following checks to see that the money was actually spent for the purpose for which the loan was made.

Kinds of checks exercised

- 1.
- 2.
- 3.
- 4.

Signature.....  
Designation .....  
Date .....



## GFR 12 – C

[(See Rule 239)]

### FORM OF UTILIZATION CERTIFICATE (FOR STATE GOVERNMENTS) (Where expenditure incurred by Govt. bodies only)

Sl. No.	Letter No. and date	Amount	Certified that out of Rs.....Of grants sanctioned during the year.....in favour of .....under the Ministry/Department Letter No. given in the margin and Rs.....on account of unspent balance of the previous year, a sum of Rs.....has been utilized for the propose of .....for which it was sanctioned and that the balance of Rs.....remaining unutilized at the end of the year has been surrendered to Government (vide No. ....dated.....)/will be adjusted towards the grants payable during the next year.....
	Total		

2. Certified that I have satisfied myself that the conditions on which the grants-in-aid was sanctioned have been duly fulfilled/ are being fulfilled and that I have exercised the following checks to see that the money was actually utilized for the propose for which it was sanctioned.

Kinds of checks exercised

- 1.
- 2.
- 3.
- 4.
- 5.

Signature.....

Designation.....

Date.....

**PS:** The UC shall disclose separately the actual expenditure incurred and loans and advances given to suppliers of stores and assets, to construction agencies and like in accordance with scheme guidelines and in furtherance to the scheme objectives, which do not constitute expenditure at the stage. These shall be treated as utilized grants but allowed to be carried forward.



## FORM GFR 13

[ See Rule 262]

STATEMENT OF AGGREGATE BALANCE OF LOAN(S) OUTSTANDING AS  
ON 31ST MARCH, 20... AND DETAILS OF DEFAULTS

PAO / Pr. AO

Ministry of .....Major Head.....

Sl. No.	Sub-Major Head	Name of the borrower	Aggregate outstanding balance of loan(s)	Details of defaults		Amount of default		Earliest date to which the default pertains
	Minor Head of Account			Original letter No(s). and Date(s) sanctioning the loan(s)	Amount of loan(s) sanctioned Rs.	Principal Rs.	Interest Rs.	
1	2	3	4	5	6	7	8	9

**NOTE.** - Statements may be prepared on separate sheets for each Major Head, with Minor Head-wise break-up. Parties having aggregate outstanding balances of less than Rs. 5 lakhs each and which are not defaulters may be grouped together with a common descriptive head such as "Regional Engineering Colleges", etc., if possible or "parties with small outstanding balance" under Column 3.



## FORM GFR 14

[ See Rule 306. (3) ]

### FORM OF SECURITY BOND (FIDELITY BOND DEPOSITED AS SECURITY)

KNOW ALL MEN BY these presents that I, A.B..... of ..... and held and firmly bound unto the President of India, his successors and assigns (hereinafter referred to as "Government") in the sum of Rs.....(Rupees.....) to be paid to the Government for which payment, well and truly to be made, I bind myself, my heirs, executors, administrators, and legal representatives by these presents. Signed and dated this ..... day of ..... 20

2. WHEREAS the above bounden A.B..... was on the day of ..... 20..... appointed to and now holds the office of ..... in the office of ..... AND WHEREAS the said A.B..... by virtue of holding such office is bound to collect ..... (here describe the nature of Cashier's/ Storekeeper's/Sub-storekeeper's/Sub-ordinate's duties) ..... and to keep and render true and faithful accounts of his dealings with all property and money which may come into his hands or possession under his control such accounts to be kept in the form and manner that may, from time to time, be prescribed by duly constituted authority, and also to prepare and submit such returns, accounts and other documents as may from time to time be required of him.
3. AND WHEREAS the said A.B..... has, in pursuance of Rule 270 of the General Financial Rules, 1963, delivered to and deposited with ..... a Fidelity Bond issued by ..... Company for the sum of Rs..... (Rupees .....) as Security for the due and faithful performance by the said A.B..... of the duties of his said office and of any other office requiring security to which he may be appointed at any time and of other duties which may be required of him while holding any office as aforesaid and for the purpose of securing and indemnifying the Government against all loss, injury, damage, costs, or expenses which the Government may, in any way, suffer, sustain or pay by reason of misconduct, neglect, oversight or any other act of omission of the said A.B..... or of any person or persons acting under him or for whom he may be responsible.
4. AND WHEREAS the said A.B..... has entered into the above Bond in the sum of ..... conditioned for the due performance by him the said A.B..... of the duties of the said office and of other duties appertaining thereto or which may lawfully be required of him and to indemnify the Government against loss from or by reason of the acts or defaults of the said A.B..... and of all and every person and persons aforesaid.
5. NOW THE CONDITION of the above written Bond is such that of the said A.B..... has whilst he has held the said office of ..... as aforesaid always duly performed and fulfilled the duties of his said office and if he shall, whilst he shall hold the said office or any other office requiring security to which he may be appointed, or in which he may act, always duly perform and fulfil all and every duties thereof respectively and other duties which may from time to time be required of him while holding any such office as aforesaid, and shall duly pay into the Government Treasury at ..... all such money and securities for money as are payable or deliverable to Government and shall come into his possession or control by reason of the said office and shall duly account for and deliver up all moneys, papers and other property which shall come into his possession or control by reason of the said office and if the said A.B..... his heirs, executors, administrators or legal representatives shall pay or cause to be paid unto the Government the amount of any loss and /or defalcation in the accounts of the said ..... within 24 hours after the amount of such loss and /or defalcation shall have been demanded from the said A.B..... by the ..... such demand to be in writing and left at the office or last known place of residence of the said A.B..... and shall also at all times indemnify and save, and keep harmless the Government from all and every loss, injury, damage, actions, suits, proceedings, costs, charges and expenses which has been or shall or may at any time or times hereafter during the service or employment of the said A.B..... in such office as aforesaid, or any such offices aforesaid, be sustained, incurred, suffered brought, sued or commenced or paid by the Government by reason of any act,



embezzlement, defalcation, mismanagement, neglect, failure, misconduct, default, disobedience, omission, or insolvency of the said A.B..... or of any person or persons acting under him or for whom he may be responsible, then the above written Bond shall be void and of no effect, otherwise the same shall be and remain in full force.

6. PROVIDED ALWAYS and it is hereby declared and agreed by and between the parties hereto that the said Fidelity Bond No..... delivered and deposited as aforesaid shall be and remain at the disposal of the said officer for the time being or the Government as and for part and additional security over and above the above written Bond to the Government, for the indemnity and other purposes aforesaid with full power to the Government or an officer duly authorized in that behalf to obtain and receive payment of the sum or sums of money recoverable or to be received, upon or by virtue of the said Fidelity Bond or a sufficient portion thereof and all benefits and advantages thereof and to apply the same in and towards the indemnity as aforesaid of the Government.
7. AND it is hereby further agreed and declared by and between the parties hereto that the said A.B..... shall keep the said Fidelity Bond issued by the said company in full force by payment of the premia and as when they fall due and by otherwise conforming to the rules of the said company relating thereto.
8. PROVIDED ALWAYS that cancellation or lapse at any time of the said Fidelity Bond shall not be deemed to affect or prejudice the right of the Government to take proceedings upon or under this said Bond against the said ..... in case any breach of the condition of this Bond shall be discovered after the cancellation or lapse of the said Fidelity Bond but the responsibility of the A.B. .... shall at all times continue and but the Government shall be fully indemnified against all such loss or damage as aforesaid at any time.
9. PROVIDED FURTHER that nothing herein contained nor in the Fidelity Bond so deposited shall be deemed to limit the liability of the said A.B..... in respect of matters aforesaid to the forfeiture of the said sum of Rupees..... or part or parts thereof and that if the said sum be found insufficient to indemnify the Government in full for any loss or damage sustained by them in respect of matters aforesaid or any of them the said A.B..... shall pay to Government on demand such further sum as shall be deemed by..... to be necessary in addition to the said Fidelity Bond of Rs..... to cover such loss or damage as aforesaid and that the Government shall be entitled to recover such further sum payable as aforesaid in any manner open to them.
10. The stamp duty, if any, on this Bond shall be borne by the Government.

Signature

1. Signed and delivered by the above named A.B..... in the presence of .....
2. Signed for and on behalf of the President of India by ..... the ..... being the person directed or authorized by him in that behalf in the presence of .....



## FORM GFR 15

[ See Rule 253 (2) (ii) ]

### FORM OF WRITTEN UNDERTAKING TO BE EXECUTED BY AN UNDERTAKING / CORPORATION WHOLLY OWNED BY THE CENTRAL GOVERNMENT AT THE TIME OF SANCTIONING OF A LOAN

Memorandum of written undertaking given on the ..... day of ..... two thousand and ..... by a company incorporated under the Indian Companies Act, 1913 /the Companies Act, 1956,/ the Companies Act, 2013, having its registered office ..... a body corporate incorporated under the same name and style and by under ..... (Act No..... of .....) having its office at ..... a society registered under the Societies Registration Act (21 of 1860) having its office at ..... (hereinafter called 'the Company / Corporation' which expression shall include its successors and assigns) to the President of India (hereinafter called 'the President' which expression shall include his successors and assigns).

WHEREAS the said Company / Corporation, etc., applied to the President for a loan of Rs..... (Rupees.....) only. AND WHEREAS the President has agreed to lend an amount of Rs..... (Rupees..... only) to the said Company / Corporation, etc., on the terms and conditions prescribed in the Government of India, Ministry of ..... (Department of ..... ) Letter / Office Memorandum No....., dated..... (annexed).

Now IT IS HEREBY AGREED by the said Company / Corporation, etc., that, in consideration of the sum of Rs..... (Rupees..... only) lent by the President to the Company / Corporation etc., the Company / Corporation, etc., hereby agree in accordance with the said terms and conditions –

- (i) To repay the loan in ..... annual equal instalments the first instalment repayable from the ..... anniversary of the date of drawal;
- (ii) To pay interest at the rate or .....% per annum on the principal payable on each anniversary; and
- (iii) In case of default in the payment of the instalment of the loan in accordance with (i) above and / or interest in accordance with (ii) above, pay interest at penal rate of .....% per annum on such overdue payments.

IT IS HEREBY FURTHER AGREED AND DECLARED that the said Company / Corporation, etc., shall not, without the written consent of the President, encumber or alienate, create, any mortgage lien or charge by way of hypothecation, pledge otherwise, or create other encumbrances of any kind whatsoever any part of its land or buildings or other structure, and / or plant, machinery or any other fixed assets owned by them.

AND IT IS HEREBY AGREED that the said principal amount lent by the President as aforesaid shall be used by the Company / Corporation, etc., only for the purpose or purposes for which the aforesaid amount was sanctioned and for no other purpose whatsoever.

IN WITNESS WHEREOF these presents have been executed by the said Company / Corporation the day and year first above written.

THE PRESIDENT of India has agreed to bear the stamp duty, if any, chargeable on this document. Signed for and on behalf of.....Company / Corporation, etc., by

Shri. .... (Name and Designation) in the presence of

1. .... Seal of the Company / Corporation

2. ....



**FORM GFR 16**

[ see Rule 286 (1) ]

**CERTIFICATE OF TRANSFER OF CHARGE**

Certified that I /we have in the forenoon / afternoon of this day respectively made over and received charge of the Office..... in pursuance of Order No..... dated .....

Received Officer .....  
Signature .....  
(Name in Block Letters)  
Designation.....  
Station .....  
Date .....

Relieving Officer .....  
Signature .....  
(Name in Block Letters)  
Designation.....  
Station .....  
Date .....

**(For use in Audit Office / PAO only)**

Noted in A/R at page .....

SO/AAO/AO/PAO

Noted in A/R at page.....

SO/AAO/AO/PAO

Forwarded .....

NOTE :- Separate certificate (as per Form appended) also to be used where transfer / assumption of charge involves responsibilities for Cash, Stores etc.



**FORM GFR 16 (APPENDIX)**

[ See Rule 286(1) ]

**CERTIFICATE OF TRANSFER OF CHARGE IN RESPECT OF TRANSFER /  
ASSUMPTION OF RESPONSIBILITIES FOR CASH, STORES, ETC.**

Certified that I/we have in the forenoon / afternoon of this day ..... [date to be indicated] respectively made over and assumed charge and responsibility of the following :-

Cash Rs.....

Permanent advance Rs.....

Others.....

Relieved Officer.....

Reliving Officer.....

**FORM GFR 16A**

"Ministry / Department of .....

**JOINING REPORT**

I hereby report myself for duty this day..... forenoon / afternoon after availing of leave from  
..... to ..... sanctioned vide Ministry / Department of ..... Order  
No....., dated .....

Signature .....  
(Name in Block Letters)

Designation.....



## FORM GFR 17

[ See Rule 306. (3) ]

### GENERAL INSURANCE CORPORATION OF INDIA AND ITS SUBSIDIARIES FIDELITY GUARANTEE POLICY

POLICY No.

IN CONSIDERATION OF the first premium shown in the First Schedule and subject to the terms and conditions contained herein or endorsed herein which are to be deemed conditions precedent to any liability on the part of the Life Insurance Corporation of India (hereinafter called "Corporation") so far as they relate to anything to be done or complied with by the Employer, the Corporation agrees and binds itself to make good and reimburse to the Employer all such direct pecuniary loss not exceeding the amount of guarantee, as the Employer shall sustain by any act or acts of dishonesty, default or negligence committed by the employed / any of the employed (a) during the currency of this insurance and (b) during the uninterrupted continuance of employment of such employed and (c) in connection with his occupation and duties AND DISCOVERED during the currency of this insurance or within a reasonable time thereafter or within twelve months after determination of such employment whichever event shall first happen.

The proposal for this insurance made by or on behalf of the Employer together with any correspondence relative thereto shall be incorporated herein and be the basis of this contract and of every renewal.

#### THE FIRST SCHEDULE

The Employer	N a m e	THE PRESIDENT OF INDIA
The Employed :	Business	
The amount of Guarantee Rs.	Address	through
Occupation and duties:		
The first premium Rs.		
The renewal date		The .....day of ..... in each year.

The currency of this insurance: The period or periods from the date written against the respective names of the Employed to the then next renewal date and any year thereafter in respect to which the Corporation shall agree to accept and Employer or Employed shall pay the annual premium specified in the Second Schedule hereto.

#### THE SECOND SCHEDULE

Period of Risk	Name	Occupation and duties	Amount of Guarantee Rs.	Annual Premium Rs. P.	Actual Premium Rs. P.
----------------	------	-----------------------	-------------------------	-----------------------	-----------------------

In witness whereof this Bond has been signed at ..... this day of .....20.....

For1 .....

Prepared by .....

Examined by.....

N.B.-For your own protection it is incumbent upon you to read your policy and its conditions to ascertain that it is made out in accordance with your intentions.

1 The name of the Company to be inserted in ink at the time of execution of this form.



## CONDITIONS

In this policy the expression shall bear the respective meanings attached to them in the First Schedule hereto

1. The Corporation shall not be liable to make any payment hereunder if the nature of the business of the Employer of the duties or conditions of service shall be changed or the remuneration or any of the Employed reduced without the sanction of the Corporation or if the precautions and checks for securing accuracy of accounts shall not be duly observed.
2. Notice in writing shall be given to the Corporation's office as soon as possible after any act or acts of dishonesty, default or negligence on the part of any of the employed or of reasonable cause of suspicion thereof or any improper conduct shall have come to the knowledge of the Employer or of any representatives of the employer to whom is entrusted the duty of superintendence over any of the Employed and no amount shall be payable under this policy in respect of that Employed by reason of any act committed after such knowledge shall have come to the Employer or his said representatives. Within three months after such notice the Employer shall deliver to the Corporation full details of his claim and shall furnish proof of the correctness of such claim. All books of accounts of the Employer or any Accountant's report thereon shall be open to the inspection of the Corporation and the Employer shall give all information and assistance to enable the Corporation to sue for and obtain reimbursement by any one of the Employed or by his estate of any moneys which the Corporation shall have paid or become liable to pay under this Policy. Provided always that the Corporation shall not be entitled to the disclosure of any record or information in respect of which the Employer is entitled to claim privilege in a Court of Law under Sections 123 and 124 of the Indian Evidence Act.
3. Any moneys of any one of the Employed in respect of whom a claim is made in the hands of the Employer and any money which but for any act of fraud or dishonesty committed by such one of Employed would have been due to that Employed from the Employer shall be deducted from the amount otherwise payable under the Policy. Provided that the Employee is entitled under the law to make such deduction. Provided further that in cases in which the loss to the Employer is in excess of the maximum amount payable under the policy, the moneys aforesaid will be applied in the first place to make good the amount of such excess and the balance, if any, shall be deducted as herein provided. The Employer and the Corporation shall share any other recovery (excluding insurance and reinsurance and any counter security taken by Corporation) made by either on account of any loss in the proportions that the amount of the loss borne by each bears to the total amount of the loss.
4. Notwithstanding anything herein contained to the contrary it is also agreed that the Corporation guarantees to the Employer that the Employed shall honestly and faithfully account to the Employer for all moneys or valuables or property which they shall receive or be entrusted with on account of the Employer either in their personal or individual capacity or as member of group working conjointly with other members and that the Corporation will make good and reimburse to the Employer such loss not exceeding the amount of guarantee as the Employer may sustain by any act or acts of default or dishonesty or negligence of the Employed in the capacity and employment aforesaid and that when individual liability cannot be brought home to the Employed the amount to be made good shall be that which falls to the share of the Employed calculating from the total number of men forming such group, i.e., the total loss divided by the total number of men employed on the particular work.
5. The Corporation also agrees that during the period in which the guarantee shall be in force the particulars contained in the Second Schedule shall be with the consent of Employer and on previous notice to and on payment to the Corporation of any additional proportionate premium that may become payable in consequence of any change in the employed by reason of promotion or otherwise be varied as circumstances may require and such additional persona as may be taken into the employment of the employer referred to in the Schedule hereof during such period shall with such consent aforesaid and on previous notice to and on payment to the Corporation of a further proportionate premium at the rate for the time being applicable be



added to and included in the said Schedule and the expression Employed used throughout this policy shall as from the respective date on which the names shall be included in the said schedule be deemed to include all persons whether previously named in the said Schedule or subsequently added thereto as aforesaid.

6. If any question or difference shall arise between the parties hereto or their respective representatives touching these presents or the construction hereof or as to the rights, duties or obligations of any persons hereunder or as to any other matter in anywise arising out of or connected with the subject-matter of these presents, the same shall be referred to a single Arbitrator to be named by the Government of India. The Arbitrator so named shall be an officer of Government and shall have all the powers conferred on Arbitrators under the Indian Arbitration Act. The costs of the reference and award shall be in the discretion of the Arbitrator. The making of an award in such reference shall be a condition precedent to any liability of the Corporation or any right of action against the Corporation in respect of such difference. If the Corporation shall disclaim liability for any claim hereunder and such claim shall not within twelve calendar months from the date of such disclaimer have been referred to arbitration under the provision herein contained then the claim shall for all purpose be deemed to have been abandoned and shall not thereafter be recoverable hereunder.
7. The expression "Government of India" for the purpose of Clause 6 above shall mean the Secretary to the Government of India in the Administrative Ministry/ Head of Department under which the employed is working.

**FORM GFR 18**

[ See Rule 211. (ii) (c) ]

**ACCESSION REGISTER**

Date	Accession Number	Author	Title	Vol.	Place and Publisher	Year of Publication	Pages	Source	Class No.	Book No.	Cost	Bill No. and date	With drawn date	Re- marks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)





## FORM GFR 19

[ See Rule 250. (1) (viii) ]

### NOTICE TO BORROWER ABOUT THE DUE DATE FOR REPAYMENT OF LOAN AND INTEREST THEREON

No.....

Office of the Controller of Accounts, Ministry / Department of ..... New Delhi, dated the .....

To .....

.....

Subject :- **Repayment of loan and payment of interest thereon.**

Dear Sir,

According to the terms of the loan of Rs..... sanctioned to you, vide the Ministry / Department ..... Letter No....., dated..... the annual repayment instalment and / or interest thereon, detailed below, will become due on.....

(i) Repayment ..... Rs..... (in words and figures)

(ii) Interest ..... Rs..... (in words and figures)

2. Please arrange the payment by the due date. It should be noted that the amount of interest has been calculated on the assumption that payment will be arranged promptly; otherwise it will be revised upwards in accordance with the terms of the loan.

3. The amounts due should be tendered, on or before the due date at the ..... (New Delhi Head Office / Main Office of the Public Sector Bank (PSB) accredited to the Ministry / Department in cash or by cheque or draft drawn on any Scheduled Bank / New Delhi, in favour of the aforesaid PSB Branch. The payment should be accompanied by a memorandum or challan, in duplicate, giving the following details :-

(I) Name of the Ministry / Department.....

(ii) Name of the Borrower .....

(iii) No. and date of loan sanction letter with the loan amount sanctioned .....

(iv) Amount due for payment, separately for interest and payment.....

(v) Due date of payment.....

(vi) The head of the account indicated below, to which the amounts will be adjusted in Government accounts, should be included in the challan:

(i) Instalment of Principal.

Head of Account

(ii) Interest.

4. Separate cheque / draft and challans should be submitted for payment of principal and interest.

5. For outstation loanes, payment of dues together with memorandum / challans is to be arranged through their Bank to the aforesaid PSB Branch in New Delhi by the due date.

Yours faithfully

Accounts Officer

**FORM GFR 20**

[See Rule 305 (1) ]

**REGISTER OF POLICY HOLDER**

1	SI No	
2	Policy .No	
3	Name of Policy holder	
4	Designation	
5	Monthly Premium rate	
6	April	Amount actually recovered
7	May	
8	June	
9	July	
10	August	
11	September	
12	October	
13	November	
14	December	
15	January	
16	February	
17	March	
18	Remarks	



## **FORM GFR 21**

[ See Rule 234 }

### **REGISTER OF GRANTS TO BE MAINTAINED BY THE SANCTIONING AUTHORITY**

- (i) Serial Number.
- (ii) Number and date of sanction letter.
- (iii) Purpose of grant.
- (iv) Conditions, if any, attached to the grant.
- (v) Amount sanctioned.
- (vi) Amount of the Bill.
- (vii) Whether conditions attached to the grant have been accepted by the grantee without reservation. (viii) Dated initials of the sanctioning authority.
- (ix) Date by which statements of accounts along with utilization certificate, etc., are required to be furnished by the grantee.
- (x) Date by which utilization certificate is required to be furnished by sanctioning authority to the Accounts Officer, as the case may be.
- (xi) Date by which the statements of accounts, etc., are actually received. (In case there has been delay in the receipt of these statements, the reasons therefor as well as efforts made by the sanctioning authority to expedite submission of such statements may be clearly indicated).
- (xii) Date of submission of utilization certificate to PAO (in case there has been delay in submission of utilization certificate, the reasons therefor may be clearly indicated).
- (xiii) Unspent balance, if any, also indicating whether the unspent balance has been surrendered by the grantee Institution / Organisation.



**FORM GFR - 22**

[ See Rule211 (ii) (a) ]

## REGISTER OF FIXED ASSETS

**Name and description of the Fixed Assets .....**

[illegible]

NOTE : The items of similar nature but having significant distinctive features (e.g. study table, office table, computer table, etc.) should be accounted for separately in stock.



[ See Rule211 (ii) (b) ]

### STOCK REGISTER OF CONSUMABLES SUCH AS STATIONERY, CHEMICALS, SPARE PARTS ETC.

**Name of Article.....**      **Unit of Accounts .....**

[illegible]

NOTE : User's indent in original shall be treated as issue voucher. Issue voucher number shall be in consecutive order, financial year wise and it should be noted on each indent.

**FORM GFR 24**

[ See Rule 211 (ii) (d) ]

**REGISTER OF ASSETS OF HISTORICAL / ARTISTIC VALUE**

Name of Asset.....

Date of acquisition	Source of acquisition	Cost price, if any	Particulars which make it an asset of historic /artistic value	Particulars of the custodian of the asset	Location of the asset	Remarks

NOTE 1 : The custodian shall take appropriate measures for preservation of the assets.

NOTE 2 : The present value of the asset should be ascertained by obtaining appropriate valuation from an expert agency and the same is indicated in Column 3, every five years.



## FORM GFR 25

[ See Rule 281. (2) & (3) ]

### GOVERNMENT GUARANTEES

Name of Ministry /  
Department

[ Rs. In crore ]

Sl. No.	Beneficiary [Name of the PSU etc in whose favour guarantee is given]	Loan Holder / Entity giving Loan	Authority for Guarantee [MoF approval No. & Date]	Period of validity [ MOF ID No., & date through which the guarantee was last extended]	Purpose of Loan	Class	Sector	Details of Reschedule	Details of Securities pledged	Amount of Loan
1	2	3	4	5	6	7	8	9	10	11

Extent of Guarantee			Additions	Deletions	Invoked		Outstanding Principal, interest etc at the end of the period	Rate of Guarantee Fee/ Commission	Guarantee Fee/ Commission		Other conditions & compliance
Principal	Interest	Total			Dis-charged	Not dis-charged			Receivable	Received	
12	13	14	15	16	17	18	19	20	21	22	23

NOTES - 1 : For the purpose of Column - 8 the sectors are as under :-

(i) Power (ii) Cooperative (iii) Irrigation (iv) Roads & Transport (v) Urban Development & Housing (vi) Other Infrastructure (vii) Any other. 2 : For the purpose of Column - 7 the classification is indicated in Rule 281 (4).



**FORM GFR 26**

[ See Rule 277(v). ]

**FURNISHING OF DATA REGARDING GUARANTEES TO  
MINISTRY OF FINANCE****Name of the Ministry/Department :****Name of Public Sector Undertaking / entity :**

Year	Turnover	Profit After tax	Sundry Debtors	Current Ratio	If audited by CAG, profit after tax, taking into account the comments of CAG	In case of targets set by BIFR the same for Turnover and Profit.
X-2						
X-1						
X*						

Where 'X' is the immediate preceding financial year.

2. In case of proposal seeking extension of guarantee it may specifically be indicated whether the guarantee fee for the preceding financial year has been paid or not. The amount paid and date of payment should be indicated. In case of default in payment it may be indicated whether default fee in terms of Rule 279 (3) has been levied



## CONCORDANCE TABLE

GFR 2005	GFR 2017
<b>Chapter - 1 (Introduction)</b>	
1 (1)	1
1 (2)	1
2	2
3	3
4	4
5	5
6 (1)	6 (1)
6 (2)	6 (2)
<b>Chapter – 2 (General System of Financial Management)</b>	
7	7
8 (1)	8 (1)
8 (2)	8 (2)
9	9
10	10
11 (1)	11 (1)
11 (2)	11 (2)
12	12
13	13
14	14
15 (1)	15 (1)
15 (2)	15 (2)
15 (3)	15 (3)
16 (1)	16 (1)
16 (2)	16 (2)
17	17
18	18
19 (1)	19 (1)
19 (2)	19 (2)
20	20
21	21
22	22
23	23
24	24
25 (1)	25 (1)
25 (2)	25 (2)
25 (3)	25 (3)
26	26
27 (1)	27 (1)
27 (2)	27 (2)
28	28
29	29



<b>GFR 2005</b>	<b>GFR 2017</b>
30	30
31	31
32	32
33 (1)	33 (1)
33 (2)	33 (2)
33 (3)	33 (3)
33 (4)	33 (4)
33 (5)	33 (5)
33 (6)	33 (6)
33 (7)	33 (7)
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
<b>Chapter - 3 (Budget Formulation and Implementation)</b>	
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43 (1)	43 (1)
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43 (3)	43 (3)
43 (4)	43 (4)
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46 (1)	50(1)
46 (2)	50 (2)
46 (3)	50 (3)
46 (4)	50 (4)
46 (5)	50 (5)
47 (1)	51 (1)
47 (2)	51 (2)
47 (3)	51 (3)
48 (1)	52(1)
48 (2)	52 (2)
	52(3)
49 (1)	53 (1)



<b>GFR 2005</b>	<b>GFR 2017</b>
49 (2)	53 (2)
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50 (1)	55(1)
50 (2)	55 (2)
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52 (1)	57 (1)
52 (2)	57(2)
52 (3)	57 (3)
52 (4)	57 (4)
52 (5)	57 (5)
52 (6)	57 (6)
52 (7)	57 (7)
52 (8)	57 (8)
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56 (1)	62 (1)
56 (2)	62 (2)
56 (3)	62 (3)
	62(4)
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58 (1)	64 (1)
58 (2)	64 (2)
59 (1)	65(1)
59 (2)	65 (2)
59 (3)	65 (3)
59 (4)	65 (4)
60	66
61 (1)	67 (1)
61 (2)	67 (2)
61 (3)	67 (3)
61 (4)	67 (4)
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<b>Chapter – 4 (Government Accounts)</b>	
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<b>GFR 2005</b>	<b>GFR 2017</b>
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89 (1)	97(1)
89 (2)	97(2)
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98 (1)	105(1)
98 (2)	105(2)
98 (3)	Deleted
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<b>GFR 2005</b>	<b>GFR 2017</b>
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<b>Chapter - 5 (Works)</b>	
123	130
124	131
125	132
126 (1)	133(1)
126 (2)	133(2)
126 (3)	133(3)
126 (4)	Deleted
127	134
128	135(1)
	135(2)
129 (1)	136(1)
129 (2)	136(2)
129 (3)	136(3)
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134	141
<b>Chapter – 6 (Procurement of goods and services)</b>	
135	142
136	143
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<b>GFR 2005</b>	<b>GFR 2017</b>
140	147
141	148
141 A (1)	149 (1)
	149(2)
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145	154
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147(1)	156(1)
147 (2)	156(2)
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159 (1)	172(1)
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<b>GFR 2005</b>	<b>GFR 2017</b>
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<b>Chapter – 7 (Inventory Management)</b>	
186	207
187 (1)	208(1)
187 (2)	208(2)
187 (3)	208(3)
188 (1)	209(1)
188 (2)	209(2)
188 (3)	209(3)
188 (4)	209(4)
189	210
190 (1)	211(i)
190 (2)	211(ii)
191	212
192 (1)	213(1)
192 (2)	213(2)
192 (3)	213(3)
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<b>GFR 2005</b>	<b>GFR 2017</b>
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200	221
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202 (1)	223(1)
202 (2)	223(2)
202 (3)	223(3)
<b>Chapter – 8 (Contract Management)</b>	
203 (1)	224(1)
203 (2)	224(2)
204	225
205 (1)	226(1)
205 (2)	226(2)
205 (3)	227
<b>Chapter – 9 (Grants-in-aid and Loans)</b>	
206	228
207	DELETED
208	229
209 (1)	230(1)
209 (2)	230(2)
209 (3)	230(3)
209 (4)	230(4)
209 (5)	230(5)
	230(6)
	230(7)
	230(8)
	230(9)
209 (6)	230(10)
	230(11)
	230(12)
	230(13)
	230(14)
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	230(16)
	230(17)
	231(1)
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<b>GFR 2005</b>	<b>GFR 2017</b>
211 (1)	236(1)
211 (2)	236(2)
211 (3)	236(3)
211 (4)	236(4)
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212 (1)	238(1)
	238(2)
	238(3)
	238(4)
212 (2)	238(5)
212(2) (ii)	238(6)
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	242(1)
212 (3)	242(2)
	242(3)
212 (4)	(shifted as Rule 234)
212 (5)	(shifted as Rule 240)
212(6)	(shifted as 241)
213	243
214	244
215 (1)	245(1)
215 (2) (shifted as Rule 232)	
215 (3) (shifted as Rule 233)	
216	246
217	247
218	248
219 (1)	249(1)
219 (2)	249(2)
220 (1)	250(1)
220 (2)	250(2)
220 (3)	250(3)
220 (4)	250(4)
221 (1)	251(1)
221 (2)	251(2)
222 (1)	252(1)
222 (2)	252(2)
222 (3)	252((3)
223 (1)	253(1)
223 (2)	253(2)



<b>GFR 2005</b>	<b>GFR 2017</b>
224	254
225	255
226 (1)	256(1)
226 (2)	256(2)
227	257
228 (1)	258(1)
228 (2)	258(2)
228 (3)	258(3)
228 (4)	258(4)
229	259
230 (1)	260((1)
230 (2)	260(2)
231	261
232	262
233	263
<b>Chapter – 10 (Budgeting and Accounting of Externally Aided Projects)</b>	
234 (1)	264(1)
234 (2)	264(2)
234 (3)	264(3)
234 (4)	264(4)
235	265
236	266
237	267
237(1)	267(1)
237(2)	267(2)
238 (1)	268(1)
238 (2)	268(2)
238 (3)	268(3)
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243	273
244	274
<b>Chapter – 11 (Government Guarantees)</b>	
245	275(1)
	275(2)
	275(3)
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246 (1)	277
246 (2)	
247	278



GFR 2005	GFR 2017
248 (1)	279(1)
248(2)	279(2)
	279(3)
	279(4)
	279(5)
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249 (1)	281(1)
249 (2)	281(2)
249 (3)	281(3)
249 (4)	281(4)
250	282
251	283(1)
	283(2)
	283(3)
252	Shifted to 277 (vi)
<b>Chapter – 12 (Miscellaneous Subjects)</b>	
253 (1)	284((1)
253 (2)	284(2)
253 (3)	284(3)
253 (4)	284(4)
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255 (1)	286(1)
255 (2)	286(2)
255 (3)	286(3)
256	287
257 (1)	288(1)
257 (2)	288(2)
257 (3)	288(3)
257 (4)	288(4)
	288(5)
258	289
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260	291
261	292
262	293
263	294
264 (1)	295(1)
264 (2)	295(2)
264 (3)	295(3)
265 (1)	296(1)
265 (2)	296(2)
266	297
267	298



<b>GFR 2005</b>	<b>GFR 2017</b>
268	299
269	300
270 (1)	301(1)
270 (2)	301(2)
270 (3)	301(3)
270 (4)	301(4)
270 (5)	301(5)
271	302
272	303
273	304(1)
	304(2)
274 (1)	305(1)
274 (2)	305(2)
275 (1)	306(1)
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275 (3)	306(3)
275 (4)	306(4)
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277	308
278	309
279 (1)	310(1)
279(2)	310(2)
279 (3)	310(3)
279 (4)	310(4)
279 (5)	310(5)
280	311
281 (1)	312(1)
281 (2)	312(2)
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283	314
284	315
285	316
286	317
287	318
288	319
289	320(1)
	329(2)
290	321
291	322
292 (1)	323(1)
292 (2)	323(2)
293	324



## NOTES





# NOTES

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## NOTES

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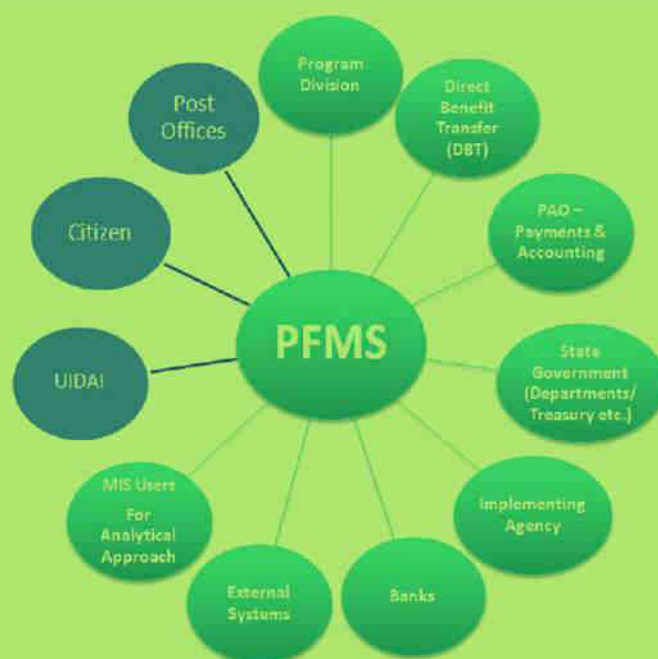
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## NOTES

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**Digital India**  
Power To Empower

**Government of India  
Ministry of Finance  
Department of Expenditure**





# UNIVERSITY OF DELHI

## दिल्ली विश्वविद्यालय

No. IAUS-III/314-2/2016/417

Date: 27<sup>th</sup> May, 2016

To

The Principal  
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**Sub: Implementation of e-procurement in the Colleges of University of Delhi from the Financial Year 2016- 17.**

Sir/Madam,

This has reference to O.M. No.26/12/2014-PPC dated 21<sup>st</sup> January, 2015 issued by the Procurement Policy Division, Department of Expenditure, Ministry of Finance to introduce e-procurement in respect of all the procurements with an estimated value of Rs.2.0 lakh and above. The UGC vide D.O. No.F.75-1/2013 (E-Governance) dated 22<sup>nd</sup> April, 2015 had also stressed the need to implement the e-Governance in order to transform the quality of services provided in the field of Higher Education through a service oriented approach and deployment of ICT applications and systems.

2. In this context, it is to inform that e-procurement should be adopted both for **publication and processing of tenders for all procurements**. In order to mandate all Colleges to adopt e-procurement and to ensure maximum participation of tenders through e-procurement, all Principals/ Head of the Institutions are therefore requested to take necessary action to ensure that all procurements are mandatorily processed through Central Public Procurement Portal (CPPP) as per the instructions enclosed at Annexure 'A' (copy enclosed).

3. Services of National Informatics Center Services Incorporated (NICSI) and National Informatics Centre (NIC), CGO Complex New Delhi may also be utilized for imparting training on e-procurement at your end.

4. All relevant Government of India/MHRD/Department of Expenditure/UGC circulars, guidance instructions and other relevant documents concerning implementation through NIC/NICSI are enclosed for guidance and necessary action.

Encl: As above.

Yours Sincerely,

  
(Z.V.S. Prasad) 27/5/16  
Finance Officer

Copy to:-

- (i) Dean of Colleges, University of Delhi.
- (ii) Director, South Campus, University of Delhi, Delhi
- (iii) Registrar, University of Delhi – for information.
- (iv) Director, DUCC – with the request to upload on website of University.
- (v) Joint Registrar, (Procurement & Stores), University of Delhi.
- (vi) Finance Branch, University of Delhi.



No. 10/1/2011-PPD  
Ministry of Finance  
Department of Expenditure  
Procurement Policy Division  
\*\*\*

516, Lok Nayak Bhawan, Khan Market,  
New Delhi. Dated the 17<sup>th</sup> May, 2016

**OFFICE MEMORANDUM**

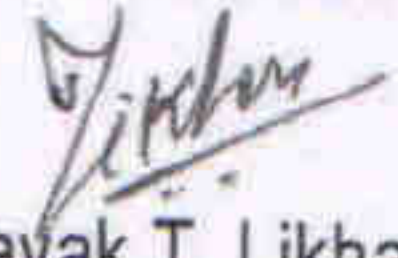
**Subject: Mandatory publication of tender enquiries on Central Public Procurement Portal**

In pursuance of decision taken in Group of Ministers constituted to consider measures to tackle corruption and ensure transparency, the Department of Expenditure has vide OM of even no. dated 30.11.2011 (copy enclosed), issued instructions for the setting up of Central Public Procurement Portal (CPPP) which is accessible at the [www.eprocure.gov.in](http://www.eprocure.gov.in).

2. It has been brought to notice of this Department that some Ministries/ Departments and other Organizations still continues to e-publish their tender enquires and other details on the NIC website [www.tenders.gov.in](http://www.tenders.gov.in). It is perhaps due to the guidelines of Central Vigilance Commission (CVC) on the use of the NIC portal i.e. (<http://govtenders.nic.in>) for this purpose.

3. In the light of instructions of CVC and to avoid any confusion to the procuring authorities that which website is to be used, the matter was referred to the CVC by this Department. Central Vigilance Commission (CVC) has conveyed their "**no objection**" to switching over from old website [www.tenders.gov.in](http://www.tenders.gov.in) to the new CPP Portal i.e. [www.eprocure.gov.in](http://www.eprocure.gov.in).

4. Accordingly, all Central Government Ministries/Departments are hereby advised to follow the instructions contained in this Department OM of even number dated 30.11.2011 regarding E-Publishing of tender enquiries, corrigenda thereto and details of contracts awarded thereon on CPPP and may discontinue use of [www.tenders.gov.in](http://www.tenders.gov.in) for this purpose. Ministries/Departments may also advice their Attached and Subordinate offices, Central Public Sector Undertakings (CPSE's), Autonomous and Statutory Bodies under their administrative control to use [eprocure.gov.in](http://www.eprocure.gov.in) website for tenders related publications.



(Vinayak T. Likhar)

Under Secretary to the Govt. of India

Tele: 24621305

E-mail – [vinayak.likhar@nic.in](mailto:vinayak.likhar@nic.in)

To,

All the Secretaries / Financial Advisor of Central Govt. Ministries /Departments.

Copy to:

1. Secretary, CVC with reference to CVC letter no. 006NGL/043/203799 dated 22nd Feb. 2013.
2. DG, NIC, CGO Complex, New Delhi with a request to close down [www.tenders.gov.in](http://www.tenders.gov.in)



**No. 10/1/2011-PPC  
Ministry of Finance  
Department of Expenditure  
Public Procurement Cell**

North Block, New Delhi  
Dated 30<sup>th</sup> November, 2011

**OFFICE MEMORANDUM**

**Subject: Mandatory publication of Tender Enquiries on the Central Public Procurement Portal**

Pursuant to the decisions of the Group of Ministers constituted to consider measures to tackle corruption and improve transparency, on the recommendations of the Committee on Public Procurement set up to look into various issues having an impact on public procurement policy, standards and procedures, it has been decided that:

- a. NIC will set up a portal called the Central Public Procurement Portal (hereinafter referred to as CPP Portal) with an e-publishing module (similar to NIC's website [www.tenders.gov.in](http://www.tenders.gov.in)) and an e-procurement module (similar to NIC's e-procurement sites such as [pmgsytenders.gov.in](http://pmgsytenders.gov.in) and [epro-nicsi.nic.in](http://epro-nicsi.nic.in)). The CPP Portal will be accessible at the URL **eprocure.gov.in** and will provide links to the non-NIC e-procurement sites being used at present by various Ministries/ Departments, CPSEs and autonomous/ statutory bodies.
- b. While e-publishing of tender enquiries, corrigenda thereto and details of contracts awarded thereon, on the Portal, shall be made mandatory in a phased manner w.e.f 1<sup>st</sup> January 2012, the comprehensive end-to-end e -Procurement feature would be implemented in a phased manner w.e.f. 1<sup>st</sup> April 2012, for which instructions will be issued separately. In the meantime, Digital Signature, which is essential at the e-procurement phase, may be obtained from any Certifying Authority or from NIC which is also a Certifying Authority, for the concerned officials.

**E-Publishing:**

- c. It will be mandatory for all Ministries/ Departments of the Central Government, their attached and subordinate offices, Central Public Sector Enterprises (CPSEs) and autonomous/ statutory bodies to publish their tender enquiries, corrigenda thereon and details of bid awards on the CPP Portal using e-publishing module with effect from the following dates:
  - c.i. Ministries/ Departments and their attached and subordinate offices w.e.f. 1<sup>st</sup> January 2012;
  - c.ii. CPSEs w.e.f. 1<sup>st</sup> February 2012;
  - c.iii. Autonomous/statutory bodies w.e.f. 1<sup>st</sup> April, 2012.



- d. Individual cases where confidentiality is required, for reasons of national security or to safeguard legitimate commercial interest of CPSE's, would be exempted from the mandatory e-publishing requirement. As far as Ministries/ Departments are concerned, decisions to exempt any case on the said grounds should be approved by the Secretary of the Ministry/ Department with the concurrence of the concerned Financial Advisor. In the case of CPSEs, approval of the Chairman & Managing Director with the concurrence of Director (Finance) should be obtained in each case to be exempted. In the case of autonomous bodies/ statutory bodies, approval of the head of the body with the concurrence of the head of the Finance function, should be obtained in each such case. Statistical information on the number of cases in which exemption was granted and the value of the concerned contract, may be intimated on a Quarterly basis to the Ministry of Finance, Department of Expenditure at the email id [cphp-doe@nic.in](mailto:cphp-doe@nic.in)
- e. Ministries/ Departments, CPSEs and autonomous/ statutory bodies that are already publishing their tender enquiries on [www.tenders.gov.in](http://www.tenders.gov.in) and/or on their respective websites, shall ensure that their tender enquiries are simultaneously published / mirrored on the CPP Portal also. They may also ensure that all corrigenda and details of the contract awarded as a result of the tender enquiry, are also published on the CPP Portal.
- f. Ministries/ Departments, CPSEs and autonomous/ statutory bodies that are already carrying out e-procurement through NIC or their own website or through any other service provider, shall ensure that details of all their tender enquiries, related corrigenda and details of contracts awarded thereon, including those that are issued through e-procurement, are simultaneously published / mirrored on the CPP Portal. As stated at (a) above, they should also ensure that their e-procurement website is linked to the CPP Portal.
- g. The above instructions apply to all Tender Enquiries, Requests for Proposals, Requests for Expressions of Interest, Notice for pre-Qualification/ Registration or any other notice inviting bids or proposals in any form, issued on or after the dates indicated at (c) above whether they are advertised, issued to limited number of parties or to a single party.
- h. In the case of procurements made through DGS&D Rate Contracts or through Kendriya Bhandar/ NCCF, only award details need to be published on the Portal.
- i. These instructions would not apply to procurements made in terms of provisions of Rules 145 (Purchase of goods without quotations) or 146 (Purchase of goods by purchase committee) of General Financial Rules – 2005 (or similar provisions relating to procurements by CPSEs, autonomous bodies).



2. In order to facilitate implementation of aforesaid decisions regarding e-publishing of tender details, NIC will provide detailed guidelines for using the e-Publishing module of the CPP Portal. These guidelines will also be available in the CPP Portal. **User IDs and Passwords would have to be obtained from NIC for accessing the Portal. Details in this regard will also be available in the CPP Portal.**

3. NIC will also provide the following support:

- a. NIC will make arrangements for necessary training to the concerned officials in the use of the CPP Portal for e-publishing. For this purpose, Ministries / Departments may contact NIC through email at [cppp-nic@nic.in](mailto:cppp-nic@nic.in) to work out the details.
- b. Detailed guidelines for the use of e-Publishing module will be made available in the CPP Portal and this would also be circulated separately to all Ministries/Departments.
- c. A demonstration web site, similar to the CPP Portal, would be made available for training and hands-on practice. The site will also contain necessary user manuals and presentation materials.

4. Ministries/ Departments are requested to take necessary action to ensure that e-publishing of tender details on the Portal is commenced in terms of the time lines mentioned in para 2 (c) above. **It is also requested that necessary instructions may be issued in this regard to all attached and subordinate offices as also to CPSEs, autonomous and statutory bodies under their administrative control.**

  
(Suchindra Misra)  
OSD (PPC)  
011-23092689

To,

**Secretaries of all Ministries/Departments**

Copy to

**FAs of all Ministries/Departments**

Copy also to **DG (NIC), CGO Complex, New Delhi**



No.26/12/2014-PPC  
Ministry of Finance  
Department of Expenditure  
Public Procurement Cell  
\*\*\*

Room No.168-C,  
North Block, New Delhi  
Dated the 21<sup>st</sup> January, 2015


**OFFICE MEMORANDUM**

**Subject: Implementation of comprehensive end-to-end e-procurement**

This has reference to this Department O.M. of even No. dated 30<sup>th</sup> March, 2012 and 9<sup>th</sup> January, 2014 vide which it was conveyed that the Ministries / Departments of the Central Government, their attached and subordinate offices would need to commence e-procurement in respect of all procurements with estimated value of Rs. 2.0 lakh or more in a phased manner.

2. In this context, it is now decided that apart from Ministries/Department of the Central Government, their attached and subordinate offices, Central Public Sector Enterprises (CPSEs), autonomous /Statutory bodies will also be required to commence e-procurement as per above referred threshold limits.

3. Ministries/ Departments are requested that necessary instructions may be issued to all attached/subordinate offices, CPSEs and autonomous /Statutory bodies etc., under their administrative control to commence e-procurement.

  
21.1.15  
( Sanjay Aggarwal )  
Director (PPD)  
T No.23094961  
e-mail [sanjay.aggarwal68@nic.in](mailto:sanjay.aggarwal68@nic.in)

Secretaries of all Ministries/Departments

FAs of all Ministries/Departments

Copy to :

DG (NIC), CGO Complex, New Delhi.



No. 10/3/2012-PPC  
Ministry of Finance  
Department of Expenditure  
Procurement Policy Division  
\*\*\*\*\*

North Block, New Delhi  
Dated the 9<sup>th</sup> January, 2014.

**OFFICE MEMORANDUM**

**Subject: Implementation of comprehensive end-to-end e-procurement**

This has reference to this Department's O.M. of even number dated 30<sup>th</sup> March 2012 vide which it was conveyed that the Ministries/Departments of the Central Government, their attached and subordinate offices would need to commence e-procurement in respect of all procurements with estimated value of Rs.10 lakh or more in a phased manner as per the prescribed schedule. In this regard an option was given to the procuring entities either to use the e-procurement solution developed by NIC accessible through Central Public Procurement Portal ( CPP Portal) or to continue to carry out e-procurement through other service provider/other e-procurement solutions developed in house, provided the conditions/guidelines envisaged in the O.M. referred to above are fulfilled.

2. In this context it is highlighted that, the Prime Minister's Committee on National e-Governance Plan ( NeGP) during its second meeting held on 1<sup>st</sup> July 2013 has an endorsed DeiTY proposal that e-Procurement should be adopted both for publication and processing of tenders above a prescribed cut of value. The need to mandate all Ministries/Departments to adopt end to end e-Procurement was also emphasized in the meeting of the Apex Committee on NeGP held on 5<sup>th</sup> November 2013.

3. In pursuance of the decision taken during the above meetings to promote e-Procurement further and to ensure maximum participation of tenders through e-Procurement mode, **it has been decided that the tender value limit of Rs. 10 lakh set in respect of e-Procurement is to be brought down to Rs. 5 lakh w.e.f 01.04.2015 and further down to Rs 2 lakh w.e.f 01.04.2016.** Ministries/Departments are therefore requested to ensure and follow the limits which have now been decided in respect of mandatory publishing of tenders through e-Procurement mode.

4. Ministries / Departments are therefore requested to take necessary action to **ensure** that all tenders above Rs.10 lakh are compulsorily processed through e-Procurement as per the instruction already issued by this Department vide above OM. A report in the following format in this respect is now to be intimated on a quarterly basis to the Ministry of Finance, Department of Expenditure at the email id [cppp-doe@nic.in](mailto:cppp-doe@nic.in).

Name of the Ministry/Department

Period of Report: \_\_\_\_\_ to \_\_\_\_\_ Quarter ending on \_\_\_\_\_

Number of Tenders floated amounting to Rs. 10 lakh or more	Number of Tenders Processed through e-Procurement (whether NIC or using other solution)	Number of Tenders exempted due to National security and strategic Considerations demanding confidentiality	Cases of Non -compliance with reasons
Total	Total	Total	Total

Contd./-



5. In this context it is further reiterated that;
- i. Ministries / Departments using other than NIC e-Procurement solution have to ensure that details of all their tender enquiries, related corrigenda and details of contracts awarded thereon, through e-Procurement are simultaneously published / mirrored on the CPP Portal using XML facility of NIC.
  - ii. Ministries / Departments that have not yet appointed Nodal officers and have not got User IDs and Passwords issued from NIC for accessing the portal may please ensure that the Nodal officers are appointed immediately. Action may also be taken to start acquiring Digital Signatures from NIC Certifying Authority or any other Certifying Authority, being an essential requirement for e-procurement.
  - iii. Ministries / Departments must also tie up with NIC for training and support where e-Procurement solution developed by NIC is adopted and a need in this regard is being felt by sending an e-mail to [cphp-nic@nic.in](mailto:cphp-nic@nic.in). NIC is periodically organizing training programmes on their e-Procurement Module. Action may be taken to nominate representatives to attend the ongoing training programs as per schedule published on the CPP Portal.
6. It is also requested that necessary instructions in this regard may be issued to all attached and subordinate offices under your administrative control.
7. Hindi version of this O.M. will follow.

OS  
9-1-14

(Sanjay Aggarwal)  
Director (PPD)  
Tel.No.23094961(O)

To

- (i) Secretaries of all Ministries/Departments of the Government of India.
- (ii) FAs of all Ministries/Departments of the Government of India.
- (iii) DG (NIC), CGO Complex, New Delhi.

This OM is also available on our website <http://finmin.nic.in>





# दिल्ली विश्वविद्यालय University of Delhi

वित्त अधिकारी  
FINANCE OFFICER

No.FO/IAUS-III/314-2/2016/497

Date: 31<sup>st</sup> March, 2016

## CIRCULAR

**Sub: Implementation of e-procurement in the University of Delhi from the Financial Year 2016- 17.**

This has reference to O.M. No.26/12/2014-PPC dated 21<sup>st</sup> January, 2015 issued by Procurement Policy Division, Department of Expenditure, Ministry of Finance to introduce e-procurement in respect of all procurements with an estimated value of Rs.2.0 lakh or more in a phased manner. The UGC vide D.O. No.F.75-1/2013 (E-Governance) dated 22<sup>nd</sup> April, 2015 had also stressed to introduce e-Governance in order to transform the quality of services provided in the field of Higher Education through a service oriented approach and deployment of ICT applications and systems.

2. In this context, it is to inform that e-procurement should be adopted both for publication and **processing of tenders for all procurements**. In order to mandate all Departments to adopt e-procurement and to ensure maximum participation of tenders through e-procurement, all Heads of Departments are therefore requested to take necessary action to ensure that **all procurements are compulsorily processed through Central Public Procurement (CPP)** as per the instructions enclosed at Annexure 'A' (copy enclosed).

3. Following departments have been identified for the roll-out of e-procurement in the Phase-I & II. Further, Phase- II will commence after the implementation of Phase - I:

Phase – I

- (i) Engineering department;
- (ii) General Branch;
- (iii) Cluster Innovation Centre (CIC);

Phase – II

- (iv) WUCC (Health Centre);
- (v) University Science Instrumentation Centre (USIC);
- (vi) Dr B R Ambedkar Centre for Bio-Medical Research (ACBR).

Phase-III Entire University i.e. Departments/ Centres will be implemented during 2016-17.

4. Director, DUCC will be the 'Nodal Officer' for the e-procurement process in the University of Delhi.

Encl: As above.

Copy to :

- (i) Director, South Campus, University of Delhi, Delhi
- (ii) All the Head of Departments, University of Delhi.
- (iii) All the Provosts of Halls/Hostels, University of Delhi.
- (iv) University Engineer, Engineering Department, University of Delhi
- (v) Joint Registrar, (Procurement & Stores), University of Delhi.
- (vi) Finance Branch, University of Delhi.

(Z.V.S. Prasad)



Monday, 12 October 2015

## eProcurement

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### Preliminary Information regarding eProcurement

As per the Office Memorandum (OM), no. 10/3/2012-PPC dated 30th March, 2012 and all subsequent OMs, issued by the Department of Expenditure, all Ministries / Departments of the Central Government, their attached and subordinated offices need to commence e-Procurement in respect of all procurements with estimated value of Rs. 10 lakhs or above, in a phased manner.

For facilitating User Ministries / Departments, NIC has developed an e-Procurement application, which is accessible through the Central Public Procurement (CPP) Portal (URL:<http://eprocure.gov.in>).

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### eProcurement Module Features

1. Covers the complete tendering process starting from online publishing of tender enquiries, online bid submission by the bidders, online bid opening, online bid evaluation and publication of award of Contract.
2. Under the e-Procurement module, the User Organisations will be required to define two additional roles apart from the Tender Creator and Tender Publisher, viz.
  - The role of bid opener is Critical for e-Procurement. Bid openers should be identified for each tender at the time of publishing of the tender Enquiry.
  - Bid Evaluator - authorised to upload the results of the various stages of bid Evaluation on the CPP Portal.
  - Minimum of 4 Bid openers must be configured to avoid any issues in tender opening
  - At least 5 Digital Signature Certificate is required to complete one tender cycle.
3. All authorised department users, from the User Organisations, will be required to have valid Digital Signature Certificates (DSCs), along with their user ID and password, to be able to operate the e-Procurement Module.



## Enrolment Procedure

### 1. Acquire Digital Signature Certificates(DSCs)

To carry out e-Procurement using NIC's e-Procurement Module, the authorised users of the User Organisation as well as the bidders will be required to obtain valid DSCs. DSCs may be obtained from any authorised agency registered with the Certifying Authority (CA) in India. Authorised users will be required to procure Class-II or Class- III DSCs.

### 2. Selection/ Nomination of Nodal Officer

Nodal Officer(s) can be nominated by filling up the Nodal Officer Nomination Form (available at [http://eprocure.gov.in/cppp/sites/default/files/eproc/nodal\\_datasheet\\_0.pdf](http://eprocure.gov.in/cppp/sites/default/files/eproc/nodal_datasheet_0.pdf)) and sending to NIC at [cppp-nic@nic.in](mailto:cppp-nic@nic.in). NIC will create the Nodal Officer account, with the details provided in the form and the password for the account will be automatically sent to the email address of the nominated Nodal Officer.

### 3. Setting up of Organizational Hierarchy for mapping on the CPP Portal

The Nodal Officer(s) of each User Organisation must create a mapping of its organisational structure / hierarchy in e-Publishing module of CPP Portal and for e-Procurement Module of NIC. The organisation structure as per prescribed format is to be sent via email [cppp-nic@nic.in](mailto:cppp-nic@nic.in).

### 4. Creation of User Accounts for officials of the User Organisation

The Nodal Officer/ sub-Nodal Officer(s) of each User Organisation will authorise users within the organisation for various roles such as Tender Creator, Tender Publisher, Bid Opener and Bid Evaluator who would use the e-Procurement module.

- Tender Creator - responsible for filling up and uploading the details of a tender enquiry / corrigenda / award of contract.
- Tender Publisher - responsible for publishing the tender enquiry / corrigenda / award of contract created by the Tender Creator.
- Bid Opener - authorised to decrypt and download the bids received from the bidders in response to a tender document.
- Bid Evaluator - authorised to upload the results of the various stages of bid evaluation.

Nodal Officer cannot perform any of the above roles. The Nodal Officer should create the above users and assign roles in the e-Procurement module of NIC for authorised



Monday, 12 October 2015

officials in the User Organisation. Upon creation of user accounts, the password will be automatically emailed to the respective authorised users in their mail IDs.

5. Mapping of DSCs for all user accounts created in the User Organisation

On obtaining the DSCs, the authorised users will be required to login and map their DSCs with their respective user profiles created by the Nodal Officer on the e-Procurement module.



**Sri Venkateswara College**

**University of Delhi**

**Organizes**

**Training workshop**

**for**

**Laboratory Staff in Chemical and Life Sciences**

**Under the Aegis of**

**DBT Star College Program**

**On**

**22<sup>nd</sup> & 23<sup>rd</sup> August, 2017**

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## **Foreword**

The Department of Biotechnology (DBT) in its endeavour to offer young scholars at the undergraduate level, an opportunity to excel in a career in Life Sciences and biotechnology, is supporting colleges and university departments offering undergraduate education to achieve “Star Status “in a holistic way by improving practical training in the existing courses.

An essential component of science departments is the laboratory technicians whose committed involvement is essential for progressive growth of the department. The technicians are responsible for day to day running of the laboratory based tasks, which include preparation of solutions, sampling, testing, measuring, recording and analyzing the results in biological, chemical, physical and life sciences. They also provide all the required technical support to enable the laboratory to function effectively while adhering to correct procedure and safety guidelines. Laboratory safety is of great concern these days as the nature of experimental work has enormously changed from conventional old experiments.

The ongoing advances in automation and information technology require technicians to operate more sophisticated laboratory equipment. As laboratory instrumentation and procedures have become more complex the role of the technician in science education has expanded. In addition to performing routine tasks, technicians must upgrade skills and develop expert knowledge of laboratory equipment in order to meet the rapidly changing laboratory procedures. Workshops and conferences afford valuable training opportunity as well as motivational tool for staff members.

The goal of this two-day workshop is to provide the participants theoretical as well as practical overview of the general laboratory procedures and safety measures to be followed in the Chemical and Life science curriculum. The participants taking this course will be provided hands-on practice, demonstrations on the use and maintenance norms of specific equipment. It will acquaint the participants with the scientific know-how, care and functioning of the instruments involved. A reference manual has been provided to the participants to make it simple and informative.

The college acknowledges the Department of Biotechnology, Ministry of Science and Technology for the financial aid under Star College Program, faculty associated with the conduct of the workshop and preparation of the manual.

The college also acknowledges TTD management for their constant guidance, encouragement and for providing infrastructural facility.

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# Workshop for Laboratory Staff in Chemical and Life Sciences

## Organizing Committee

### Convenor

Dr. P. Hemalatha Reddy  
Principal

### Coordinator

Dr. Sharda Pasricha

### Coordination Committee

1. Dr. R P Singh (Chemistry)
2. Dr. Aarti Saxena (Botany)
3. Dr. Dhanraj (Zoology)
4. Dr. N. Latha (Biochemistry)
5. Dr. Nandita Narayanswamy (Biochemistry)
6. Dr. Anju kaicker (Biochemistry)
7. Dr. Shalini Sen (Biochemistry)
8. Dr. Vartika Mathur (Zoology)
9. Dr. Om Prakash (Zoology)

### Resource Persons

<b>Department of Biochemistry</b> 1.Dr. Nimisha Sinha 2. Dr. Sarika Yadav 3. Dr. Vandana Malhotra 4.Dr. Meeta Bhardwaj	<b>Department of Botany</b> 1. Dr. Pooja Gokhale 2. Dr. Akhilesh K Yadav 3. Dr. Pamil Tayal
<b>Department of Biotechnology</b> 1. Dr. Kameshwar Sharma 2. Dr. Ravinder Verma	
<b>Department of Chemistry</b> 1. Mr. H. C. Tandon 2. Dr. Shefali Shukla 3. Dr. Pragya Gahlot 4. Dr. Shikha Gulati	<b>Department of Zoology</b> 1.Dr. Manasi Verma 2. Dr. Namita Nayyar 3. Dr. Richa Misra 4.Dr. Preeti Khandelwal

**SRI VENKATESWARA COLLEGE  
(UNIVERSITY OF DELHI)**

**TRAINING WORKSHOP FOR LABORATORY STAFF**

**Programme Schedule**

<b>Time</b>	<b>Session</b>	<b>Topic of Presentation</b>	<b>Session- in-Charge</b>	<b>Resource Persons</b>	<b>Venue</b>
<b><u>22.08.17</u></b>					
9.30 am	I (a)	<ul style="list-style-type: none"> <li>• Preparation of Solutions</li> </ul>	Dr.R. P. Singh  Mr. H C Tandon	Dr.Shikha Gulati  Dr.Shefali Shukla	Chemistry Lab II
11:15 am	Tea				
11:30 am	I (b)	<ul style="list-style-type: none"> <li>• Instrumentation</li> </ul>	Dr. Mercy Jacob Dr. Vibha Saxena	Mr. H C Tandon	Chemistry Lab II
1.00 pm	<b>LUNCH BREAK</b>				
2.00 pm	II	<ul style="list-style-type: none"> <li>• Introduction and maintenance of microscopes</li> <li>• Biological Stains I</li> </ul>	Dr. P S Dhanraj Dr. Vartika Mathur  Dr.Om Prakash	Dr. Richa Dr. Namita  • Dr. Manasi Verma • Dr.Preeti	Zoo (H ) Lab
<b><u>23.08.17</u></b>					
9.30 am	III	<ul style="list-style-type: none"> <li>• Handling and Maintenance of Micropipettes</li> <li>• Gel Preparation &amp; Bio waste Disposal</li> <li>• Laminar Flow and Autoclave: Handling and maintenance</li> </ul>	Dr. Nandita Narayansami  Dr. Meenakshi Kuhar	Dr. Kameshwar Dr.Vandana Dr. Nimisha Dr. Ravinder  Dr. Meeta Bhardwaj	Biochem Lab
12:30 pm	<b>LUNCH BREAK</b>				

1:30 pm	IV	<ul style="list-style-type: none"> <li>• Biological Stains II</li> <li>• Field Biology</li> </ul> 1) Sampling 2) Instrumentstion	Dr. Aarti Saxena	Dr. Pooja Gokhale Sinha  Dr. Akhilesh Yadav  Dr. Gyan Prakash Gupta	Botany General lab
3:30 pm	Valedictory				

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<b>Chapter 1</b>	Basic Setup of Laboratories: Maintenance and Safety Measures
<b>Chapter 2</b>	Laboratory Apparatus: General Requirements
<b>Chapter 3</b>	Preparation of Solutions
<b>Chapter 4</b>	Instruments
<b>Chapter 5</b>	Microbiology and Staining Techniques
<b>Chapter 6</b>	Chromatography
<b>Chapter 7</b>	Electrophoresis
<b>Chapter 8</b>	Field Biology
<b>Chapter 9</b>	Waste Disposal and Biosafety
<b>Appendix I</b>	Preparation of Common Laboratory Reagents
<b>Appendix II</b>	Common Buffers used in the Laboratory
<b>Appendix III</b>	Common Stains in Biology: Uses and their Preparation

## **CHAPTER 1**

### **BASIC SETUP OF LABORATORIES: MAINTENANCE AND SAFETY MEASURES**

Every individual entering or using the scientific laboratory has a duty towards maintenance and regulation of the lab safety. These responsibilities not only ensure the safety of each lab and persons therein but also facilitates proper use of the laboratory resources. It is therefore important that all rules, procedures and guidelines are followed by the users as well as the laboratory staff. This chapter highlights the basic duties of laboratory staff, safety measures to be adopted and first-aid measures to be undertaken in case of an accident.

#### **1.1 Lab set up**

##### **1.1.1 Post Practical Duties of Lab assistants:**

1. Check the supply of lab materials, prepare and refill exhausted materials before the next lab. If you run out of materials contact the lab coordinator or go to the prep room.
2. Organize the lab materials.
3. Collect used apparatus for washing
4. Place waste materials in the appropriate waste container.
5. Clean the work tables with a disinfectant
6. Dust electronic equipments and cover them.

##### **1.1.2 Clothing and Accessories**

1. Closed-toe and closed-heel shoes must always be worn in the lab.
2. Long hair should be bound back neatly, away from the shoulders.
3. Jewellery should be minimal and should not dangle. Avoid rings that can puncture gloves.
4. A clean lab apron should be worn at all times in the lab. It should be disinfected before and after wear.
5. Gloves should be worn, especially if you have a cut, etc. on your hands and when staining. Heating gloves should be used during autoclave operation. Latex gloves are generally used; nitrile gloves are only for those with sensitivity to latex.
6. Goggles can provide extra protection; bring your own and use them if they make you feel safer.

##### **1.1.3 General Health/Cleanliness**

1. Do not eat, drink, or chew anything in the lab.
  2. Wash your hands thoroughly with soap and hot water before and after every lab session and during lab as necessary.
  3. Wipe down your lab table top with disinfectant before and after every lab session.
  4. Do not cluster the lab tables.
-

## 1.2 Prevention, Safety and First-Aid in Lab Accidents

A lab worker should be well versed in laboratory safety procedures. Alertness and cautiousness are the things of requisition for anyone concerned with laboratory. One is surrounded by many dangers from corrosive substances, poisonous, explosive, inflammable chemicals etc. Almost all the chemicals except a few used in a laboratory are lethal poisons. Appropriate methods of safe handling, handling the situations, rendering the first aid in case of accidental happenings are to be well known to technicians working in different areas of diagnostics such as Biochemistry, Biotechnology, Chemistry, Microbiology, Botany, Zoology or any science labs.

One must be familiar with safety procedures for personal safety as well as for the safety of fellow technicians. Accidental happenings in a laboratory can be caused by

- 1) Acids and alkalies.
- 2) Toxic, harmful and irritating chemicals
- 3) Oxidising chemicals
- 4) Carcinogenic chemicals
- 5) Infectious specimens and materials
- 6) Glass ware
- 7) Heat
- 8) Fire
- 9) Explosion
- 10) Electrical shock.

### 1.2.1 Acids and Alkalies:

Acids, alkalies and phenols which are corrosive in nature are used in a laboratory. Corrosives cause damage to the living tissues when they come into contact. They can cause bodily damage due to

- a) Spilling or splashing on skin, eyes.
- b) Accidental swallowing during mouth pipetting
- c) Contact with lip and tongue.

#### 1.2.1.1 First aid in case of Swallowing of acids:

- 1) Make the victim drink 5% soap solution or 8%  $\text{Mg}(\text{OH})_2$  or white portion of two eggs combined with 500 ml. of water or at least plenty of ordinary water.
- 2) Make the victim gargle with soap solution.

#### 1.2.1.2 First Aid in case of contact of acid with lip and tongue:

- 1) Immediately rinse in tap water.
- 2) Bathe the affected area with 2% aqueous solution of sodium bicarbonate.

#### 1.2.1.3 First aid in case of accidental swallowing of alkalies:

- 1) Rinse the mouth with tap water and make the patient drink 5% acetic acid solution or lemon juice.
- 2) Make the victim drink 3-4 glasses of water.
- 3) Consult a physician.

#### 1.2.2 Toxic, harmful and irritating chemicals:

Toxic and harmful chemicals are those which can cause death or serious illness. Irritating chemicals are those which irritate the skin, mucous membranes or the respiratory tract. Potassium cyanide is well known and the most lethal poison. Xylene, formaldehyde and ammonia vapours are skin and mucous membrane irritants. Phenyl hydrazine, Aniline, nitro compounds, Aromatic hydrocarbons etc are harmful to respiratory ducts, skin and whole body. Iodine, chloroform, sodium nitroprusside, mercuric nitrate, sodium azide, barium chloride and methanol etc. also fall into the category of toxic, harmful and irritating chemicals.

#### 1.2.3 First Aid:

- 1) If some substance falls on the hands, wash thoroughly with a brush.
- 2) When liquid bromine spills on skin or clothes or working benches, pour 20-40% Hypo solution and rinse with plenty of water. Apply Vaseline to skin.
- 3) If a noxious gas like  $\text{Cl}_2$  or  $\text{Br}_2$  vapour is inhaled, breathe in a dilute solution of  $\text{NH}_3$ .
- 4) A lethal poison like Potassium cyanide causes immediate death. However, when not so lethal poisons are accidentally swallowed:
  - a) Spit immediately
  - b) Rinse with lot of tap water.
  - c) Induce vomiting by drinking warm salt water.

##### 1.2.3.1 Oxidising chemicals:

Oxidising chemicals can produce heat on contact with other chemicals. Examples of oxidising chemicals are Potassium dichromate, Potassium permanganate, Potassium iodate, Chromic acid etc.

Safe handling: Handle with care to avoid contact with skin, eyes etc.

Storage: Keep away from flammable chemicals.

##### 1.2.3.2 Carcinogens

Hundreds of chemicals are capable of inducing cancer in humans or animals after prolonged or excessive exposure. There are many well-known examples of chemicals that can cause cancer in humans. The fumes of the metals cadmium, nickel, and chromium are known to cause lung cancer. Vinyl chloride causes liver sarcomas. Exposure to arsenic increases the risk of skin and lung cancer. Leukaemia can result from chemically induced changes in bone marrow from exposure to benzene and cyclophosphamide, among other toxicants. Other chemicals, including benzo pyrene and ethylene dibromide, are considered by authoritative scientific organizations to be probably carcinogenic in humans because they are potent carcinogens in animals.

Chemically-induced cancer generally develop many years after exposure to a toxic agent. A latency period of as much as thirty years has been observed between exposure to asbestos, for example, and incidence of lung cancer.

#### Destruction and disposal of carcinogenic waste

Organic compounds can be destroyed by sodium dichromate in a strong solution of sulphuric acid. One to two days is required for the total destruction of chemicals when a freshly prepared reagent is used. The residue can then be flushed to the sewer with a large amount of water.

Carcinogens that readily oxidise can be inactivated by adding to a saturated solution of potassium permanganate in acetone. Concentrated or 50% aqueous sodium hypochlorite is also suitable as an oxidising agent.

Alkylating, or acylating agents can be destroyed by reaction with nucleophiles such as water, hydroxyl ions, ammonia, thiols and thiosulphate. The reaction can be enhanced by dissolving the carcinogen in ethanol before treatment with the nucleophile.

Cyclophosphamide can be destroyed by adding to potassium hydroxide dissolved in methanol.

Polycyclic aromatic hydrocarbons are readily oxidised using the sodium dichromate-sulphuric acid mixture.

#### 1.2.3.3 Infectious specimens and materials:

Infectious specimens are the specimens of body fluids of patients with infectious diseases like tuberculosis, AIDS etc. Infectious materials are those, contaminated with infectious agents.

First Aid in case of injury by broken glass ware containing infectious specimens:

1. Wash the wound immediately.
2. Squeeze to bleed for several minutes.
3. Bathe the wounded area with antiseptic lotion.
4. Wash thoroughly with soap water.
5. Bathe second time with antiseptic lotion.
6. Consult a physician.

#### 1.2.3.4 Heat burns

First Aid in case of minor burns:

1. Pour cold water or ice-cold water over the affected part.
  2. Apply mercurochrome or acriflavine ointment to the affected part. Glycerol or cotton wool soaked in alcohol can also be used.
  3. Apply a dry gauze dressing loosely.
  4. Do not tear the blisters formed over the burns.
  5. Consult a physician
-

### 1.2.4 Fire

Sources of fire in a laboratory are

1. Inflammable liquids 2. Gas 3. Electricity.

Inflammable liquids are those which have low flash points. Eg. Ether, acetone,  $\text{CCl}_4$ , alcohol, benzene, toluene etc. Gas supply can be source of fire accidents due to a) Leakage in the gas pipe line b) Gas cylinders left on. c) Gas delivery points turned off. Electricity is the source of fire due to short circuit in the pipeline.

#### Extinguishing of fire:

1. Water should not be used to extinguish fire caused by inflammable liquids. Sand can be used. Do not try to blow off such a fire. Use fire extinguishers in case of a big blaze.
2. If inflammable liquid in a vessel takes flame,
  - a) Immediately disconnect supply of fuel to flame b) Make non -available, the oxidant gas i.e. air to the fire in the vessel by closing with porcelain, metal, wooden, glass plate or towel.
3. If burning liquid spills on the floor, extinguish the fire with sand.
4. If fire happens in a laboratory, immediately turn off gas supply, electrical supply and use fire extinguishers. If fire has not caught organic liquids, water can be used.
5. If fire is due to electrical short circuiting, immediately put off the main switch and use sand, carbon dioxide fire extinguisher to extinguish fire. Do not use water to extinguish electrical fire.
6. Extinguish the fire on a man by means of a woollen blanket. Wrap the victim and hold for 1-2 minutes.

### 1.2.5 Explosion:

Explosion causes fire and devastating damage. Explosion is caused in the laboratory by explosive chemicals and heat. Explosive chemicals are those which can explode on heating or exposure to flames or friction. eg: Picric acid.

Storage: Picric acid should be stored under water. If it dries, it can cause explosion.

Heat produced enormously during chemical reactions can cause explosion. e.g. Heat produced when sodium reacts with water. In such cases, continuous circulation of water should be provided to cause cooling.



### 1.2.6 Electric Shock:

Electric shock is caused by faulty equipment, particularly when they are handled by wet hands electric shock is caused. Since low-voltage alternating current (220 V) is used in a laboratory, electric shocks are rare.

#### Prevention:

1. Timely checking of the instruments.
2. Earthing of the instruments.
3. When electrical shock takes place, someone has to put off the main switch.

### 1.3 First aid box

First aid box clearly labelled should be kept in a readily accessible place in the laboratory and should contain the following

1. Sodium carbonate, 5% solution
2. Sodium bicarbonate, 2% solution
3. Boric acid, saturated solution
4. Acetic acid. 5% solution
5. Cotton wool and gauze
6. Mercurochrome and tincture of iodine.
7. Antiseptic cream
8. Individually wrapped sterile adhesive dressings in a variety of sizes
9. Sterile eye-pads with bandages for attachment
10. Triangular bandages
11. A bottle containing eye drops
12. A first – aid manual

### 1.4 Labels to be checked on the chemicals

According to the labels given below chemicals should be segregated for safety purpose



## **1.5 Safety and Precautions**

### **Do's**

1. Wear a clean, full sleeve cotton lab coat and fasten all the buttons.
2. Maintain silence while working.
3. Listen and follow the instructions.
4. Keep your work area clean.
5. Use appropriate amount of chemicals.
6. Always read the label on the reagent bottle before using it.
7. Keep the reagent bottles back in their appropriate places after use.
8. Always use match stick or candle for lighting the burner.
9. Inform your teacher immediately in case of any accidents.
10. Always use clean dropper to transfer liquid reagents and use a clean spatula to transfer solid reagents from containers.
11. Throw the waste material in the notified bins.
12. Use pair of tongs while handling hot objects/ apparatus.
13. Wash your hands properly before leaving the lab.

### **Dont's**

1. Don't use cell phones.
  2. Don't accumulate unused chemicals/ equipments on work table.
  3. Don't waste chemicals.
  4. Don't point the opened end of the test tube at yourself or at other students.
  5. Don't contaminate the reagent bottles with dirty droppers (may result in violent reaction).
  6. Don't use a burning paper for lighting the burner.
  7. Don't neglect minute accidents or injuries.
  8. Don't keep reagent bottles open and don't throw, taste or smell any chemicals.
  9. Don't use sink for disposal of match stick, paper or other solid wastes.
  10. Don't handle hot objects/ apparatus with bare hands.
  11. Don't touch electrical appliances with wet hands.
  12. Don't eat/ drink or smoke in lab.
-



## CHAPTER 2

### LABORATORY APPARATUS: GENERAL REQUIREMENTS

It is essential that a learner should become familiar and attain skill in handling various types of laboratory apparatus before performing any type of experiment. This is desirable in order to carry out the work with utmost accuracy. In this chapter, details and handling of apparatus usually used in laboratories at under-graduate and post-graduate level is described.

#### 2.1 Laboratory glassware

**Laboratory glassware** refers to a variety of equipment, traditionally made of glass, used for scientific experiments in chemistry and biology laboratories. Glass is used because it is relatively inert and transparent. There are many different kinds of laboratory glassware items. Such glassware is used for a wide variety of functions which include volumetric measuring, holding or storing chemicals or samples, mixing or preparing solutions or other mixtures, containing lab processes like chemical reactions, heating, cooling, distillation, separations including chromatography, synthesis, growing biological organisms, spectrophotometry etc

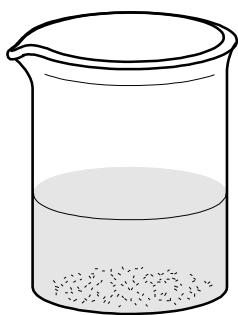
##### 2.1.1 Cleaning laboratory glassware

All glassware must be perfectly clean and free from grease, otherwise results will be unreliable. The glassware is soaked in a detergent solution to remove grease and loosen most contamination. A cleaning agent commonly used is chromic acid, a saturated solution of potassium dichromate in concentrated sulphuric acid. The apparatus is filled with this and allowed to stand for several hours (preferably overnight). The acid is then poured off and the apparatus is washed with tap water followed by repeated rinsing

##### 2.1.2 List of commonly used laboratory glassware

1. Beaker
2. Conical flask
3. Stoppered weighing bottle
4. Round bottom flask
5. Iodine flask
6. Condenser (air and water)
7. Test tubes

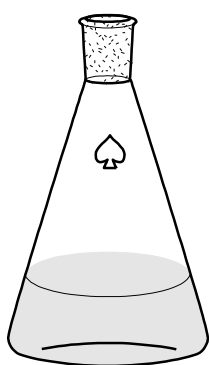
Table 2.1 Commonly used Laboratory Glassware



Beaker



Watch Glass



Conical Flask



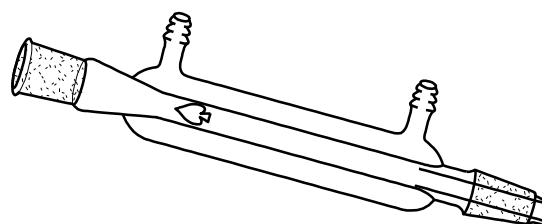
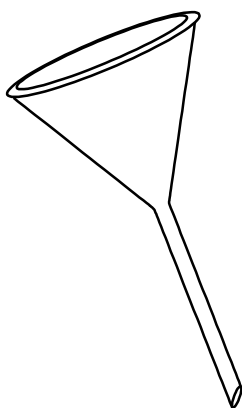
Iodine flask



Weighing bottle

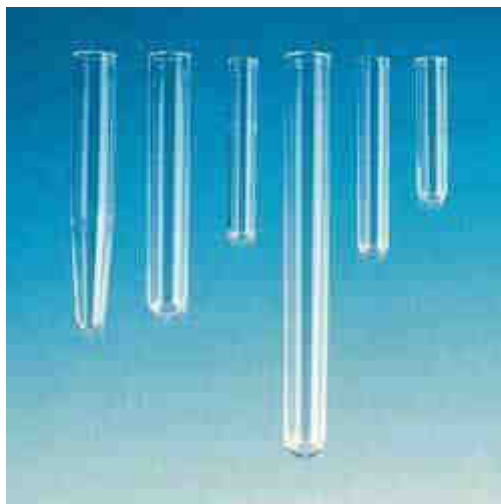


Round bottom flask



Condenser

Funnel



Test Tubes

### 2.1.3 Separating funnel

A separating funnel (also called a separation funnel) is a piece of laboratory equipment made mostly of glass and is used to separate two liquids that usually are very hard to separate, for example, Oil and Water

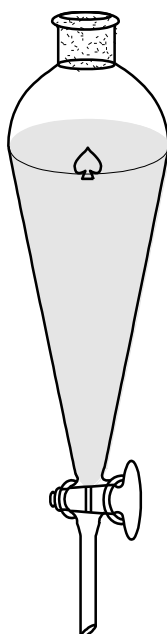


Fig 2.1.1 Separating funnel

### Using a Separating Funnel

Immiscible liquids, such as oil and water can be separated by using a separating funnel. The mixture is put into a separating funnel, shaken and allowed to settle. The oil and

water form two separate layers. The liquid with higher density, in this case water forms the lower layer. Remove the stopper and open the tap after standing. The water runs out through the tap. The oil remains in the funnel and can be run out into another beaker.

#### 2.1.4 Büchner funnel

A Büchner funnel is a piece of laboratory equipment used in filtration. It is traditionally made of porcelain, but glass and plastic funnels are also available. On top of the funnel-shaped part there is a cylinder with a perforated plate separating it from the funnel.



Fig 2.1.2 Buchner Funnel

#### Using a Büchner Funnel

The filtration material, usually filter paper, is placed on the plate, and the filter paper is moistened with a solvent to prevent initial leakage. The liquid to be filtered is poured into the cylinder and drawn through the perforated plate by vacuum suction.

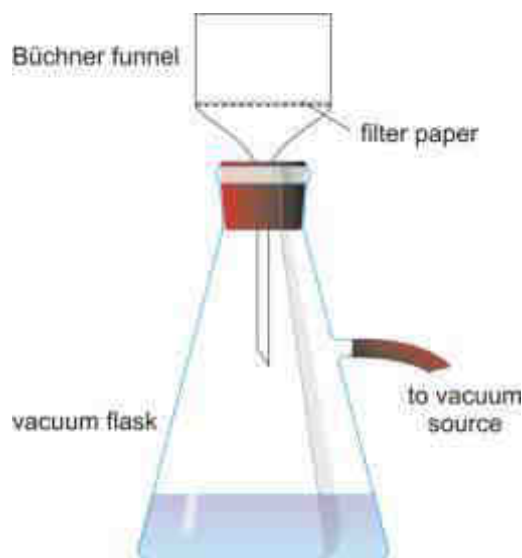


Fig 2.1.3 Using Buchner Funnel

The main advantage in using this type of filtration is that it proceeds much more quickly (several orders of magnitude) than simply allowing the solvent to drain through the filter medium via the force of gravity. It is essential that the amount of solvent being used be

limited to less than what would overflow the flask, otherwise the solvent will be drawn into the vacuum equipment.

It is used in organic chemistry labs to assist in collecting recrystallized compounds. The suction allows the wet recrystallized compound to dry out such that the pure dried crystal compound is left remaining. However, it is often the case that further drying is required, by an oven or other means, in order to remove as much residual solvent as possible.

### 2.1.5. Desiccator

Desiccator is a glass container used for storage of chemicals in anhydrous condition or dry atmosphere. The base of desiccator is filled with drying agents such as silica gel, anhydrous Calcium chloride or activated alumina. The crucible with or without precipitate is generally kept in desiccator for drying.

A common use for desiccator is to protect chemicals which are hygroscopic or which react with water from humidity. The contents of desiccators are exposed to atmospheric moisture whenever the desiccators are opened. It also requires some time to achieve a low humidity.

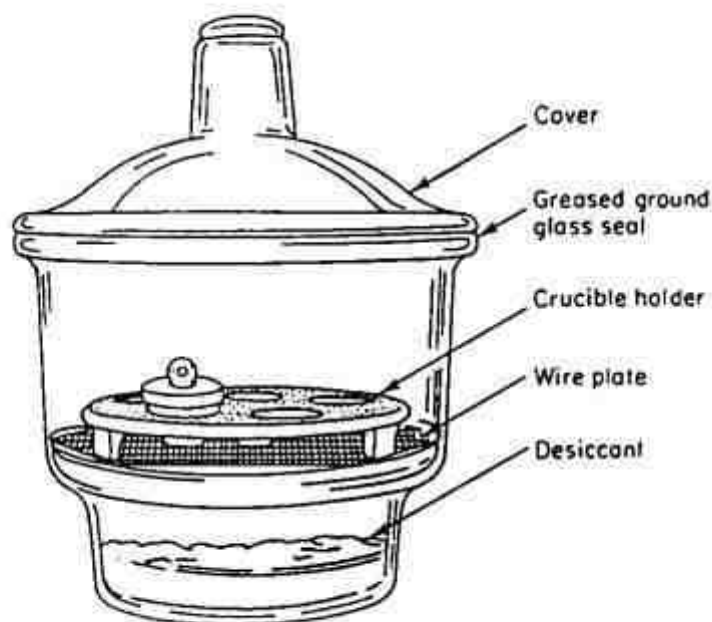


Fig 2.1.4 Dessicator



### 2.1.6 Handling of apparatus/ Volume specific Apparatus

The apparatus used is generally of two types – apparatus meant to contain a specific volume of liquid (TC) e.g. measuring cylinder and volumetric flask and apparatus meant to deliver definite volume of liquid (TD) e.g. Pipettes and burettes.

#### 2.1.6.1 Measuring flask

A pipette delivers a known volume of solution but a volumetric flask, on the other hand, contains a specific volume of solution. It has flat bottomed bulb with a long neck usually fitted with a stopper. Because a volumetric flask contains a solution, it is useful for preparing a solution with an accurately known concentration. Transfer the reagent to the volumetric flask and add some solvent to bring the reagent into solution. Continue the addition of solvent in several portions, mixing thoroughly after each addition. Then, adjust the volume to the flask's calibration mark using a dropper or pipette. Finally, complete the mixing process by putting its stopper, inverting and shaking the flask 5-6 times to get a homogeneous solution.

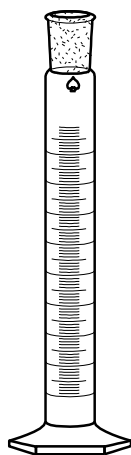


Fig 2.1.5 Measuring flask

#### Use of the measuring flask

1. Wash the flask with tap water and rinse it with distilled water.
2. If a solution is to be made from a weighed solid, then transfer the solid through a funnel into the flask and dissolve in a small amount of distilled water. Swirl the flask gently to aid in dissolution.
3. If a solution is to be made by diluting a concentrated solution, then transfer it using a pipette into the flask.
4. Mix the solution well when the flask is about  $\frac{3}{4}$  full.

5. Dilute the solution up to the mark. The bottom of the meniscus should just rest on the top of the mark. The last few drops of the solvent should be added using a dropper or pipette.

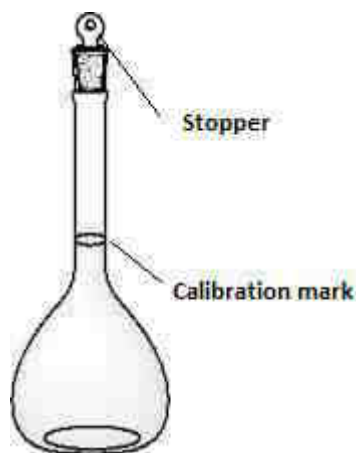


Fig 2.1.6 Volumetric/ standard Flask

6. Make the solution homogenous. Hold the stopper securely and invert the flask six to eight times. Turn the flask right side up.

### 2.1.6.2 Burette

A burette is used for titrations and delivers a variable however accurately known volume. It is composed of three major parts: (i) The barrel, which is the graduated tube used to hold the solution. (ii) The stopcock, which controls the rate of flow of solution out of the burette and (iii) The tip, which is carefully designed to deliver regular size drops.

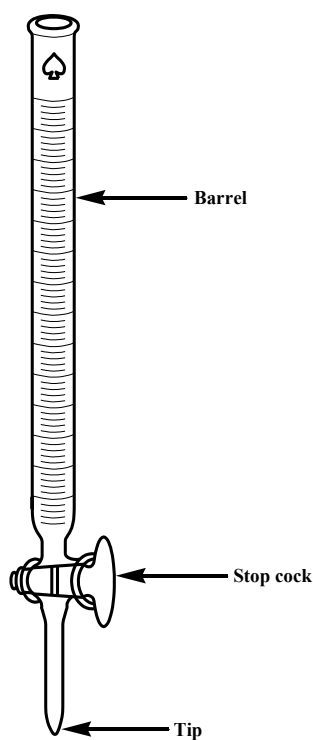


Fig 2.1.7 Burette

### Use of the burette

1. The burette is first washed with tap water and then it is rinsed with distilled water.
2. It is rinsed with several small portions of the solution with which it is to be filled making sure that the solution contacts all portions of the burette. The solution is drained through the tip. The burette is mounted in a vertical (upright) position and is filled above the zero mark by using a funnel. The solution is then allowed to flow through the tip. All air bubbles should be removed from the tip and the nozzle.
3. This is achieved by opening the stop cock and allowing the solution to flow out rapidly or by tapping the nozzle gently with the fingertip to dislocate the bubble.
4. The funnel is removed and the level of the liquid is adjusted to eye level to minimize parallax error (Fig 2.1.8). A rectangular piece of white paper is folded and two horizontal slits are made in it about 5 cm apart. These slits are inserted into the burette in such a manner that the white paper provides a background for reading the scale on the burette. This is called an index card and is helpful in minimizing parallax error. It is not necessary to adjust the level to the zero mark if it is too high for your eye level. The reading in the burette is noted up to the first decimal place.

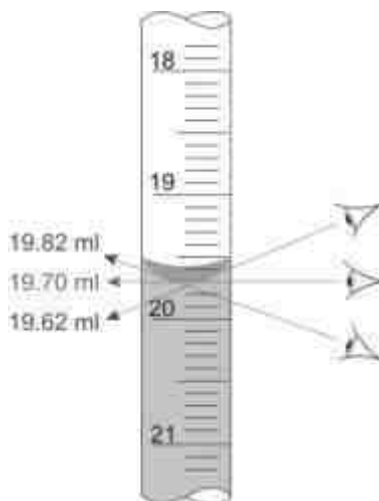


Fig 2.1.8 Parallax error

5. The upper meniscus is read for a colored liquid and the lower meniscus for a colourless liquid.

### 2.1.6.3 Pipette

Pipettes come in several designs for various purposes with differing levels of accuracy and precision, from single piece glass pipettes to more complex adjustable or electronic pipettes. Many pipette types work by creating a partial vacuum above the liquid-holding chamber and selectively releasing this vacuum to draw up and dispense.

### **Volumetric pipettes**

Volumetric pipettes allow the user to measure a volume of solution extremely accurately and then add it to something else. They are commonly used to make laboratory solutions from a base stock as well as prepare solutions for titration. They are typically marked to indicate one single volume in a particular size pipette (as are volumetric flasks). Many different sizes are available.

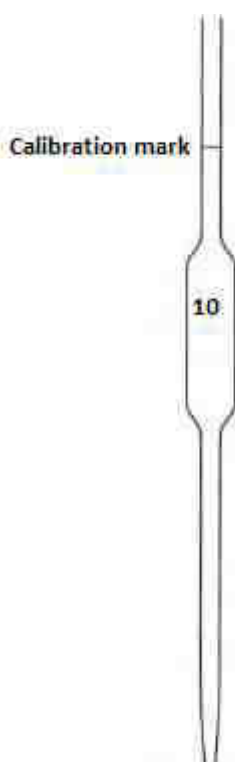


Fig 2.1.9 Volumetric Pipette

### **Graduated pipettes**

Graduated pipettes use a series of marked lines (as on a graduated cylinder) to indicate different calibrated volumes. Two types of graduated pipettes exist:

1. Mohr pipettes or drain-out pipettes have a 0 ml mark before the start of the conical end, which is a dead volume.



Fig 2.1.10 Mohr/ drain out Pipette

2. Serological or blow-out pipettes have no 0 ml mark as that corresponds to an empty pipette.



Fig 2.1.11 Serological/ Blow out pipette

## Use of the pipette

1. The pipette is first washed with tap water and then it is rinsed with distilled water.
2. A small portion of the solution to be measured (1 to 2 cm<sup>3</sup> for a 10 or 20 cm<sup>3</sup> pipette, less for smaller ones) is drawn into the pipette. The solution is rolled around the pipette in such a manner that it comes in contact with all portions of the pipette. The solution is then allowed to drain. This procedure of rinsing is repeated once.
3. The pipette is filled with the solution until above the etched mark and the forefinger of the right hand (left hand for a left hander) is quickly placed on the top of the pipette. The fingertip should be dry and the solution should be above the mark.
4. The pipette is held in a vertical position and the level of the liquid is allowed to fall slowly until the bottom of the meniscus is at the top of the etched mark of the pipette(Fig 2.1.12).

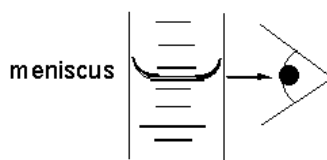


Fig 2.1.12 Lower meniscus touching the etched mark

5. The liquid in the pipette is dispensed into the container, holding the pipette in a vertical position. The pipette is allowed to remain in contact with the container for about 10 seconds after the liquid has drained from it. The last drop of solution, which remains in the tip of the pipette, is not blown out as the apparatus is calibrated in such a manner that this drop does not contribute to the volume of the solution delivered.



Fig 2.1.13 Last drop of the solution remains in the tip of the pipette

6. Toxic or corrosive substances are not sucked with a pipette; a pipette bulb (or a dispenser) or a burette is to be used for measuring these substances.

Note: Never use the pipette, burette or measuring flask to deliver or contain a hot solution as this will spoil the calibration of the apparatus.

## Pipette Dispensers

Various methods exist to handle the liquids inside a pipette. The main three types of pipette dispenser are the bulb filler, pipette pump and the electronic controller.



Bulb fillers  
controller

Pipette pumps

Electronic

Fig 2.1.14

### 2.1.6.4 Automatic pipettes

An adjustable microliter pipette (micropipette) is used for small volume transfers. These air displacement piston pipettes use disposable tips and allow accurate, precise and rapid dispensing of various volumes. Some pipettes are fixed in volume, but others are adjustable. Adjustable micropipettes are more useful than fixed pipettes. The idea behind the handheld adjustable micropipettes is that a piston moving into a small pipe will push air out, and once air is pushed out, it can suck any liquid up.

#### Various parts of a micropipette(Fig.2.1.15):

Volume adjuster - At the top, there is a circle which is used to adjust the volume of the liquid to be dispensed.

Plunger Button - Below that is Plunger, which is used to pick up and dispense the liquid in the micropipette.

Tip Ejector Button - It is used to release the tip.

Display Volume Indicator - It shows the volume that has been set for the liquid to be dispensed.

Disposable tip - It is used for only transfer purpose.

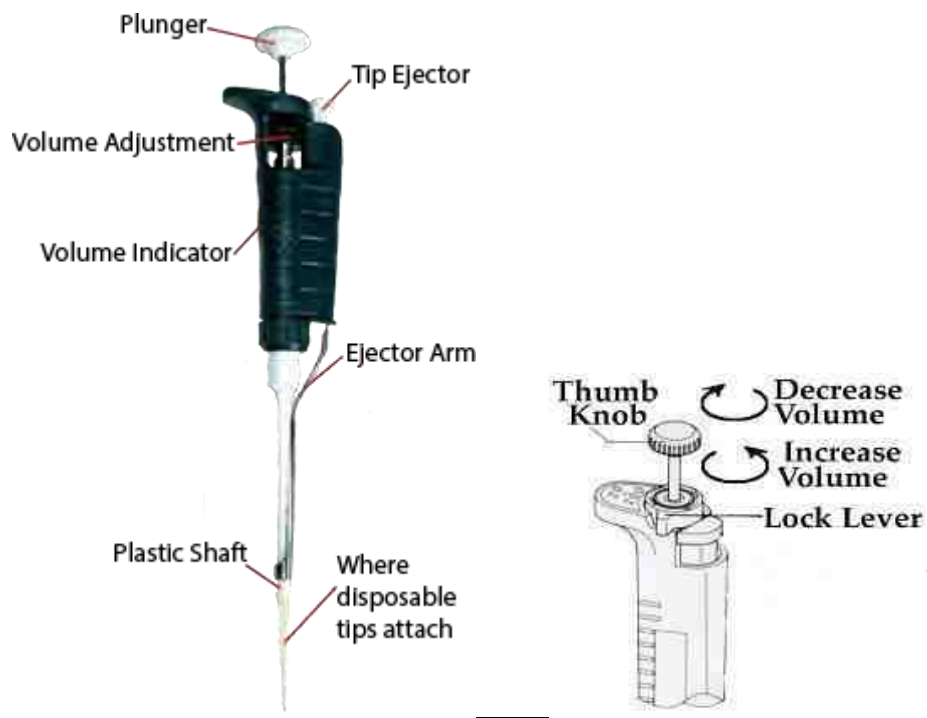


Fig 2.1.15: Parts of a Micropipette



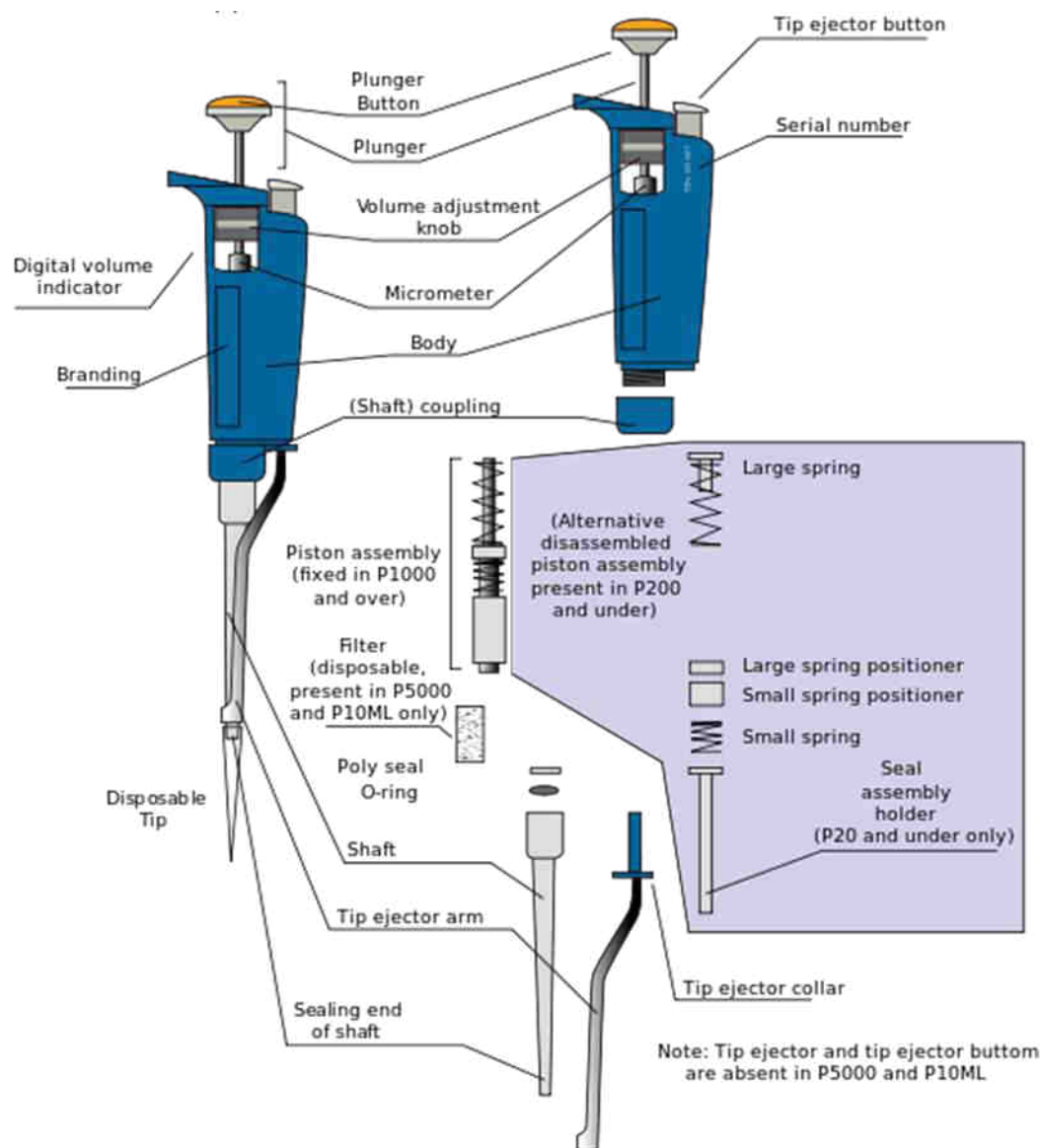


Fig. 2.1.16

Micropipettes come in many sizes. Each type of micropipette can be used to transfer a specific range of volumes. The most commonly used micropipettes found in lab are the P-10, P-20, P-100, P-200, and P-1000 (Fig2.9). The number refers to the maximum volume (measured in microliters) that can be transferred. The plunger button or the body of the micropipette is marked with the minimum and maximum volume range (or on some brands, only the maximum volume is indicated. If the minimum volume limit is not indicated, it is generally 1/10th of the maximum volume limit.)

Micropipettes use a disposable plastic tip. This is the only part of the micropipette that actually comes in contact with the solution to be transferred. The tips come in various sizes and colors. Each size of micropipette uses a specific size tip.


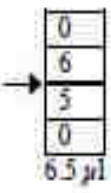


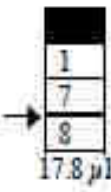


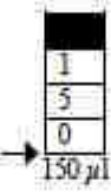

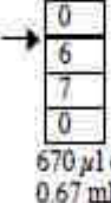

Size	Range	Top view and Color	Example Setting	Tip size and color	Tip sample
P-10	0.5-10 $\mu$ l	 white		micro white	
P-20	2-20 $\mu$ l	 yellow		medium white or yellow	
P-200	20-200 $\mu$ l	 yellow			
P-1000	200-1000 $\mu$ l	 blue		large white or blue	

Fig 2.1.17: Size of micropipettes and their respective tips.

#### Operating instructions(Fig.2.1.18):

1. Select the correct size micropipette and tips.
2. Dial the volume adjustment knob to set the proper volume in the volume indicator.
3. Hold the micropipette vertically over the solution and push the plunger down to the first stop.
4. Insert the tip into the solution.
5. Slowly release the plunger and note that the solution is drawn into the tip because of suction.
6. Look at the tip to be sure that there are no bubbles.

7. Dispense the solution touching the tip to the side of the target container. Slowly depress the plunger to the second stop. Before releasing the plunger, remove tip from target container.
8. Be sure the tip is empty. Then use the tip ejector to dispose of the tip into an appropriate disposal container.
9. Release the micropipette back to its maximum volume to avoid constraint on spring.

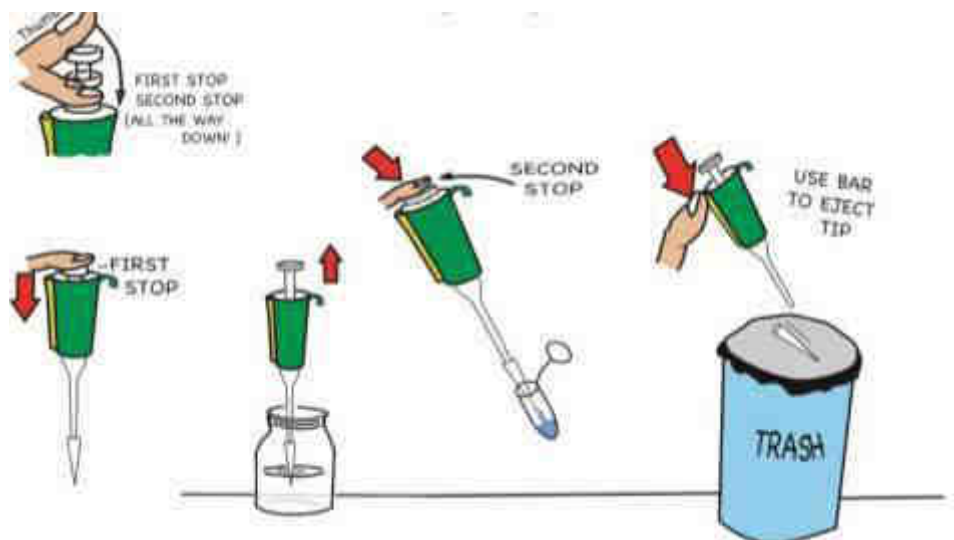


Fig 2.1.18

#### **Maintenance instructions:**

1. Wipe the micropipettes with alcohol before and after use.
2. Expose the micropipettes to UV light for 20 minutes for aseptic work.
3. Micropipettes should never be left in wound state.
4. Do not pipette acids and strong volatile compounds/ solvents with a micropipette.
5. Do not invert/ tilt the micropipettes as the solution sucked up should not reach the plastic shaft. If the solution touches the shaft, immediately remove the tip and clean the shaft with tissue paper.
6. Care must be taken to use the micropipettes for pipetting volumes only within the prescribed range for the said micropipette

## **Auto-Pipette Calibration**

The calibration of pipette is carried out by gravimetric method. When determining the volume of water, the accuracy of measurements is affected by ambient temperature, atmospheric pressure and relative humidity. These factors are usually combined to give the Z factor, used in calculation of volume of water. Then the calculated volume of water is compared with the theoretical volume to determine the accuracy and precision of the pipette.

### **Requirements**

- (1) Pipette and tips
- (2) Beaker and plastic medicine cup
- (3) Distilled water
- (4) Thermometer
- (5) Analytical balance

### **Procedure**

- (1) Record the temperature of water.
- (2) Put a tip onto the pipette and set the volume which is to be tested.
- (3) Pre-rinse the tip: aspirate and dispense the setting volume three times.
- (4) Hold the pipette vertically and aspirate the water.
- (5) Wipe any droplets away from the outside of the tip.
- (6) Place the end of the tip against the inside wall of the plastic cup and dispense the water
- (7) Close the door of balance and record the value.
- (8) Repeat step (2) to (7) 3-5 times.
- (9) Pipette should be calibrated every three months routinely.

Table 2.10. Values for  $\alpha$  ( $\mu\text{I}/\text{mg}$ ), as a function of temperature and pressure, for distilled water.

Temperature (°C)	Air pressure					
	608	640	680	720	760	806 (mmHg)
	800	853	907	960	1013	1067 (mbar)
	80.0	85.3	90.7	96.0	101.3	106.7 (kPa)
15	1.0018	1.0018	1.0019	1.0019	1.0020	1.0020
15.5	1.0018	1.0019	1.0019	1.0020	1.0020	1.0021
16	1.0019	1.0020	1.0020	1.0021	1.0021	1.0022
16.5	1.0020	1.0020	1.0021	1.0022	1.0022	1.0023
17	1.0021	1.0021	1.0022	1.0022	1.0023	1.0023
17.5	1.0022	1.0022	1.0023	1.0023	1.0024	1.0024
18	1.0022	1.0023	1.0024	1.0024	1.0025	1.0025
18.5	1.0023	1.0024	1.0025	1.0025	1.0026	1.0026
19	1.0024	1.0025	1.0025	1.0026	1.0027	1.0027
19.5	1.0025	1.0026	1.0026	1.0027	1.0028	1.0028
20	1.0026	1.0027	1.0027	1.0028	1.0029	1.0029
20.5	1.0027	1.0028	1.0028	1.0029	1.0030	1.0030
21	1.0028	1.0029	1.0030	1.0030	1.0031	1.0031
21.5	1.0030	1.0030	1.0031	1.0031	1.0032	1.0032
22	1.0031	1.0031	1.0032	1.0032	1.0033	1.0033
22.5	1.0032	1.0032	1.0033	1.0033	1.0034	1.0035
23	1.0033	1.0033	1.0034	1.0035	1.0035	1.0036
23.5	1.0034	1.0035	1.0035	1.0036	1.0036	1.0037
24	1.0035	1.0036	1.0036	1.0037	1.0038	1.0038
24.5	1.0037	1.0037	1.0038	1.0038	1.0039	1.0039
25	1.0038	1.0038	1.0039	1.0039	1.0040	1.0041
25.5	1.0039	1.0040	1.0040	1.0041	1.0041	1.0042
26	1.0040	1.0041	1.0042	1.0042	1.0043	1.0043
26.5	1.0042	1.0042	1.0043	1.0043	1.0044	1.0045
27	1.0043	1.0044	1.0044	1.0045	1.0045	1.0046
27.5	1.0044	1.0045	1.0046	1.0046	1.0047	1.0047
28	1.0046	1.0046	1.0047	1.0048	1.0048	1.0049
28.5	1.0047	1.0048	1.0048	1.0049	1.0050	1.0050
29	1.0049	1.0049	1.0050	1.0050	1.0051	1.0052
29.5	1.0050	1.0051	1.0051	1.0052	1.0052	1.0053
30	1.0052	1.0052	1.0053	1.0053	1.0054	1.0055

## CHAPTER 3

### PREPARATION OF SOLUTIONS

The composition & preparation of solutions/ reagents plays an imperative role in the precision of an experiment. If the composition of reagent is wrong, it may lead to errors in the observations and results of an experiment. Therefore, for preparation of the chemical reagents or solutions in a laboratory, suitable proportion of chemicals and/or solvents as well as procedure is very crucial. This chapter deals with the preparation of some common chemical reagents used in chemical laboratories.

#### 3.1 Distilled water/deionized water

Distilled water and **deionized (DI) water** have been the most common forms of purified water. In recent decades, a combination of several processes have come into use to produce water of such high purity that its trace contaminants are measured in parts per billion (ppb) or parts per trillion (ppt). Purified water has many uses, largely in science and engineering laboratories and industries, and is produced in a range of purities.

##### 3.1.1 Purification methods

###### Distillation

Distilled water is produced by a process of distillation and has an electrical conductivity of not more than  $10\ \mu\text{S}/\text{cm}$  and total dissolved solids of less than  $10\ \text{mg}/\text{litre}$ . Electrical conductivity of ultra-pure water is  $5.5 \times 10^{-6}\ \text{S}\cdot\text{m}^{-1}$  ( $18\ \text{M}\Omega\ \text{cm}$  in the reciprocal terms of Electrical Resistivity) and is due only to  $\text{H}^+$  and  $\text{OH}^-$  ions produced in the water dissociation equilibrium. Distillation involves boiling the water and then condensing the vapour into a clean container, leaving solid contaminants behind. Distillation produces very pure water. A white or yellowish mineral scale is left in the distillation apparatus, which requires regular cleaning. Distillation alone does not guarantee the absence of bacteria in drinking water unless containers are also sterilized. For many applications, cheaper alternatives such as deionized water are used in place of distilled water.

###### Double distillation

Double-distilled water is prepared by double distillation of water.

###### Deionization

Deionized water, also known as demineralized water is water that has had its mineral ions removed, such as cations from sodium, calcium, iron, copper and anions such as chloride and bromide. Deionization is a physical process which uses specially-

manufactured ion exchange resins which bind to and filter out the mineral salts from water. Because the majority of water impurities are dissolved salts, deionization produces a high purity water that is generally similar to distilled water, and this process is quick and without scale buildup. However, deionization does not significantly remove uncharged organic molecules, viruses or bacteria, except by incidental trapping in the resin. Specially made strong base anion resins can remove Gram-negative bacteria. Deionization can be done continuously and inexpensively using electrodeionization.

Deionization does not remove the hydroxide or hydronium ions from water. These are the products of the self-ionization of water to equilibrium and therefore are impossible to remove.

### **Other processes**

Other processes are also used to purify water, including reverse osmosis, carbon filtration, microporous filtration, ultrafiltration, ultraviolet oxidation, or electrodialysis. These are used in place of, or in addition to the processes listed above. Processes rendering water potable but not necessarily closer to being pure  $\text{H}_2\text{O}$  / hydroxide + hydronium ions include use of dilute sodium hypochlorite, mixed-oxidants (electrocatalyzed  $\text{H}_2\text{O} + \text{NaCl}$ ), and iodine; See discussion regarding potable water treatments under "Health effects" below.

Purified water may require further purification depending upon the specific laboratory application. For example, water that is being used for molecular-biology experiments needs to be DNase or RNase-free, which requires special additional treatment or functional testing. Water for microbiology experiments needs to be completely sterile, which is usually accomplished by autoclaving. Water used to analyze trace metals may require elimination of trace metals to a standard beyond that of the Type I water norm.

### **Preparation of solutions**

#### **1. Standard Solution**

A standard solution is one which contains a known weight of the solute in a known volume of the solution. It is prepared by dissolving an accurately weighed pure solute in an appropriate solvent. The substances used to make standard solutions are called primary standards.

#### **2. Primary Standard Substances**

A primary standard is a substance of sufficient purity from which a standard solution may be prepared by weighing a fixed amount and dissolving it in a definite volume of distilled water. It must satisfy the following conditions:

1. It must be easy to obtain and to preserve in a pure state.
  2. It should be unaltered in air during weighing, i.e., it should not be hygroscopic, oxidized by air or affected by carbon dioxide.
  3. It should be easily soluble in the given solvent.
  4. The solution should maintain its composition during storage.
-

- The reaction with the standard solution should be stoichiometric, instantaneous and have minimum titration error.
- To minimize weighing errors, it is preferable if the molecular weight of the substance is high.

Some substances used as primary standards are given in Table 3.1 below.

Table 3.1 List of substances commonly used as primary standards.

Name of the substance	Formula	Relative molecular mass
Oxalic acid	$\text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$	$M_r = 126.00$
Sodium oxalate	$\text{Na}_2\text{C}_2\text{O}_4$	$M_r = 134.00$
Anhydrous sodium carbonate	$\text{Na}_2\text{CO}_3$	$M_r = 106.00$
Ferrous ammonium sulphate	$\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$	$M_r = 392.14$
Potassium dichromate	$\text{K}_2\text{Cr}_2\text{O}_7$	$M_r = 294.20$

Substances not satisfying the above conditions are called **secondary standards** (for example, NaOH, HCl,  $\text{KMnO}_4$ ). The concentrations of these can be determined by titrating them against a standard solution. This process is called standardization.

**Equivalent weight:** It is defined as the number of parts by weight.

a) Eq. wt of an acid = mol. wt / basicity

Oxalic acid =  $126.0/2 = 63.04$

Potassium permanganate =  $158.03/5 = 31.6$

b) Eq. wt of an base = mol. wt / acidity

Sodium hydroxide:  $40/1 = 40$

Table 3.2 Amount required (g) for preparation of some commonly used solution

S.No	Name of the compound and formula	Molecular weight (M)	Equivalent weight	Amount (g)/litre for normality	
				N/20	N/40
1.	Oxalic acid $\text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$	126.08	63.04 (M/2)	3.1520	1.5760
2.	Sodium carbonate $\text{Na}_2\text{CO}_3$ (Anhydrous)	106.0	53.0 (M/2)	2.6500	1.3250



3.	Sodium hydroxide NaOH	40.01	40.01 (M/1)	2.0005	1.0002
4.	Sodium bicarbonate NaHCO <sub>3</sub> (Anhydrous)	84.00	84.00 (M/1)	4.200	2.100
5.	Potassium permanganate KMnO <sub>4</sub>	158.03	31.606 (M/5)	1.5803	0.7901
6.	Ferrous ammonium sulphate (Mohr's Salt) FeSO <sub>4</sub> (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .6H <sub>2</sub> O	392.14	392.14 (M/1)	19.6070	9.8034
7.	Potassium dichromate K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	294.21	49.03 (M/6)	2.4515	1.2257
8.	Copper sulphate (CuSO <sub>4</sub> .5H <sub>2</sub> O)	249.69	249.69 (M/1)	12.4845	6.2422
9.	Tartaremetic	333.92	166.96 (M/2)	8.3480	4.1739
10.	Aresnious oxide As <sub>2</sub> O <sub>3</sub>	197.82	49.45 (M/4)	2.4727	1.2363
11.	Sodium thiosulpahte Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .5H <sub>2</sub> O	248.21	248.21 (M/1)	12.4105	6.2052
12.	Silver nitrate AgNO <sub>3</sub>	169.89	169.89 (M/1)	8.4945	4.2472
13.	Sodium chloride NaCl	58.45	58.45 (M/1)	2.9225	1.4612
14.	Ammonium thiocyanate	76.12	76.12 (M/1)	3.8060	1.9029
15.	Disodium ethylene diamine dicarboxylate (EDTA) Na <sub>2</sub> C <sub>10</sub> H <sub>14</sub> O <sub>8</sub> N <sub>2</sub> .2H <sub>2</sub> O	372.25	372.25 (M/1)	18.6125	9.3062
16.	Zinc sulphate ZnSO <sub>4</sub> .2H <sub>2</sub> O	287.55	287.55 (M/1)	14.3775	7.1887
17.	Magnesium sulphate MgSO <sub>4</sub> .7H <sub>2</sub> O	246.49	246.49 (M/1)	12.3245	6.1622
18.	Calcium carbonate CaCO <sub>3</sub> (Anhydrous )	100.08	100.08 (M/1)	5.0040	2.5020

### 3.2.1 Calculation of the normality of a solution when the weight of the substance is known

i) If mass of the substance taken is = w g

ii) Equivalent weight of the substance = E

For one litre, the normality of the solution is given by

$$\text{Normality} = \frac{w \times 1000}{\text{Equivalent weight}(E) \times \text{Volume in mL}}$$

#### Examples

i) Calculate the normality of zinc sulphate solution if the salt transferred is 14.3755g in one litre solution.

$$\begin{aligned} N &= \frac{14.3775 \times 1000}{287.55 \times 1000} \\ &= 0.05N \end{aligned}$$

So, 0.05N solution is prepared by dissolving 14.3775 g of zinc sulphate in one litre of solution

ii) Calculate the normality of potassium permanganate solution if the salt transferred is 1.5803 g in one litre of solution

$$\begin{aligned} N &= \frac{1.5803 \times 1000}{31.606 \times 1000} \\ &= 0.05N \end{aligned}$$

(Eq wt of  $\text{KMnO}_4$  is = Mol wt /5 =  $158.03/5 = 31.606$ )

So 0.05 N solution is prepared by dissolving 1.5803 g of potassium permanganate in one litre of solution.

### 3.2.2 Calculation of the required weight to prepare the standard solution

Suppose equivalent wt. of the substance is E and we have to prepare a solution of N normality in V ml of measuring flask.

So, substance in g in V ml =  $N \times E \times V / 1000$

$$w(\text{Substance in g}) = \frac{\text{Normality} \times \text{Equivalent weight}(E) \times \text{Volume}(V) \text{ in mL}}{1000}$$

### Examples

i) To prepare N/ 20 zinc sulphate solution ( $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ ) in one litre

$$\frac{1}{20} = \frac{x \times 1000}{287.55 \times 1000}$$

$$\begin{aligned} (\text{Eq wt of } \text{ZnSO}_4 \cdot 7\text{H}_2\text{O} \text{ is} &= \text{Mol. wt} / 1 = 287.55 / 1 = 287.55) \\ &= 14.3775 \text{ g} \end{aligned}$$

So 14.3775 g of zinc sulphate is to be dissolved in one litre of solution to have N/20 zinc sulphate solution.

ii) To prepare N/ 20 oxalic acid solution in one litre

$$\frac{1}{20} = \frac{x \times 1000}{63.04 \times 1000}$$

$$\begin{aligned} (\text{Eq wt of oxalic acid is taken} &= \text{Mol} / 2 = 126.08 / 2 = 63.04) \\ &= 3.1520 \text{ g} \end{aligned}$$

So 3.1520 g of oxalic acid is to be dissolved in one litre of solution.

On the similar basis, solutions can be made with different molarities/ normalities

### 3.2.3 Percentage composition by weight

This is expressed as the number of grams of solute per 100 g of solution.

### 3.2.4 Percentage composition by volume

This is expressed as the volume of solute and solvent, i.e. 30% ethanol solution contains 30 ml of ethanol and 70 ml of water.

### 3.2.5 Percentage strength

Number of grams of substance dissolved in 100 gm of its solution .i.e. A 10% NaCl solution of sodium hydroxide means 10 g of sodium hydroxide in 100 ml of solution

### 3.2.6 Preparation of solutions by dilution

#### For normal solutions

**Example 1.** Preparation of N/50 oxalic acid solution from N/10 oxalic acid solution in 250 ml volumetric flask.

Applying normality equation i.e.

$$N_1 V_1 = N_2 V_2$$

$$(N/10) \quad (N/50)$$

$$1/10 \times V_1 = 1/50 \times 250$$

$$V_1 = 50 \text{ ml}$$

So, 50 ml volume of N/10 oxalic acid solution is required to make N/ 50 oxalic acid in 250 ml volumetric flask.

#### For molar solutions

**Example 2.** Preparation of M/50 NaCl solution from M/10 NaCl solution in 250 ml standard flask.

Applying Molarity equation i.e.

$$M_1 V_1 = M_2 V_2$$

$$(M/10) \quad (M/50)$$

$$1/10 \times V_1 = 1/50 \times 250$$

$$V_1 = 50 \text{ ml}$$

So, 50 ml volume of M/10 NaCl solution is required to make M/50 NaCl solution in 250 ml volumetric flask.

Table 3.2.7 Dilution of a concentrated solution

<u>Dilute solution to</u>	<u>Volume (ml) of</u>	<u>Volume (ml)</u>
<u>be prepared from</u>	<u>water required</u>	<u>of 0.1 M</u>

<b>0.1M HCL solution in 1L</b>		<b>HCL required</b>
0.01 M	900ml	100 ml
0.02 M	800 ml	200 ml
0.05 M	500 ml	500 ml
0.001 M	990 ml	10 ml
0.002 M	980 ml	20 ml
0.007 M	930 ml	70 ml

Table 3.2.8 Dilution of concentrated solution

<b>Dilute solution to be prepared from Oxalic acid solution in 1L</b>	<b>Volume (ml) of N/20 water required</b>	<b>Volume (ml) of N/20 oxalic acid required</b>
N/30	333.4 ml	666.6 ml
N/35	428.6 ml	571.4 ml
N/40	500.0 ml	500.0 ml
N/50	600.0 ml	400.0 ml
N/100	800.0 ml	200.0ml

Table 3.2.9 Dilution of concentrated solution

<b>Dilute solution to be prepared from 1N Oxalic acid solution in 1L</b>	<b>Volume (ml) of 1N water required</b>	<b>Volume (ml) of 1N oxalic acid solution required</b>
N/2	500.0 ml	500.0 ml
N/3	666.7 ml	333.3 ml
N/4	750.0 ml	250.0ml
N/5	800.0 ml	200.0 ml
N/10	900.0 ml	100.0 ml

Table 3.2.10 Solution of Common Acids

<b>Reagent</b>	<b>Molarity</b>	<b>Volume (ml) required to make 1L of 0.1M solution</b>
Conc. HCl	11.6	8.6
Conc. HNO <sub>3</sub>	15.4	6.5
Conc. H <sub>2</sub> SO <sub>4</sub>	17.8	5.6

Conc. HClO <sub>4</sub>	11.6	8.6
Syrupy H <sub>3</sub> PO <sub>4</sub>	14.6	6.8
Glacial CH <sub>3</sub> COOH	17.4	5.8
Ammonia	14.8	6.8

### 3.3 Storage of chemicals

Each chemical in the lab should be stored in appropriate storage container, must be properly labeled and must that clearly classify the hazards associated with that substance. Table 3.3.1 discusses the type of storage required based on the nature of the chemical being used.

**Table 3.3.1 Storage of Chemicals**

Chemicals	Type of storage
Volatile	Fuming hood
Hygroscopic	Desiccators
Biochemicals	Refrigerator
Enzymes , antibodies and kits	Refrigerator at -20 ° C
Photosensitive	Amber bottles

## CHAPTER 4

### INSTRUMENTS

#### 4.1 Balances

The balance (also balance scale, beam balance and laboratory balance) was the first mass measuring instrument invented. In its traditional form, it consists of a pivoted horizontal lever of equal length arms, called the beam, with a weighing pan, also called scale pan suspended from each arm. The unknown mass is placed in one pan, and standard masses are added to the other pan until the beam is as close to equilibrium as possible. In precision balances, a slider mass is moved along a graduated scale. The slider position gives a fine correction to the mass value.

Although a balance technically compares weights, not masses, the weight of an object is proportional to its mass, and the standard weights used with balances are usually labeled in mass units.

##### 4.1.1 Analytical Balances

An **analytical balance** is used to measure mass to a very high degree of precision and accuracy. The measuring pan(s) of a high precision (0.1 mg or better) analytical balance are inside a transparent enclosure with doors so that dust does not collect and so any air currents in the room do not affect the balance's operation. The use of a vented balance safety enclosure, which has uniquely designed acrylic airfoils, allows a smooth turbulence-free airflow that prevents balance fluctuation and the measure of mass down to 1  $\mu\text{g}$  without fluctuations or loss of product. Also, the sample must be at room temperature to prevent natural convection from forming air currents inside the enclosure, affecting the measure of mass.

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1. After making certain that the pan is empty and all doors of the balance are closed, press the knob indicated in the balance, the display should read 0.0000 g.
2. Open the door of the balance and gently place the object to be weighed at the centre of the pan. Close the door. There may be some initial fluctuation in the reading. Allow the system to stabilise and note the reading. Remove the object from the balance and close the doors of the balance.

### **Weighing by difference**

This method of weighing is used in preparation of a standard solution.

1. Place the bottle containing the sample to be weighed on the balance pan.
2. Weigh the bottle to an accuracy of 0.0001 g.
3. Remove the bottle and transfer the desired quantity of the sample into the flask.
  4. Place the bottle on the same balance and reweigh it to 0.0001 g accuracy. The sample size is the difference in weight in steps 2 and 4. If you want to make another solution of the same sample then the weight recorded in step 4 serves as the starting weight for the next sample.

#### **4.1.2 Fisher Analytical Balance**

1. This balance is always left turned on, so just be sure that the readout is 0.000 and (g) is showing as the unit.
2. Push on the large, red square labeled "Tare", if re-zeroing is necessary. Repeat until only zeros are on the display.
3. Place object in the center of the pan.
4. Allow display to stabilize; (g) will appear in the unit area of the display.

Read (record) the mass, remove object from pan, and re-zero if necessary.

#### **4.1.3 Triple Beam Balance**

1. The triple beam balance is used to measure masses very precisely; the reading error is 0.05 gram.
2. With the pan empty, move the three sliders on the three beams to their leftmost positions, so that the balance reads zero. If the indicator on the far right is not aligned with the fixed mark, then calibrate the balance by turning the set screw on the left under the pan.
3. Once the balance has been calibrated, place the object to be measured on the pan.
4. Move the 100 gram slider along the beam to the right until the indicator drops below the fixed mark. The notched position immediately to the left of this point indicates the number of hundreds of grams.
5. Now move the 10 gram slider along the beam to the right until the indicator drops below the fixed mark. The notched position immediately to the left of this point indicates the number of tens of grams.
6. The beam in front is not notched; the slider can move anywhere along the beam. The boldface numbers on this beam are grams and the tick marks between the boldface numbers indicate tenths of grams.



7. To find the mass of the object on the pan, simply add the numbers from the three beams.
8. As with a ruler, it is possible to read the front scale to the nearest half tick mark.

#### **4.1.4 Double Pan Balance**

Two pan beam balance for accurate and rapid weighing up to 2kg when used with supplementary masses. The balance has centre indicating sliding masses to weigh up to 210gm, spring loaded zero adjust compensator and magnetic damping. Stainless steel pans are 150 mm diameter. Capacity- 2kg x 0.1gm

#### **4.1.5 Care and Maintenance**

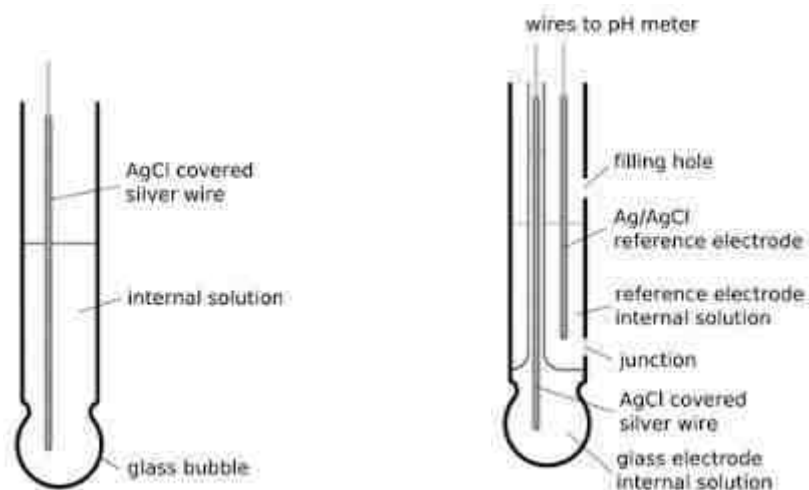
1. Do not bump or place objects on the bench after zeroing the balance.
2. Chemicals should be weighed in suitable containers
3. Mass powders on paper or dishes. Handle objects with tongs, tweezers, gloves, or paper to prevent fingerprints.
4. Let hot objects cool before massing. The object to be weighed should be at room temperature.
5. Mass hygroscopic materials rapidly since they will absorb water during massing.
6. When making repetitive massings always use the same procedure.
7. There should be no spilling of any chemical inside the balance; transfer of chemical should be done outside the balance.
8. **DO NOT** go off and leave spilled chemicals on or around the balance! Report any spill to the instructor so that she may clean it up in a proper manner, re-calibrating if necessary.

### **4.2 pH meter / potentiometer**

A pH meter is an electronic instrument used for measuring the pH (acidity or alkalinity) of a liquid (though special probes are sometimes used to measure the pH of semi-solid substances). A typical pH meter consists of a special measuring probe (a glass electrode) connected to an electronic meter that measures and displays the pH reading.

#### **4.2.1 pH electrodes**

Most often used pH electrodes are glass electrodes. Typical model is made of glass tube ended with small glass bubble.



**Glass pH electrode**

**pH combination electrode**

Fig. 4.2.1 Glass and Combined Glass electrode

Inside of the electrode is usually filled with buffered solution of chlorides in which silver wire covered with silver chloride is immersed. pH of internal solution varies - for example it can be 1.0 (0.1M HCl ) or 7.0 (different buffers used by different producers).

Active part of the electrode is the glass bubble. While tube has strong and thick walls, bubble is made to be as thin as possible. The majority of pH electrodes available commercially are combination electrodes that have both glass  $H^+$  ion sensitive electrode and additional reference electrode conveniently placed in one housing. For some specific applications separate pH electrodes and reference electrodes are still used - they allow higher precision needed sometimes for research purposes. In most cases combination electrodes are precise enough and much more convenient to use.

For correct and stable results of measurements reference electrode must be isolated from the solution so that they will not cross contaminate. Connection is made through a small hole in the electrode body. This hole is blocked by porous membrane, or ceramic (asbestous in older models) wick. Internal solution flows very slowly through the junction, thus such electrodes are called flowing electrodes.

Glass electrode potential depends on the presence of other than  $H^+$  ions in the solution. While careful selection of the glass used makes this difference small, it can't be neglected.

#### 4.2.2 pH /Glass Electrode - Care and Maintenance

pH electrode is the most sensitive component of pH instrument. Correct calibration procedures combined with proper maintenance will provide years of reliable measurement.

The glass or pH electrode consists of a special glass bulb at its end and is subject to contamination and abrasive damage that can interfere with the accuracy and response of pH measurements.

1. Handle electrode with care - it is fragile!
2. Allowing the glass bulb to dry out can permanently damage the glass electrode.
3. Keep electrode always immersed. Use the solution recommended by manufacturer or neutral solution of KCl (3M-4M).
4. Remember to always keep internal level of filling solution above the level of measured solution.
5. Fill electrode (the flowing type) with correct filling solution (as recommended by manufacturer - usually KCl solution, 3M to saturated) to not let it dry internally.
6. If the electrode will be not used for a long period of time, you may store it dry to prevent aging (aging takes place only when the electrode is wet). Don't try it with gel electrodes - these have to be stored in concentrated solution of KCl only.
7. If dried incidentally, or after storing - soak for at least 24 hours before using.
8. Liquids with a high concentration of solids increase the risk of contaminating the glass bulb and reducing the accuracy and response of the electrode.
9. To prevent permanent contamination, don't leave the electrode in the sample solution longer than necessary and rinse off immediately with distilled water, dry and return to the storage solution.
10. If you are using the electrode in solution containing substances able to clog the junction or stick to the glass bubble, clean the electrode as soon as possible after use.
11. Between measurements, store the glass electrode in a pH buffer with  $\text{pH} < 7$ . High temperature measurements, compounded by constant use in strong alkaline solutions or weak solutions of hydrofluoric acid will drastically reduce the lifetime of the electrode, since the glass membrane will slowly dissolve.
12. Don't put electrode in solutions that can dissolve glass - hydrofluoric acid (or acidified fluoride solution), concentrated alkalis.
13. Don't put electrode into dehydrating solution such as ethanol, sulfuric acid, etc.
14. In order to establish a stable, hydrated glass membrane, new or dry-stored electrodes should be soaked overnight in 0.1 M HCl. After overnight soaking, rinsing, soaking in a buffer of  $\text{pH} = 4$ , and again rinsing, the electrode should be ready for use. If a shorter soaking time is necessary, the electrode should be calibrated frequently to adjust for drifting potentials.

The proper functioning of the glass electrode depends on the hydration of the glass layer that takes place on the surface of the pH sensitive glass membrane during soaking and measurement in aqueous solutions. As long as the electrode is frequently rehydrated, accurate measurements in non-aqueous or partly aqueous solutions are also possible.

1. This can be accomplished by soaking in a slightly acidic buffer. In non-aqueous solvents completely immiscible with water and before soaking, the electrode should first be rinsed with a solvent which is miscible with both water and the solvent before rinsing with water.
2. Rinse electrodes with distilled water before and after measuring a sample.
3. To reduce the risk of scratching the glass bulb, always rinse bulb by squirting distilled water onto the bulb from a squeeze bottle and then dabbing the bottom of the bulb with a tissue to remove excess water.

4. Wiping will risk permanent, abrasive damage of the bulb and may also introduce interfering static electricity charges to the bulb. Don't rub or wipe electrode bulb, to reduce chance of error due to polarization.

**NOTE:** Never wipe the electrode to remove excess water - wiping can create static charges that interfere with correct pH measurement.

5. During shipment it is possible for air bubbles to move into the glass bulb. Trapped air bubbles around the inner reference electrode will produce an unstable reading. Swing the electrode in an arc or tap it gently to remove the bubbles. The electrode may have to be heated gently to approximately 60° C in a water bath if the air bubbles are trapped by KCl crystals.

To remove air bubbles, shake down the electrode in the same manner as a clinical thermometer until the glass bulb is filled with solution. .

6. The electrode cable and the electrode plug must be kept clean and dry if reliable measurements are to be obtained because of the very small electrode currents which pass through the glass electrode.

A number of factors dictate the useful lifetime of the glass electrode membrane and is highly individualistic. High temperatures, frequent measurements in alkaline solutions, repeated etchings, and improper maintenance will reduce the electrode's lifetime, whereas proper maintenance will prolong the useful lifetime.

The life of the glass electrode is limited and may fail to respond satisfactorily with time. This is referred to as natural electrode aging. When this occurs the electrode will need to be replaced.

The glass membrane will, however, deteriorate gradually even when stored dry. A standard glass electrode, whether a monoprobe or a combination electrode, will usually last for 12 - 18 months.

## **Calibration**

Since glass pH electrodes measure  $H^+$  (hydrogen ion) concentration relative to their reference half-cells, they must be calibrated periodically to ensure accurate, repeatable measurements. Our wide selection of commercial pH calibration buffer sachets include solutions that are standardized against NIST-certified pH references for calibrating meters with resolution up to 0.01pH.

Although calibration against one pH reference buffer (one-point calibration) typically ensures accurate pH measurement, frequent two-point or even three-point calibrations ensure the most reliable results. Make sure your pH system includes calibration buffers for a range of pH values.

### **4.2.3 Storage**

Proper pH electrode storage maximizes electrode performance and extends electrode life.

Electrodes with liquid electrolytes (not gel types) may be stored either wet or dry.

1. Dry storage is recommended if the electrode will not be used for two weeks or more. Before use, the electrode should be soaked well.
2. To store pH electrode dry you must first remove internal solution, rinse the electrode in DI/RO water, and let it dry.
3. Always keep pH electrode moist. It is best to store electrodes in clean containers filled with pH storage solution. A wet stored electrode allows an immediate use and a short response time, which is not true for dry stored ones. Unfortunately, the wet stored electrode is aging faster, because the process of aging (changing of the structure in the membrane) proceeds also in the case of non-use. To prevent the glass electrode from drying out it should be stored, **long term**, place the electrode in a clean container containing one of the liquids i.e. 4.0 M KCl or pH 7.0 buffer
4. The storage in a concentrated KCl solution matching the internal solution of the electrode also prevents the dilution of the internal solution through osmosis. Never store the glass electrode in deionised water for any length of time as this will result in ions being leached from the special glass bulb/membrane causing permanent damage.
5. Short term storage, in between sample measurements, is best in a pH buffer solution closest to the pH of your sample solution.

Soak electrode for 30 minutes if left dry.

6. Most electrodes have a protective cap that can be filled with storage solution before placing.

Note that you can't store dry combination electrodes and gel electrodes.

7. If electrode is stored wet, don't forget to cover fill hole to prohibit evaporation of reference fill solution.

Check your electrode owner's manual for details, as these may depend on the electrode make.

#### 4.2.4 Cleaning pH Electrode

The solution used to clean pH electrode depends on the presence of possible contaminants. Mechanically intact electrodes may show slow response due to coating or clogging. Use the guide below to choose the appropriate cleaning solution options:

1. General
  1. Soak in 0.1M HCl or 0.1 M HNO<sub>3</sub> for half an hour. Rinse well in tap water before use
  2. Drain and refill the reference solution.
  3. Soak the electrode in filling solution for one hour.
2. Inorganic:
  1. Soak in 0.1M tetrasodium EDTA solution for 15 minutes.
  2. Drain and refill the reference solution.
  3. Soak the electrode in filling solution for one hour.
3. Protein:

1. Soak in 1% pepsin / 0.1M HCl for 15 minutes.
2. Drain and refill the reference solution.
3. Soak the electrode in filling solution for one hour.
4. Grease and Oil:
  1. Rinse with detergent or ethanol solution.
  2. Rinse the pH electrode in mild detergent.
  3. Drain and refill the reference solution.

Filling solution for one hour. Electrode response may be enhanced by substituting a mixture of 1:1 pH 4 buffer and filling solution for the soaking solution.

### **Cleaning of the clogged junction:**

1. Pollution by sulfides:
  1. Use a solution of 8% thiocarbamide in 1 mol/L HCl.
  2. Keep the electrode in the above solution till junction's color turns pale.
2. Pollution by silver chloride:
  1. Use concentrated ammonia solution.
  2. Keep the electrode in the above solution for about 12 hours.
  3. Rinse and put into pH 4 buffer for at least 1 hour.
3. Stubborn deposits and bacteria

Soak the pH electrode in a 1:10 dilution of household laundry bleach for 10 minutes. Rinse thoroughly before use.

Other contamination have to be removed by cleaning with distilled water, alcohol or mixtures of acids. If nothing else helps you may consider use of ultrasonic cleaner as last resort.

Don't use organic solvents for cleaning of the electrode with epoxy body.

The entire glass membrane must always be clean. Rinsing the membrane with distilled water will often suffice for aqueous solutions. Rinsing the electrode with a mild detergent solution once a week will be beneficial. An alkaline hypochlorite solution can be used to clean electrode membranes subjected to solutions containing fat or proteins.

After any of the cleaning procedures, it is good practice to thoroughly rinse the pH electrode with deionised water, drain and refill the reference chamber if necessary before use.

### **Restoration**

A sluggish response for a glass electrode, even after proper maintenance has been performed, may dictate the need for a slight etching of the outer glass layer of the membrane. The following treatment is only recommended after all other measures have been used to improve response and have failed. Soaked the glass membrane portion of the glass electrode in a 20% ammonium bifluoride solution for one minute, followed by

15 seconds in 6 M hydrochloric acid. (Since hydrofluoric acid can be formed during this procedure, be careful if choosing this method of electrode rejuvenation. ) Rinse the electrode well and soak for 24 hours in a pH buffer with pH < 7.

### 4.3 Colorimeter

A colorimeter is a device used in colorimetry. In scientific fields the word generally refers to the device that measures the absorbance of particular wavelengths of light by a specific substance solution and is used to determine the concentration of a known solute in a given solution by the application of the Beer-Lambert law, which states that the concentration of a solute is proportional to the absorbance.



Fig. 4.3.1 Colorimeter

#### 4.3.1 Principle

The Beer-Lambert law is a combination of two laws, each dealing separately with the absorption of light, related to the concentration of the absorbing sample or absorber (the substance responsible for absorbing the light) and the path length or thickness of the layer (related to the absolute amount of absorber). Provided an absorbing substance is partially transparent it will transmit a portion of the incident radiation. The ratio of the intensities of transmitted and incident light gives the transmittance  $T$ , expressed as

$$T = I/I_0,$$

Where  $I_0$  is the intensity of the incident radiation;  $I$  is the intensity of the transmitted radiation.

Intensity = No. of photons interacting in unit time (seconds).

A 100% value of the  $T$  represents a totally transparent substance with no radiation being absorbed whereas a zero value of  $T$  represents a totally opaque substance, which in effect represents complete absorption.

We can derive Absorbance ( $A$ ) or Extinction ( $E$ ) which is given by the logarithm (base 10) of the reciprocal of Transmittance.

$$A = E = \log (1/T) = \log I_0/I.$$

Absorbance is also known as O.D optical density. The value for Absorbance is unitless and has a range of value from 0 (100% T) to  $\infty$  (0% T).

Beer's Law states that for a parallel beam of monochromatic radiation passing through homogeneous solution of equal pathlengths, the absorbance is proportional to the concentration.

$$\text{Absorbance} \propto \text{Concentration}$$

Lambert's law states that for a parallel beam of monochromatic radiation passing through homogeneous solution of equal concentration the absorbance is proportional to the path length.

$$\text{Absorbance} \propto \text{Pathlength}$$

Thus, Beer-Lambert law is a combination of two laws and states that for a parallel beam of mono-chromatic radiation passing through the homogeneous solution the absorbance is proportional to the product of concentration and pathlength.

$$A = \epsilon_{\lambda} CL,$$

where,  $\epsilon_{\lambda}$  is molar absorbance coefficient or molar extinction coefficient for the absorber at wavelength  $\lambda$  and is constant for an organic compound at a given wavelength.

C- concentration of absorbing solution.

L- path length through the solution (or thickness)

The essential parts of a colorimeter are:

1. a light source (often an ordinary low-voltage filament lamp)
2. an adjustable aperture
3. a set of coloured filters
4. a cuvette to hold the working solution
5. a detector (usually a photoresistor) to measure the transmitted light
6. a meter to display the output from the detector
7. In addition, there may be:
8. a voltage regulator, to protect the instrument from fluctuations in mains voltage.
9. a second light path, cuvette and detector. This enables comparison between the working solution and a "blank", consisting of pure solvent, to improve accuracy.



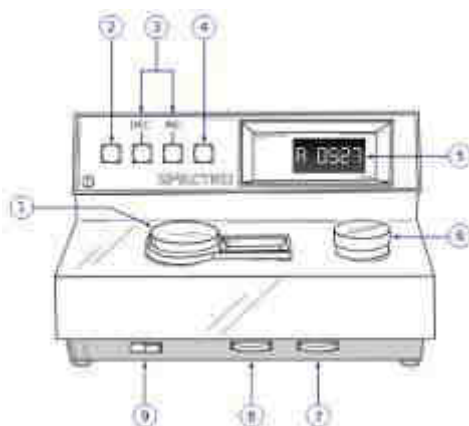


Fig 4.3.2 Parts of colorimeter

(1) Wavelength selection, (2) Printer button, (3) Concentration factor adjustment, (4) UV mode selector (Deuterium lamp), (5) Readout, (6) Sample compartment, (7) Zero control (100% T), (8) Sensitivity switch, [9] Power on/off.

### Components of Colorimeter

The arrangement in such an instrument can be very simple consisting nearly of a light source (lamp), filter, cuvette and photosensitive detector to collect the transmitted light. Another detector is required to measure the incident light, or a single detector is used to measure incident and transmitted light alternately.

1. **Filters:** Wavelength selection is of crucial importance in colorimetry. In the visible region where the analyte may not absorb, but can be readily modified chemically to produce a coloured product, coloured filters are used which absorb all but a certain limited range of wavelengths. This limited range is known as the bandwidth of the filter. The methods that use filter selectors and depend on the production of a coloured compound are the basis of colorimetry; such methods give moderate accuracy, as even the best filters do not have particularly narrow bandwidths. The usual procedure is to use to optically match cuvettes, one containing the blank in which all the materials are mixed except the sample under test, an equivalent volume of solvent being added to this mixture and the other containing the coloured material to be measured. It is necessary to standardize or zero the instrument using the blank, change cuvettes and read the absorbance. The best analytical procedure requires the zero to be reset between each measurement as colorimeters and some filters are influenced by temperature changes. It is also good practice to work from the most dilute (least colour) to the most concentrated,

because even if the cuvette is rinsed between each measurement the possibility of carry over should be minimised.

In a colorimeter the bandwidth is determined by the filter. A filter that appears red to the human eye is transmitting red light and absorbing almost everything else. This kind of filter would be used to examine blue solutions as they would absorb red-light. In general, the filter should be of a colour complimentary to that of the solution under test.

Changeable optics filters are used in the colorimeter to select the wavelength of light which the solute absorbs the most, in order to maximize accuracy. The usual wavelength range is from 400 to 700 nanometres (nm). If it is necessary to operate in the ultraviolet range (below 400 nm) then some modifications to the colorimeter are needed. In modern colorimeters the filament lamp and filters may be replaced by several light-emitting diodes of different colours.

2. Cuvettes: The cuvettes have two optically polished surfaces and two rough surfaces. Insert the cuvette in the holder such that optically polished surface faces the light beam. The cuvettes must be kept clean both inside and outside. Ensure that optically polished surfaces are not scratched and stained with any leftover solvents. In a manual colorimeter the cuvettes are inserted and removed by hand. An automated colorimeter (as used in an AutoAnalyzer) is fitted with a flowcell through which solution flows continuously. After use the cuvettes should be properly cleaned.
3. Output: The output from a colorimeter may be displayed by an analogue or digital meter and may be shown as transmittance (a linear scale from 0-100%) or as absorbance (a logarithmic scale from zero to infinity). The useful range of the absorbance scale is from 0-2 but it is desirable to keep within the range 0-1 because, above 1, the results become unreliable due to scattering of light.

In addition, the output may be sent to a chart recorder, data logger, or computer.

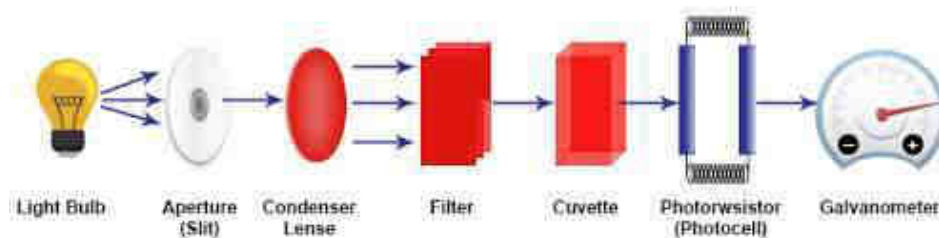


Fig. 4.3.3 Arrangement of components of a typical colorimeter

## 4.4 Spectrophotometer

### 4.4.1 Principle

The wavelength of visible light range from 400nm (violet) to 750 nm (red) that means the visible region is a very small part of the entire electromagnetic spectrum. Wavelengths slightly shorter than those of visible region fall into the ultraviolet region, while slightly longer wavelengths fall into the infrared region.

The Beer-Lambert law is a combination of two laws, each dealing separately with the absorption of light, related to the concentration of the absorbing sample or absorber (the substance responsible for absorbing the light) and the path length or thickness of the layer (related to the absolute amount of absorber). Provided an absorbing substance is partially transparent it will transmit a portion of the incident radiation.

The ratio of the intensities of transmitted and incident light gives the transmittance  $T$ , expressed as

$$T = I/I_0,$$

where  $I_0$  is the intensity of the incident radiation;  $I$  is the intensity of the transmitted radiation.

Intensity = No. of photons interacting in unit time (seconds).

Thus, Beer-Lambert law is a combination of two laws and states that for a parallel beam of mono-chromatic radiation passing through the homogeneous solution the absorbance is proportional to the product of concentration and pathlength.

$$A = \epsilon_{\lambda} Cl,$$

where,  $\epsilon_{\lambda}$  is molar absorbance coefficient or molar extinction coefficient for the absorber at wavelength  $\lambda$  and is constant for an organic compound at a given wavelength.

$C$ - concentration of absorbing solution.

$l$ - path length through the solution (or thickness)

### Components of Spectrophotometer

**Instrument:** A spectrophotometer consists of two instruments, namely a spectrometer for producing light of any selected colour (wavelength) and a photometer for measuring the intensity of light. The instruments are arranged so that liquid in a cuvette can be placed between the spectrometer beam and the photometer. The amount of light passing through the tube is measured by the photometer. There are two detectors required to measure the incident light and the transmitted light, but in the modern versions of spectrophotometer a single detector is used to measure incident as well as transmitted light alternately. The detector in the photometer is generally a photocell whose sensitive surface receives photons and a current is generated that is proportional to intensity of the light beam reaching the surface. If development of colour is linked to the concentration of a substance in solution then that concentration can be measured by determining the extent of absorption of light at the appropriate wavelength. For e.g., haemoglobin appears red because it absorbs blue and green light rays much more than red rays. The degree of absorbance of blue and green light is proportional to the concentration of the

haemoglobin

In spectrophotometer for both UV and visible light, two lamps are usually required.

1. A tungsten filament lamp- produce wavelengths in the visible regions.
2. A hydrogen or deuterium lamp suitable for UV.

There is a switch over point usually at 350 nm although after both lamps are lit all the time if both UV and visible are to be used. The switch in this case then directs the appropriate beam along the optical axis using mirror or lens.

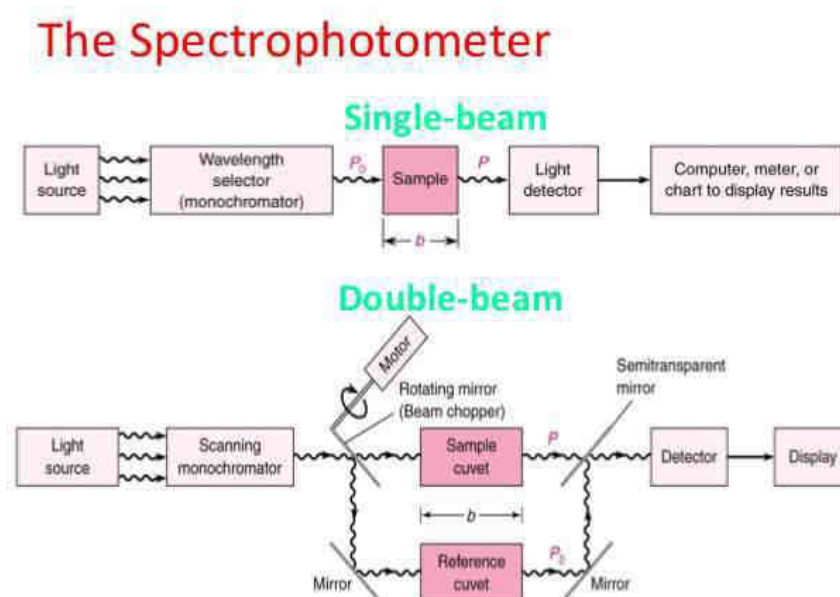


Fig. 4.4.1 Single Beam and Double Beam Spectrophotometer

In single beam instrument first the blank and then the sample must be moved into the beam, adjustments are made and readings taken.

As illustrated in fig 4.4.1 the double beam device in which the beam is split into two parts one passing through the blank or reference at the same time as the other part passes through the sample. This approach solves any problem of variation in light intensity as both reference and sample would be affected equally. The resultant measured absorbance is the difference between the two transmitted beams of light recorded by matched detectors.

Multi beam instruments are also available that allow simultaneous recording of absorbance at different wavelength.

The optical systems used are either prism (refraction) or gratings (diffraction). Resolution is greater from gratings than from prisms. The optical slit width affects the band width and measured absorbance values. The narrower the slit width the more reproducible are measured absorbance values.

**Cuvettes:** Samples for UV/Visible spectrophotometry are most often liquids. Samples are typically placed in a transparent cell known as cuvette. Cuvettes are typically rectangular in shape, commonly with an internal width of 1cm. This width becomes the path length L in Beer-Lambert's law.

The type of sample container used must allow radiation to pass over the spectral region of interest. The most widely applicable cuvettes are made up of high quality fused silica or quartz glass as these are transparent through the UV, visible or infrared regions. Glass and plastic cuvettes are also common although glass and most plastics absorb the UV radiation which limits their usefulness to visible wavelength.

Table 4.4.1 Types of cuvettes used in Spectroscopy

Material	Wavelength range (nm)
Glass	380-780
Plastic	380-780
Quartz	Below 380 i.e. UV

Cuvettes should be optically matched for the precise accurate work. The optical faces should be parallel and pathlengths are identical.

### Composition of Spectrophotometer

1. Cuvette Positioning Rod
2. Sample Compartment Lid
3. Display
4. Keyboard
5. Power On/Off
6. Wavelength Selector Knob
7. Wavelength Window

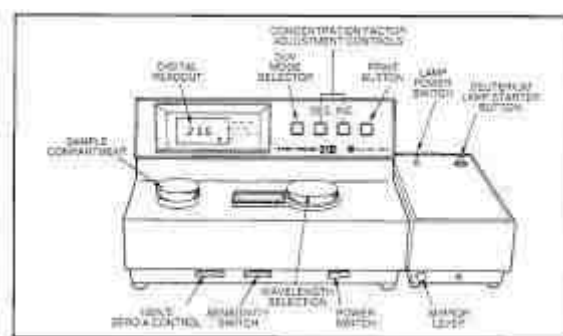


Fig. 4.4.2 Components of a spectrophotometer



#### 4.4.3 Precautions

1. Warm up period of 15-20 mins is essential for its proper working
2. Cuvettes should be cleaned properly both inside and outside
3. Ensure that optically polished surfaces of cuvettes are not scratched and stained with any leftover solvents
4. Polystyrene cuvettes should not be used or cleaned with aromatic and aliphatic hydrocarbons, Chloroform, ketones, acetones and any type of ether
5. During any measuring operation keep lid in close condition.
6. If E.coli or microbial culture is used as a sample in the cuvette then it should be properly cleaned inside and outside with alcohol and should be sterilized in UV light.

#### 4.4.4 Applications

Qualitative analysis may be performed in UV/visible regions to identify certain classes of compound both in pure state and in biological mixtures. For e.g., proteins, nucleic acids, cytochromes and chlorophylls. It is used variedly in different branches of science as Physics, Material science .Chemistry, Biochemistry and Molecular biology

Generally, spectrophotometers commonly used in the laboratories, provide a wavelength range of 340nm to 960 nm. Measurement readings of % transmittance/ absorbance/ concentration and K factor is displayed digitally as per selected mode of operation.

#### 4.4.6 Difference between Colorimeter and Spectrophotometer

The Principle of Spectrophotometer and colorimeter is absolutely the same. Both use a monochromatic light to pass through a substance and measure its absorbance/ transmittance. But still there are some differences between these two instruments

Table 4.4.2 Differences between Colorimeter and spectrophotometer

Colorimeter	Spectrophotometer
It isolates a broadband of wavelengths using a tri stimulus filters.	It isolates a narrowband of wavelengths using a prism, grating or interference filter.
Used wavelength is in visible range only.	Used wavelength is in visible as well as UV and Infra-Red region.
It is an instrument for psychophysical analysis- provides a measurement that correlates with human eye brain perception.	It is an instrument for physical analysis- provides wavelength-by-wavelength spectral analysis of the reflecting and/or transmitting properties of objects without interpretation by a human and can indirectly calculate psychophysical (colorimetric) information.

It works well for routine comparisons of similar colours and for adjustment of small colour differences under constant conditions. It is considered to be optional for quality inspection.	It works well for colour formulation, measurement of metamerism, and variable illuminant/observer conditions. It is optional for both quality inspection and research and development.
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## 4.5 Centrifuge

### 4.5.1 Principles of Centrifugation

A centrifuge is a device for separating particles from a solution according to their size, shape, density, viscosity of the medium and rotor speed.

In a solution, particles whose density is higher than that of the solvent sink (sediment), and particles that are lighter float. The greater the difference in density, the faster they move. If there is no difference in density (isopycnic conditions), the particles stay steady. To take advantage of even tiny differences in density to separate various particles in a solution, gravity can be replaced with the much more powerful “centrifugal force” provided by a centrifuge with increasing Revolution per minute (rpm) the artificially induced Gravitational force increases.



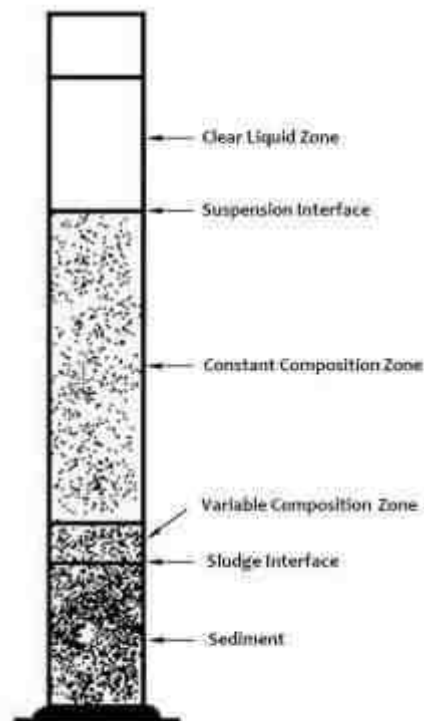


Fig. 4.5.1 Sedimentation behaviour of Particle

#### 4.5.2 A centrifuge is used to separate particles or macromolecules such as:

- Cells
- Sub-cellular components
- Proteins
- Nucleic acids

#### Basis of separation:

- Size
- Shape
- Density

#### 4.5.3 Methodology

1. Utilizes density difference between the particles/macromolecules and the medium in which these are dispersed.
2. Dispersed systems are subjected to artificially induced gravitational fields.

#### 4.5.4 Types of Centrifuges on the basis of speed.

1. Hand centrifuge
2. Microcentrifuge

3. Desktop clinical centrifuges: below 3000 rpm
4. High speed centrifuges: 20,000 to 25,000 rpm
5. Refrigerated centrifuge
6. Clinical centrifuge
7. The Ultracentrifuge: 75,000 rpm
  - a. Drive and speed control
  - b. Temperature control
  - c. Vacuum System
  - d. Rotors

#### 4.5.4.1 Hand Centrifuge



Fig. 4.5.2 Hand Centrifuge

#### Functioning of Centrifuge

1. Hand driven.
2. Capacity 4 buckets, for 15 ml, test tubes swing out head.
3. Polymide buckets to house test tubes.
4. Screw clamp for fixing on table.

#### 4.5.4.2 Microcentrifuge



**Fig. 4.5.3 Microcentrifuge**



**Eppendorf tubes**

1. Take tubes of small volume (up to 2 mL)
2. Very common in biochemistry/ molecular biology/ biological labs
3. Can generate forces up to  $\sim 15,000 \times g$
4. With or without refrigeration

#### 4.5.4.3 Desktop clinical centrifuges



**Fig. 4.5.4 Desktop Clinical Centrifuge**



**Falcon tubes**

#### 4.5.4.4 Ultracentrifuges



Fig. 4.5.5 Ultracentrifuge (Large-capacity preparative centrifuge)

1. 65,000 rpm (100,000s x g)
2. Expensive
3. Require special rotors
4. Care in use – balance critical
5. Research applications

#### 4.5.4.5 Clinical Centrifuge



Fig. 4.5.6 A Clinical Centrifuge

1. slow speed (e.g. up to 4000 rpm)
2. common in clinical labs (blood/plasma/serum separation)
3. can take approx (up to) 100 tubes, depending on diameter

## Types of Rotors

1. Fixed angle
2. Swinging bucket rotors
3. Vertical

**Fixed Angle Rotor:** Most Widely Used Rotor. Sedimenting particles have only short distance to travel before pelleting requiring shorter run time.

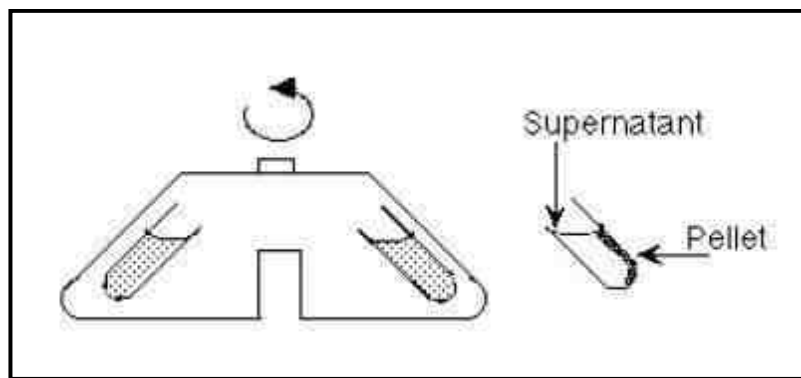


Fig. 4.5.7 Fixed Angle Rotor

**Swinging Bucket Rotor:** Longer distance of travel may allow better separation, such as in density gradient centrifugation. Easier to withdraw supernatant without disturbing pellet.

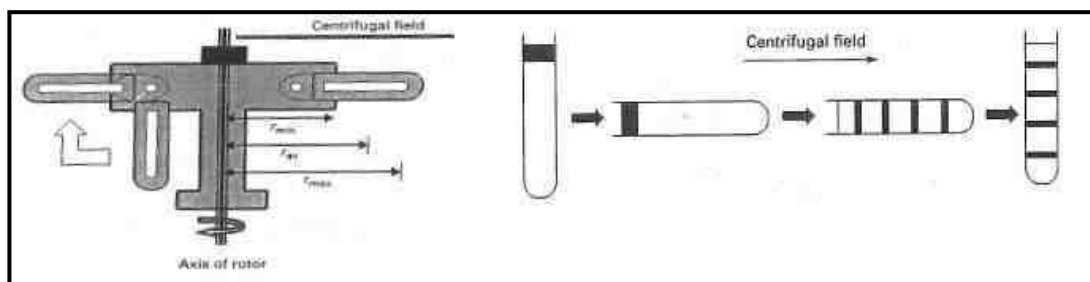


Fig. 4.5.8 Swinging Bucket Rotor

### 4.5.5 Operational Instruction for Centrifuge

1. Place the empty rotor along with the lid (w/o Sample) on the centrifuge rotor shaft by loading its compliments of tubes, cushions and buckets you will hear a click sound if the rotor is proper aligned (see trouble shooting)

2. Switch on the mains and observe whether the pilot lamp is glowing.

If it is not glowing, refer trouble shooting.

3. Load the samples symmetrically after balancing the tubes/boxes. Close the rotor lid and the acrylic lid (if these tubes are not balanced properly it will damage the centrifuge).
4. After achieving the required speed, the timer can be set to the required time setting. The centrifuge section of the unit will switch off automatically after the elapse of the set time.
5. Switch on the "MOTOR" button. The switch lamp will be illuminated. Take the speed regulator knob in complete anti-clockwise direction. A click should be heard. This indicates that the zero start switch is activated.
6. Increase the speed control knob clock-wise and watch the speed on speed indicator.
7. In case of high speed Centrifuge, if the current exceeds, the built-in over current protector may trip and the Centrifuge motor will shut-off. In such an event, once again turn the speed regulator knob in complete anti-clockwise direction and restart the motor gradually.

If you intend to stop the motor the braking action, switch off the "MOTOR" button and switch on the "BRAKE" button. If the motor has to be stopped without braking action then the "MOTOR" button can be switched off directly.

#### **4.5.6 Maintenance**

1. Clean all metal buckets/boxes thoroughly at regular intervals.
2. After removing the profile rubber cushions powder them with talcum and very carefully remove any glass splinters which may be in the buckets before refitting the rubber cushions.
3. After approximately 2000 hours of operation grease the ball-bearing of the centrifuge drive motor with ball bearing grease.
4. Periodically wipe the drive shaft with a slightly greased rag to prevent corrosion.
5. Clean the enamel finish of the centrifuge body with silicon or wax polish.

#### **Important**

Check the carbon brushes of the centrifuge drive motor periodically. If the brushes are worn out, they must be replaced with new ones. Prolonged use of Centrifuge even after the carbon brushes are worn out may result, in burn-out of motor.

#### **4.5.7 Trouble Shooting**

1. If the pilot lamp is not glowing when the mains power is switched "ON", check the mains fuse. If the fuse is blown out, replace it with a new one.
2. If the "CLICK" sound was not heard after the "MOTOR" button was switched on, check the following
3. Check whether the acrylic lid is closed properly to activate the lid lock switch provided below the acrylic lid.
4. Check whether regulator knob is brought to the extreme anticlockwise position to activate the zero start.
5. Check whether the Plug is fixed properly at the rear of the Unit.
6. If the rotor is not spinning when the regulator knob is rotated in the clock-wise direction, switch off the main power supply and check the carbon brush of motor.
7. If the Centrifuge is running and making lots of unusual noise, check whether-
8. The loaded centrifuge tubes are distributed symmetrically.
9. The centrifuge tubes are filled uniformly.
10. The centrifuge tubes do not have any great difference in weight.
11. The profiled rubber inserts have been correctly positioned in their buckets.

#### **4.6 Microscope**

The microscope is an essential tool in the study of life sciences. It allows us to see things that are too small to be seen with the unaided eye.

It helps to increase resolving power of human eye which fails to recognise objects lying closer between 0.01 to 0.25 mm.

Some common types of microscopes are listed below.

1. Dissecting Microscope
2. Compound Microscope (Light Microscope)
3. Binocular Microscope
4. Phase contrast Microscope
5. Fluorescence Microscope
6. Electron Microscope (TEM, SEM)

In Biology Laboratories, we use the Dissecting Microscope, Compound Microscope and Binocular Microscope. In this exercise we are elaborating the instrumentation part, working principle, cleaning and precautions while using microscope.

#### 4.6.1 Dissecting Microscope

A dissecting microscope is a low power stereoscopic microscope; it is used in many applications especially during taxonomic studies, embryo separation, etc.

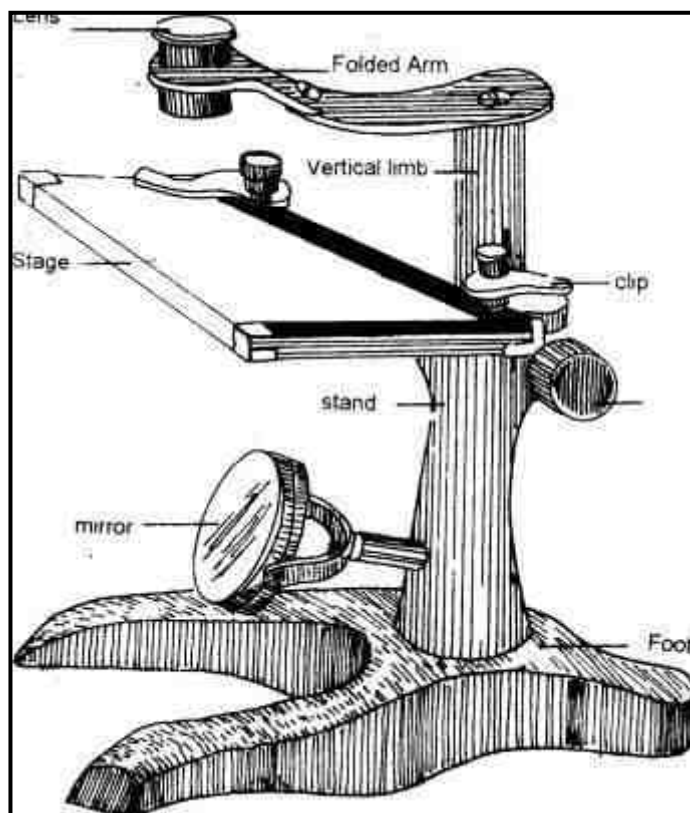


Fig. 4.6.1 A Dissecting microscope

It consists of a biconvex lens which is moved up and down by an adjustment screw, to bring the object in sharp focus. The light is focussed with the help of a concave mirror fitted below. A full object can be seen under it.

The dissecting microscope can be easily used by students because of its simple operating functions.

#### 4.6.2 Compound Microscope

Modern light microscopes are also called compound light microscopes because they have two lens systems, viz., the oculars and the objectives.



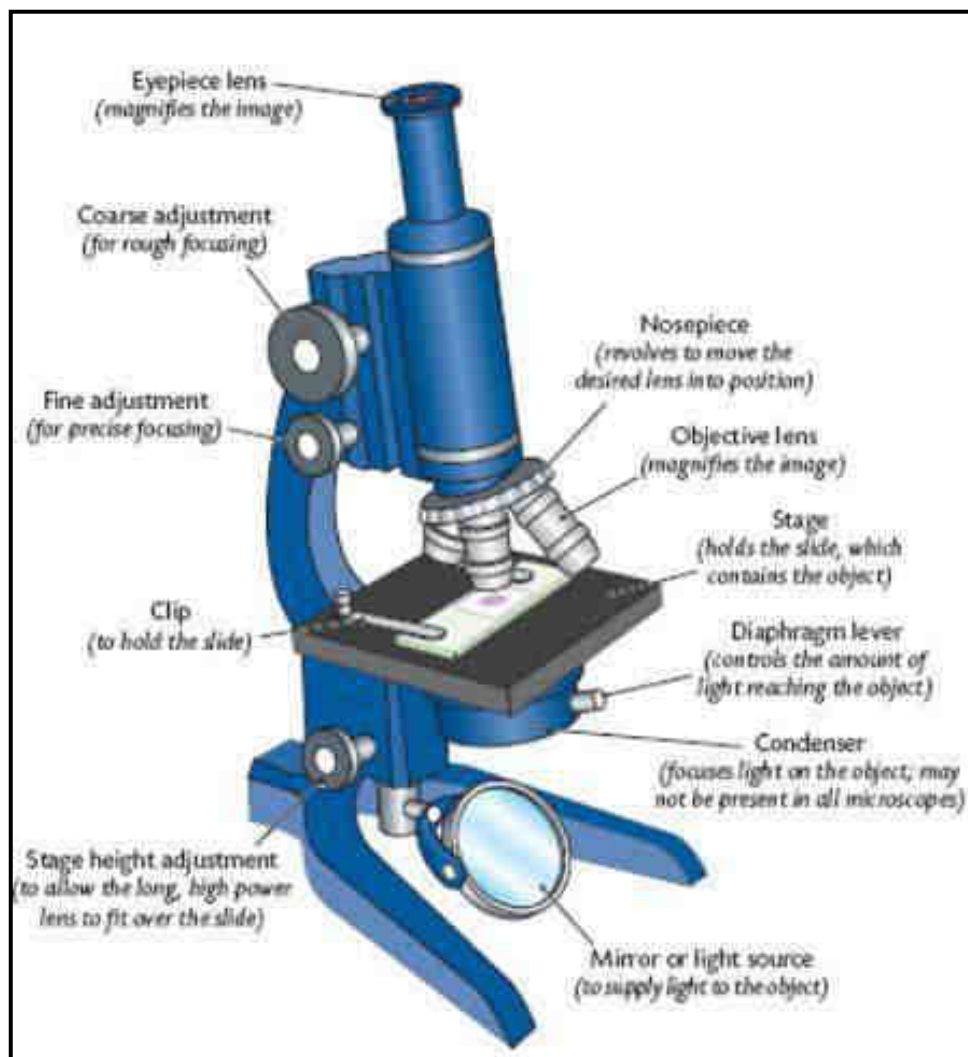


Fig. 4.6.2 A compound microscope (Natural Light)

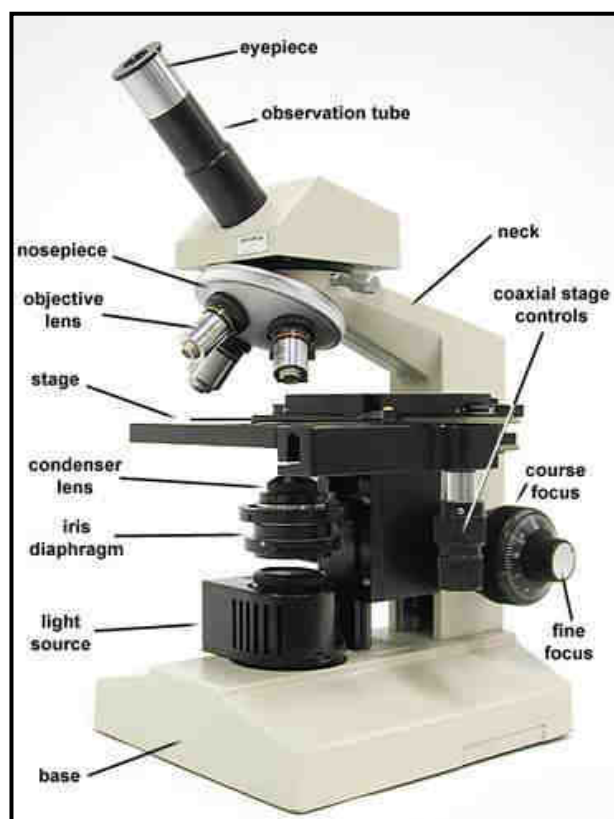


Fig. 4.6.3 A Compound Microscope (Electric Lamp as Light Source)

Table 4.6.3.1 Microscope Parts and Functions

Parts	Functions
Body Tube	It is part of microscope that holds the eye piece.
Arm	The arm connects the body tube to the base. It is this part that a user holds to move the microscope from one place to another.
Base	It is the lowest portion on which the whole structure of the microscope rests.
Eyepiece	It is through the eyepiece that we look at the specimen placed on the stage of the microscope. It contains two or more lenses. The most common magnification for the eyepiece is 10X. However, they can also be 2x and 5x. An eye piece is a removable part that can be interchanged with another one of a different magnification.

Objective Lenses	There are more than one objective lenses. These are primary lenses of a compound microscope and can have magnification of 4x, 5x, 10x, 20x, 40x, 50x and 100x. The magnification values are written on the side of each lens. The objective turret to which these lenses are attached, can be rotated with hand to get the lens of desired magnification to focus on the object.
Stage	It is platform below the objective lens on which the object to be viewed is placed. There is a hole in the stage through which light beam passes and illuminates the specimen that is to be viewed
Stage Clips	There are two stage clips one on each side of the stage. Once the slide containing the specimen is placed on the stage, the stage clips are used to hold the slide in place.
Diaphragm	It is located on the lower surface of the stage. It is used to control the amount of light that reaches the specimen through the hole in the stage.
Illuminator	Simple compound microscopes have a mirror that can be moved to adjust the amount of light that can be focused on the specimen. However, some advanced types of compound microscopes have their own light source.
The Adjustments	There are two adjustment knobs, the fine adjustment knob and the coarse adjustment knob that refine the focus of the lenses. The coarse adjustment knob helps in improving the focus of the low powers whereas the fine adjustment knob helps in adjusting the focus of the lenses with higher magnification.
Condenser (Light Microscope)	It illuminates the specimen and controls the amount of light and contrast.
Two-Sided Mirror (Light Microscope)	It is the simplest illuminator, reflects light upward through the diaphragm. The two-sided mirror provides necessary illumination through reflection of natural or artificial light. It has two surfaces, one plain for artificial light and other concave for natural light. It is supported on two sides by a fork fixed on a mount in a way that permits free rotation.

#### 4.6.3 Binocular Microscope

Binocular microscope uses two eyepieces instead of the traditional eyepiece. The term binocular comes from two different words, bi meaning two and ocular meaning related to vision. Together, these two words apply very well to a microscope with two eyepieces.

Due to the fact the technology between a monocular microscope and binocular microscope is nearly identical, the only difference in cost between the two is simply the cost of additional materials.

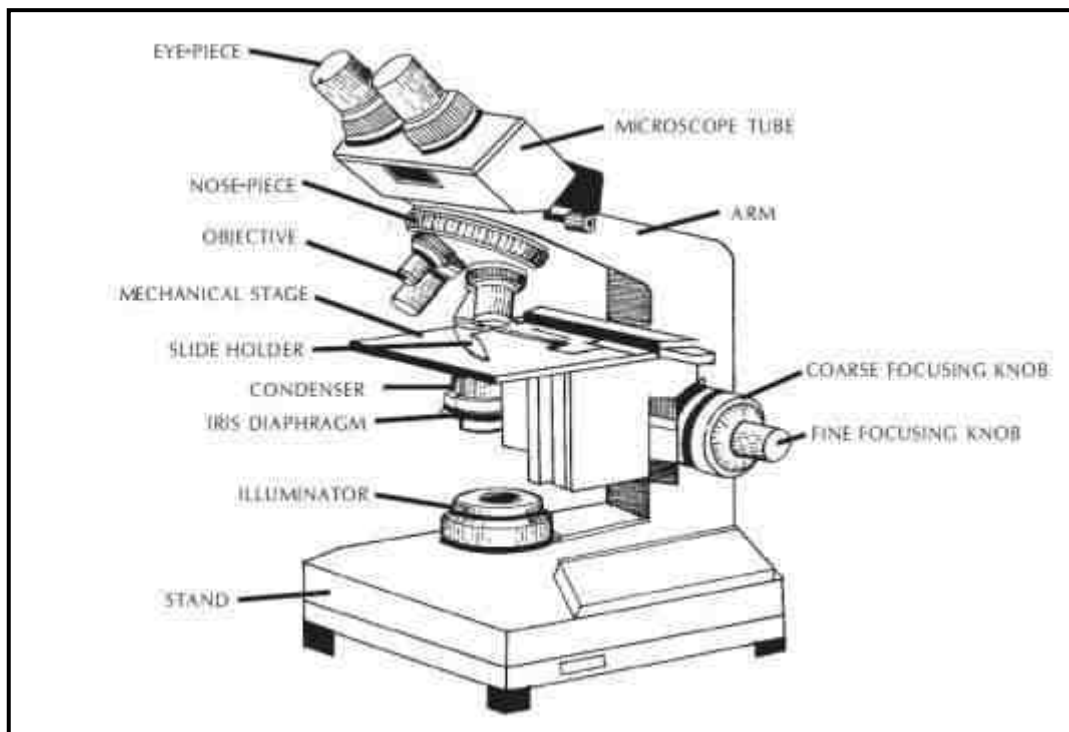


Fig. 4.6.4 A binocular microscope

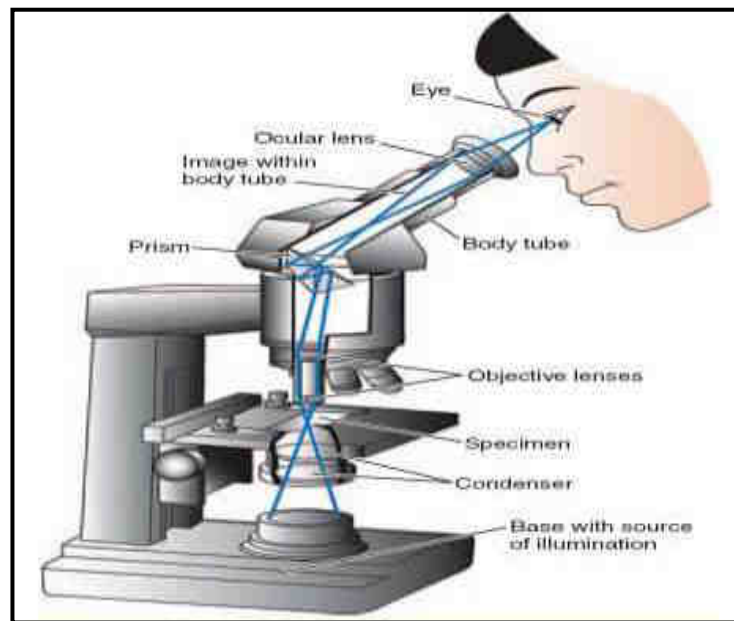


Fig. 4.6.5 Light Path in a Binocular Microscope

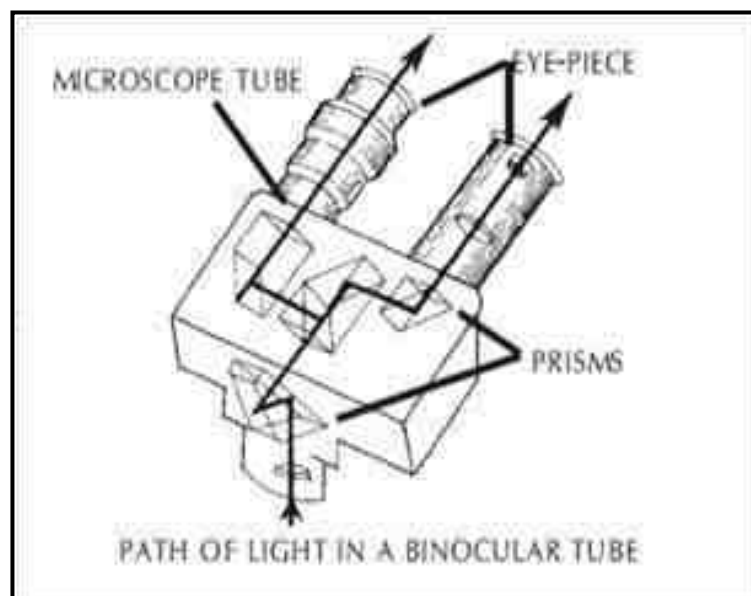


Fig. 4.6.6 Path of Light in a Binocular Tube

#### 4.6.4 Magnification

A light microscope has magnifications: Low High and Oil Immersion. Each objective will have written the magnification. In addition to this, the ocular lens (eyepiece) has a magnification. The total magnification is the ocular x objective.

Table 1. Calculation of total magnification in a microscope					
OBJECTIVE LENS	MAGNIFICATION STRENGTH		OCULAR STRENGTH		TOTAL MAGNIFICATION
Low Power	10 X		10 X		100 X
High Power	40 X		10 X		400 X
Oil Immersion	100 X		10 X		1000X

##### 4.6.4.1 Numerical Aperture (NA)

The numerical aperture (NA) is the measure of light-gathering power of a lens. The NA corresponding to the various magnifying powers of the objective is:

Magnification	Numerical Aperture
10 X	0.25
40 X	0.65
100 X	1.25

A high NA indicates a high resolving power and thus useful magnification.

#### **4.6.5. Immersion Oil**

To provide the best image at high magnification, immersion oil is placed between the slide and the oil immersion objective (100x). Unlike air, immersion oil has the same refractive index as glass. Therefore, it improves the quality of the image. If immersion oil is not used, the image appears blurred or hazy.

Only immersion oil manufactured for microscopy should be used with the oil-immersion objective. Immersion oil should never be allowed to touch the other (low- or high-power) objectives. After the oil-immersion objective is used, the objective lenses and condenser should be cleaned to remove any residual oil. It is especially important that lenses never be left with oil on them, as oil will soften the cement that holds the lens in place in the objective. Lens cleaner, similar to a glass-cleaning solution, can be used with lens paper to remove oil from objectives.

#### **4.6.6 General Procedures**

1. Plug your microscope in to the cords.
2. Keep your slide to be viewed with the cover slip
3. Always start and end with the low power Objective with the lowest magnification.
3. Adjust the Knobs to obtain a field of visibility
4. Then focus step wise in the higher magnification
5. Do not remove slides with the high power objective into place - this will scratch the lens
6. Clean the eye piece and objective
7. Always wrap electric cords and cover microscopes before returning them to the cabinet.
8. Microscopes should be stored with the low power Objective clicked into place.
9. Always carry microscopes by the arm and set them flat on your desk.

#### **4.6.7 Repairs And Service That Can Be Undertaken In The Laboratory**

The microscope is a high precision instrument and care must be taken to preserve its accuracy. In modern day microscopes, there are not many parts that can be serviced by the user. Proper maintenance of the microscope to avoid damage to its lenses is of prime

importance. The following points summarize some of the important repairs that can be undertaken in the laboratory.

### **Electric systems**

1. Replace blown out fuse.
2. Replace burnt out lamp.
3. Replace power cord or three-pin plug.

### **Focus adjustment mechanism**

1. Tighten the screws controlling the movement of the mechanical stage.
2. Adjust the focusing tension as recommended by the manufacturer.

### **Optical system**

1. Gently remove the oil which has stuck to or dried on the objectives with lens paper soaked in lens cleaning fluid recommended by the manufacturer.
2. Be careful not to scratch the surface of the lens.
3. If the oil film is hard, repeated applications may be necessary.

### **4.6.8 Care and Maintenance**

1. Always place the plastic cover over the microscope when not in use or when being stored to avoid damage due to dust.
2. When moving your microscope, carry it by the stand column. Never pick it up by the eyepiece housing or focuser knobs. Transport the microscope with one hand under the base and the other hand gripping the arm. Avoid jarring or bumping the microscope.
3. Clean outside of the microscope with a slightly damp cloth.
4. Clean all oculars and objectives with lens paper before and after each use.
5. Always unplug the microscope (models with electric illuminators) before cleaning to avoid electric shock.
6. Never disassemble or clean internal optical surfaces.
7. Use the coarse adjustment with the low power objective only.



8. Use immersion oil with the oil-immersion objective only.



Fig. 4.6.7 Transportation of microscope

#### 4.6.8.1 Cleaning of Lenses

Ethyl ether and Xylene are the commonly used as a lens cleaning fluids. Petrol can also be used if Xylene is not available. Ethyl ether is extremely flammable and Xylene is toxic. These must, therefore, be stored safely to avoid any accident. Alcohol, acetones or any other Ketones should not be used, unless recommended by the manufacturer, since these may dissolve the sealants around the lens.

Hydrogen peroxide can be used to kill fungus.

#### Anti-Fungal Mixture (Composition)

<b>Distilled water</b>	<b>94 %,</b>
<b>Ammonia</b>	<b>4 %</b>
<b>Hydrogen peroxide</b>	<b>2 %</b>

#### Process for fungus removal

Soak the lens for one hour in the ammonia and hydrogen peroxide mixture and then clean the lens with a special microfiber towel. Finally, kept the lens elements in front of a UV light (sunlamp) for 20 minutes in a dust-free environment to further kill any fungi.

#### 4.6.9 Troubleshooting

Occasionally you may have trouble with working your microscope. Here are some common problems and solutions.

1. Image is too dark!

1. Adjust the diaphragm; make sure your light is on.

2. There's a spot in my viewing field, even when I move slide the spot stays in the same place!

2. Your lens is dirty. Use lens paper, and only lens paper to carefully clean the objective and ocular lens. The ocular lens can be removed to clean the inside.

3. I can't see anything under high power!

3. Remember the steps, if you can't focus under low power, you won't be able to focus anything under high power.

4. Only half of my viewing field is lit, it looks like there's a half-moon in there!

4. You probably don't have your objective fully clicked into place.

## **4.7 Sterilization Equipment**

Sterilization is the process by which the medium/glassware/area etc. is made germfree, including bacterial spores are killed. Sterilization can be achieved by physical, chemical and physiochemical means.

### **4.7.1 -Hot air oven:**

1. Articles to be dry heat sterilized are exposed to high temperature (200°C) for duration of one hour in an electrically heated oven.

2. The heat is transferred to the article by radiation, conduction and convection.

3. The oven is fitted with a thermostat control, temperature indicator, meshed shelves and adequate insulation.

4. Articles sterilized: Metallic instruments (like forceps, scalpels, scissors), glasswares (such as petri-dishes, pipettes, flasks, all-glass syringes) etc.



Fig. 4.7.1 Hot air Oven

#### **4.7.2 Filtration:**

1. Filtration does not kill microbes, but it separates them out. Membrane filters with pore sizes between 0.2-0.45  $\mu\text{m}$  are commonly used to remove particles and microbes from heat labile solutions that can't be autoclaved (serum, antibiotic solutions, sugar solutions, urea solution).
2. Filtration is aided by pressure using vacuum pumps.

#### **Sterile filtration with syringe-tip filter**

1. Plastic or glass syringe (10-50 ml capacity)
2. Syringe-tip filter (Disposable; e.g., Millipore Millex, Acrodisk etc. of 0.22  $\mu\text{m}$  pore size or a reusable filters)
3. Receiver vessel

**Procedure:**

1. Swab down hood and assemble materials
2. Uncap receiver vessel and the filter-assembly
3. Place the bottom nozzle of the filter in the receiver vessel without touching the nozzle with the fingers
4. Fill the syringe with the solution to be filtered and attach the tip of the syringe to the top nozzle of the filter assembly
5. Expel solution through filter into the receiver vessel by applying moderate positive pressure by pressing the plunger with the palm
6. The syringe may be refilled several times by carefully detaching it from the filter assembly.
7. After filtering cap the receiver vessel and seal it with parafilm.
8. Discard the used filter and syringe.



Fig. 4.7.2 Filter assembly with membrane

## Step-by-step Procedures

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1. Flame the tip forceps, and remove the membrane from the sterile package.

2. Place the membrane filter into the funnel assembly.

3. Flame the pouring lip of the sample container and pour the sample into the funnel.

4. Turn on the vacuum and allow the sample to draw completely through the filter.



5 Rinse funnel with sterile buffered water. Turn on vacuum and allow the liquid to draw completely through the filter.

6. Flame the tip forceps and remove the membrane filter from the funnel.

7. Place the membrane filter into the prepared Petri dish.

8. Put the Filter assembly for washing

9. The filter assembly has to be autoclaved before reuse

10 Assembly should be packed only in a brown cover so that steam could penetrate and never in aluminium foil

### 4.7.3 Autoclave

Heat is used very often, as a method of controlling unwanted microbial growth. Heat kills living cells as it degrades nucleic acids, denatures proteins and enzymes. It may be wet or dry.

#### Dry heat

- Incineration: Bio hazardous material
- Flame: Inoculation loop
- Hot Air oven

Advantage: Dry heat does not corrode glassware, metal instruments.

Disadvantage: It's slow and can't be used for heat sensitive materials like plastic and rubber.

#### Autoclave

Vegetative cells of bacteria and fungi get killed at lower temperatures, but the endospores do not. Temperatures higher than  $100^{\circ}\text{C}$  are required to kill endospores. At sea level the atmospheric pressure does not allow water to attain a temperature higher than 100 degrees. To achieve this high temperature, high pressure is created. The autoclave works on the principle of steam sterilization. Water is added to immerse the element and it is boiled. Steam leaves the jacket of the autoclave and enters into the chamber. The air present in the chamber is forced out, until the chamber is filled with saturated steam. The steam outlet is sealed at this point, with a valve. The pressure increases inside the chamber until it reaches 15 lb/sq inch, after which it is maintained at this pressure for 15 minutes.

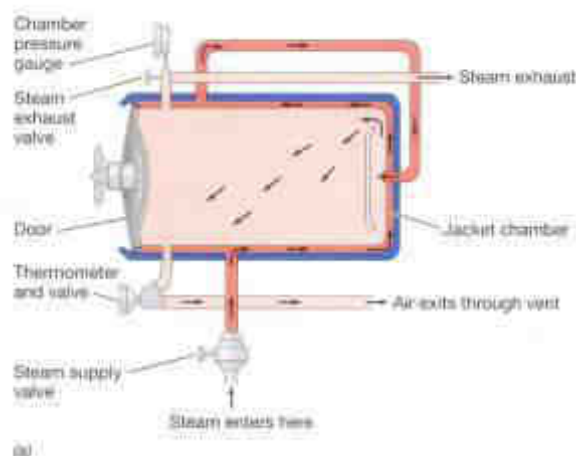


Fig. 4.7.3 Autoclave

#### **Items for Autoclaving**

Although autoclaving provides an economical way of sterilizing and decontaminating items, not all material can be autoclaved. Some materials present specific hazards when they are autoclaved; such the generation of toxic /noxious gas.

Items that **CAN** be autoclaved are:

1. cultures and stocks of infectious material
2. culture dishes and related devices
3. discarded live and attenuated vaccines
4. contaminated solid items such as: petri dishes, eppendorf tips, pipettes, gloves, paper towel
5. sterilizations such as; glassware, media, aqueous solutions, equipment

Items that **CAN NOT** be autoclaved are:

1. Materials containing: solvents, volatile, chlorinated compounds (HCL, bleach) or corrosive chemicals (such as: phenol, trichloroacetic acid, ether, chloroform) etc.
2. material contaminated with chemotherapeutic agents
3. radioactive material (without prior approval)
4. some plastics (Polyplastics are autoclavable)

Never pack the materials in aluminium foil. Pack with brown cover or newspapers so that steam can penetrate the material

### **Fundamentals of Loading**

Here are some fundamental rules:

1. Load the material in such a fashion to present the least resistant passage of air exchange through the load, from the top of the chamber to the bottom.
2. Avoid crowding or stacking.
3. Place packages on their edges to enhance steam penetration, place a rack or other item against these items to prevent them from slipping.
4. Place empty flasks, test tubes or other non-porous containers on their sides with loose covers. This provides a horizontal pathway and prevents trapping air pockets.

5. Ensure containers do not touch each other, this will ensure all surfaces are sterilized.
6. No items should touch the top or sides of the autoclave container as the container is pushed inside.
7. Liquids and dry goods are processed separately as they require different cycle selections.
8. A load of liquid filled containers should be of similar size, shape, content and volume; because exposure time is based on these characteristics.
9. Run material to be sterilized separate from those to be decontaminated.

#### **4.8 Laminar Flow Hood**

Cell culture is a technique that involves the isolation and maintenance in vitro of cells isolated from tissues or whole organs derived from animals, microbes or plants. Once established, cells in culture can be exploited in many different ways. For instance, they are ideal for studying intracellular processes including protein synthesis, signal transduction mechanisms and drug metabolism. They have also been widely used to understand the mechanisms of drug actions, cell- cell interaction and genetics.

The cell culture hood is the central piece of equipment where all the cell handling is carried out and is designed not only to protect the cultures from the operator but in some cases to protect the operator from the cultures. These hoods are generally referred to as laminar flow hoods as they generate a smooth uninterrupted streamlined flow of sterile air which has been filtered through a high efficiency particulate air ( HEPA ) filter. There are two types of laminar flow hood classified as either vertical or horizontal. The horizontal hoods allow air to flow directly at the operator and as a result are generally used for media preparation or when one is working with non infectious materials including those derived from plants. The vertical hoods (also known as biology safety cabinets) are best for working with hazardous organisms, since air within the hood is filtered before it passes into the surrounding environment.

Currently, there are at least three different classes of hood used which all offer various levels of protection to the cultures, the operator or both. Of these, class II hoods are the most common units found in tissue culture laboratories. These hoods offer good protection to both the operator and the cell culture. In these hoods air drawn from the outside is passed through the grill in the front of the work area and filtered through the HEPA filter at the top of the hood before streaming down over the tissue culture.

#### **Pre-filters:**



The pre-filter is located horizontally on the top of the unit and should be kept in place at all times. The pre-filter supplied with the unit is a fiberglass type similar to an air conditioning filter. Pre- filters are required for removing the dust and moisture from air, gas in different stages.

**HEPA filters (high efficiency particulate air):**

The average life of a HEPA filter is 3 to 5 years or longer, depending on the cleanliness of the ambient air.

**Motor blower:**

The motor is located in the centre of the blowers. It is used to keep the inside of the laminar flow sterile while working.

**UV-lamp:**

UV lamps are active microbicidal agents and are used prior to culture work to completely sterilize the inner cabinet.

**Working with Laminar flow**

1. Provide clean air to the working area.
2. Provide a constant flow of air out of the work area to prevent room air from entering.
3. The air flowing out from the hood suspends and removes contaminants introduced into the work area by personnel.
4. The most important part of a laminar flow hood is a high efficiency bacteria-retentive filter. Room air is taken into the unit and passed through a pre-filter to remove gross contaminants (lint, dust etc). The air is then compressed and channeled up behind and through the HEPA filter (High Efficiency Particulate Air filter) .The HEPA filter removes nearly all of the bacteria from the air.

**4.8.1 Sterility of the hood**

1. Check the hood before turning it on.
2. Clean the hood before use. Switch on the hood blower, power and lighting. Do not remove the front cover yet. Allow the air to circulate inside the hood for a minimum of five minutes to flush out stagnant air from the HEPA filters and vents.
3. Remove the cover and spray disinfectant all over the internal surfaces, including the work surfaces, walls and any objects inside the hood. For routine cleaning, use 70 percent ethanol.
4. Dip a piece of gauze into a bowl of sterilized water and wipe down the flow hood.
5. Clean the hood after usage. Avoid leaving items inside the hood where possible. Dispose of all live material, such as tubes of cells or containers of tissue. Dispose of biological waste in secure, biohazard containment units and seal these to prevent aerosols from re-entering the hood space and establishing new spots of contamination.
6. Clean beneath internal shelves and work surfaces.
7. Turn on the UV light system. UV lights kills any stray cells such as bacteria that may not have been dealt with effectively by disinfection.
8. Check that the front cover and glass panels do not leak UV, otherwise the surrounding area must be cleared off people before the UV can be activated.

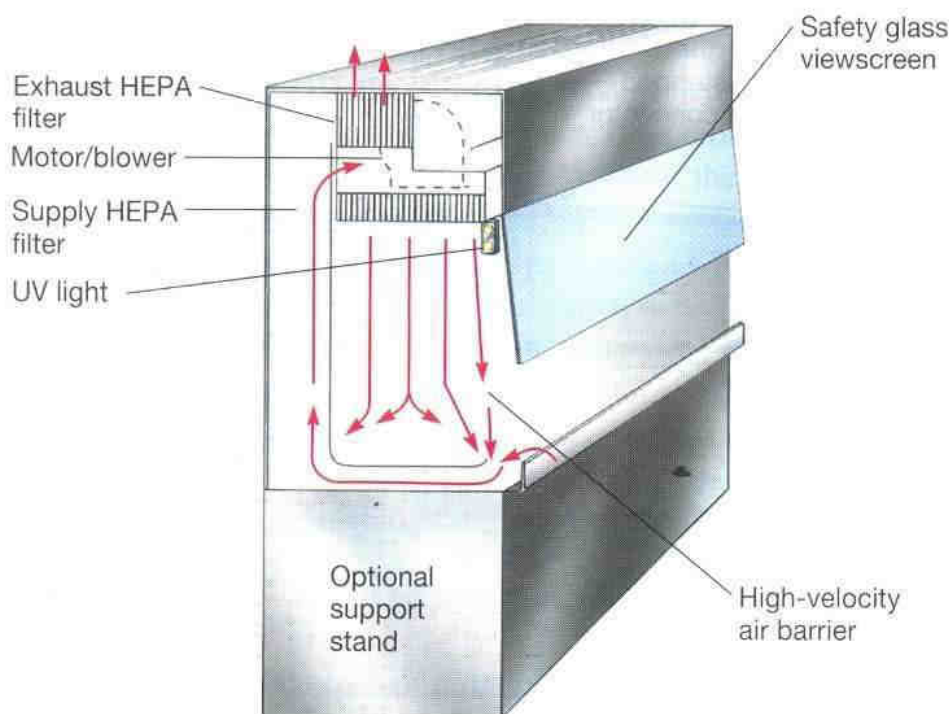


Fig. 4.8.1 Laminar Flow Hood

## **CHAPTER 5**

### **MICROBIOLOGY AND STAINING TECHNIQUES**

#### **5.1 Introduction**

Microbiology can be defined as the biology of microscopic organisms, or life too small to be seen with the naked eye.

Microbiology covers several disciplines, including virology (study of viruses), bacteriology (study of bacteria), mycology (study of fungi), and parasitology (study of parasites).

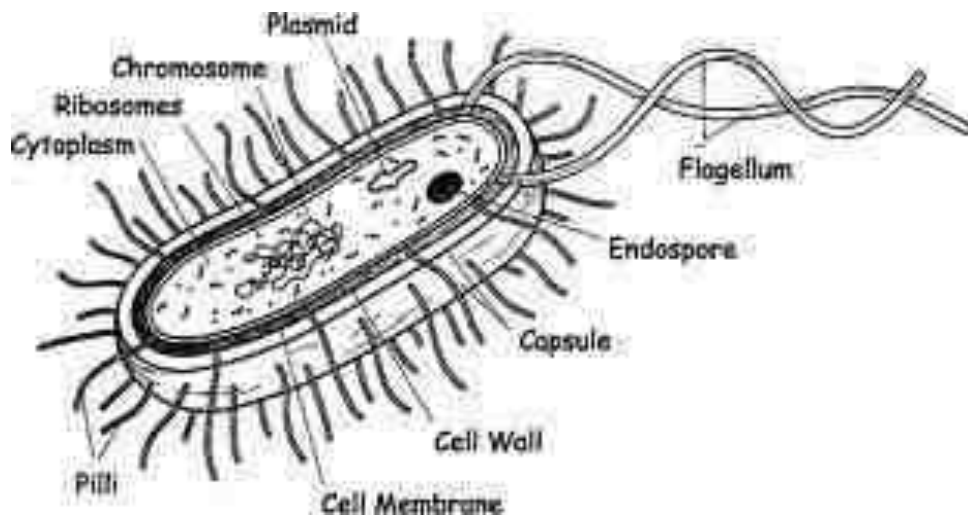


Fig. 5.1.1 Bacterial cell

Microbiology work in the laboratory requires an aseptic condition. Aseptic technique is a means of performing lab work that greatly reduces the risk of contamination.

## 5.2 Equipment/Glassware

1. Loop (wire/plastic)-Routine inoculation of agar slopes/deeps and small volumes of liquid media ;making streak plates
2. Straight wire Inoculation from very small colonies; transfer of small inocula from liquid media for nutritional work
3. Spreader (glass/plastic) Making lawn/spread plates
4. Forceps(metal/plastic)Transfer of sterile paper/antibiotic discs;
5. Pipette (calibrated/ glass/ plastic)
6. Test tube
7. Universal bottle (wide neck);
8. Conical flask-Large volumes of liquid media for inoculation
9. cotton wool plug prevents contamination

10. Petri dish (plastic/ glass)
11. Marker pen

### **Apparatus**

1. Bunsen burner
2. Autoclave-Media sterilization
3. Autoclavable bag-Disposal of waste
4. Hot air oven- Sterilization of glass Petri dishes and pipettes and paper discs
5. Microwave oven- Melting solidified agar media for use
6. Incubator- Incubation of cultures
7. Water bath -Suitable temperature for keeping melted agar media
8. Thermometer-Checking incubator/water bath temperatures
9. pH meter-Checking and adjusting pH values of media
10. Microscope
11. Cupboard-Storage of culture media and stock cultures
12. Refrigerator-Storage of heat-labile materials
13. Microscope- slides, cover slips, stains.

### **5.3 Media**

General and specialized media are required for bacterial growth and for characterization. LB Agar/broth is a generic rich medium suitable for growing many aerotolerant species of bacteria, including *E. coli*, *Bacillus subtilis*, *Staphylococcus aureus* or *Staphylococcus epidermidis* and different yeasts including *Saccharomyces* and *Candida* species.

#### **Type of media**

1. Broth- liquid media
  2. Solid media – Agar plate
    - Agar slant
    - Agar deep
- 
1. Differential medium
  2. Selective medium
  3. Complex medium
  4. Minimal medium

### **Exercise-1-Preparing the broth**

#### **Ingredients (per Liter):**

1. 10g Tryptone:
2. 5g Yeast Extract:
3. 10g NaCl
4. 1L distilled water
5. check the pH. If it falls well below pH 7, the pH should be adjusted to 7-7.4.
6. Cover the opening of the flask with tin foil

### **Exercise-2 Prepare the LB agar Solid media**

1. Take a jar or bottle or conical flask with 1 litre of LB broth(media can also be prepared in 500ml 4 conical flask) Add 15g of bacto agar and mix
2. Allow the agar to soak for 10 minutes
3. Apply heat and bring to boil, stirring until agar is completely dissolved.
4. Pour the hot liquid into 100 ml bottles and place rubber stoppers.
5. Cover the bottle closure with aluminum foil
6. Place bottles in autoclave for 20 minutes at 15 psi
7. let the autoclave cool until you can open it safely
8. Allow the autoclaved sample. Do not store autoclave media bottle in the refrigerator.

### **Exercise-3-Putting media for Autoclaving**

1. Tightly plug the media bottle/conical flask with cotton plug wrapped in a gauze or muslin cloth
2. Bottle /conical flask should be filled only half NEVER FULL
3. Tip boxes should be packed with brown paper and kept for autoclaving
4. The autoclave should be set for a pressure of 15psi where temperature should go to 120°C and autoclave at that pressure for 20 minutes.
5. The autoclave should be opened only after the pressure is completely released.

### **Exercise-4-Agar plates**

#### **Pour the plates**

1. Put a bottle of solid media in a water bath in a pot and apply heat until it melts
2. Allow to cool to about 50-55°C
3. Take Petri dishes and place them on the table, cover on top
4. When the temperature of the bottle reaches 50°C, quickly proceed as follows

5. Hold the bottle in your right hand, agitating continuously to keep the temperature uniform and avoid partial solidification
6. Flame the bottle mouth
7. Partially lift the cover of the first dish
8. Pour about 15-20 ml of liquid
9. Gently swirl the plate to spread the liquid media on all the surface. There should be a layer of about 3-4 mm of liquid media
10. Close the plate cover
11. Wait until media solidifies.
12. Turn the dishes upside down (media on top, cover on bottom). From this moment on, plates should always be kept upside down (To prevent moisture from disturbing the agar).
13. Seal with Parafilm tape and store in refrigerator or use immediately

#### **Exercise-5-Streaking a Plate**

1. Sanitize the cabinet using 70% ethanol before commencing work.
2. Put all materials and equipment into the cabinet prior to starting work after sanitizing the exterior surfaces with 70% ethanol.
3. While working do not contaminate the gloves by touching anything outside the cabinet
4. Speaking, sneezing and coughing must be directed away from the cabinet so as not to disrupt the airflow.
5. Streak a plate of LB agar with a pure or mixed bacterial culture with nichrome loop or autoclaved tips or autoclaved toothpicks inside a laminar flow .
6. After completing work disinfect all the equipment and material before removing from the cabinet.
7. Plates to be sealed with a parafilm to prevent entry of contamination by air
8. Incubate inverted plate at 37°C for bacteria, 28 °C for fungi in general for growth.

Normal 16 hours is adequate.

#### **Exercise-6-Spreading on a Plate**

1. Plate of LB agar can be used to spread a colony of bacterial with a spreader in a laminar hood
2. Follow the others step as describe for streak plates

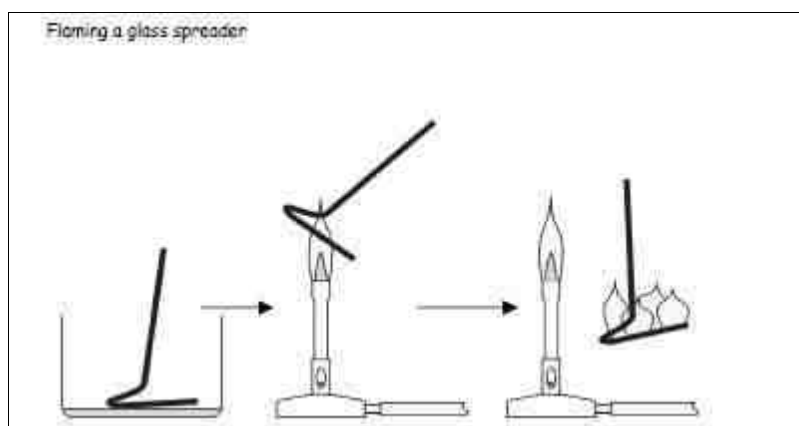


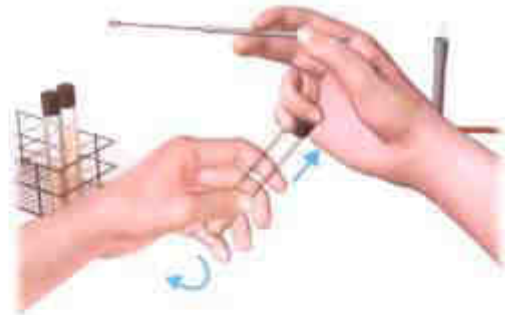
Fig. 5.3.1



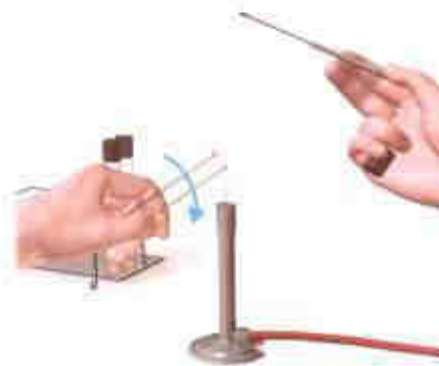
## Exercise-7-Inoculation of bacteria in LB broth



(a) Sterilize the loop by holding the wire in the flame until it is red-hot.



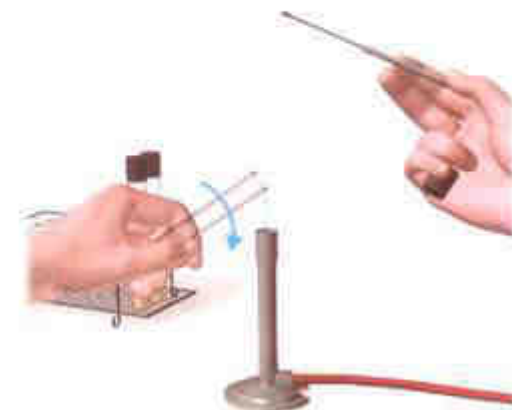
(b) While holding the sterile loop and the bacterial culture, remove the cap as shown.



(c) Briefly pass the mouth of the tube through the flame three times before inserting the loop for an inoculum.



(d) Get a loopful of culture



(e) Heat the mouth of the tube, and replace the cap.

## 5.4 ANATOMY: STAINS AND STAINING TECHNIQUES

### 5.4.1 Stains and staining techniques

Staining is an auxiliary technique used in biology to highlight structures in biological tissues for viewing, often with the aid of microscopes. The cut sections of the plant material need to be stained to differentiate different tissues, cells or inclusions from one another by developing specific colours.

- **Single stains**

Single staining is a simple staining technique in which only one stain or dye is used.

Aniline blue, safranin is used as single stains.

- **Combination of stains**

There are various kinds of multiple staining, many of which are examples of counterstaining, differential staining, or both, including double staining and triple staining.

Combination of acidic and basic dyes of contrasting colours is of general use.

Few combinations are: -

- ✓ Hematoxylin and safranin
- ✓ Safranin and fast green
- ✓ Safranin and crystal blue

**Stain:** Is a chemical (natural or synthetic) which reacts with the components of cell to give the component a particular colour. It enables different components to differentiate more clearly than in the unstained object. Stain can be synthetic chemical or obtained from plants or from animals, e.g. Carmine is derived from the cochineal insect

Different stains for study of different biological materials. For Example: Safranin is a stain which colours xylem tissues pink.

**Staining techniques:** Different types of staining methods are used to make the cells and their internal structures more visible under the light microscope.

- Direct staining:** Organism is stained and background is left unstained
- Negative staining:** Background is stained and organism is left unaltered

Staining can be done in several ways:

1. **Single Staining** :Where only one stain is used giving a single colour to the tissue

E.g. Acetocarmine stains both the nucleus and the cytoplasm pink

2. **Double Staining** :Where two stains are used, each stains a specific area or the particular cell organelle

E.g. Methyl green which stains nucleus green is used with Pyronin which stains the cytoplasm pink.

3. **Multiple Staining**: More than two stains are used in the preparation of slide of tissue or organelle. Each stain will colour only the specific organelle of the cell

E.g. Triple Mallory stain.

4. **Vital Staining** : Such stains which do not kill the cell, do not require prior fixation and impart colour to a specific part are termed vital stains (vita = live)

E.g. stains such as the Janus Green B which stains mitochondria is used to colour living cells.

### 5.5.2 Staining procedures

The preparations can be of two types: semi-permanent/ temporary and permanent.

#### Semi-permanent

Certain preparations are made for temporary use. The material is studied and the slide is then discarded.

#### Permanent

Some preparations need to be stored permanently for future records and references.

For preparation of permanent slides, the following procedure should be followed:-

1. The section is first stained with principal stain.
2. The section is then washed with water till no more stain dissolves and water remains colourless.
3. Section is passed through a graded series of alcohol for dehydration. A watch glass is filled with requisite amount of alcohol (beginning with 30% alcohol) and the section is transferred to it. This watch glass should always be covered with another

larger one. In order not to disturb the section, used alcohol is replaced with 50% alcohol. This procedure is repeated till 70% of alcohol grade is reached.

4. At this stage, counter stain is employed.
5. This stain acts quickly and as such section is washed immediately after requisite time is over.
6. Destaining is done by washing sections with 90% or 100% alcohol.
7. The section is now transferred to absolute alcohol to complete the dehydration.
8. Clearing no begins with 25% of xylol. The sections are gradually passed through xylol series of 25%, 50%, 70%, 90% and finally transferred to pure xylol turns white and turbid. At this stage section should be passed through reverse series.
9. Pure xylol is the last stage of clearing. Section is now ready for mounting.
10. Mounting is done in Canada balsam.

### 5.5.3 Specificity of stains

Table 5.5.1 Specificity of stains

B a c t e r i a	- G r a m s t a i n i n g - C r y s t a l v i o l e - S a f r a n i n - I o d i n e ( a s m o r d a n t - E n d o s p o r e s t a i n i n - M a l a c h i t e g r e e
F u n g i ( c h i t i n )	✓ C o t t o n b l u
B r y o p h y t e s	• C e l l u l o s
P t e r i d o p h y t e s	✓ A n i l i n e b l u e ✓ H e m a t o x y l i ✓ F a s t g r e e
A n g i o s p e r m s	
G y m n o s p e r m s	• S u b e r i ✓ S a f r a n i  • C u t i  C r y s t a l v i o l e t E r y t h r o s i n e  ✓ S a f r a n i n
C h r o m o s o m e s ( M i t o s i s a n d M e i o s i s )	✓ A c e t o c a r m i n

### 5.5.6 MACERATION:

This is a technique of separating individual cells from a group or tissue by dissolution of pectic middle lamella. There are three common methods.

#### I. Jeffery's method:

1. Cut the fresh or dried material into small slices thinner than a toothpick.
2. Boil the material in water till it settles down at the bottom indicating that it is free from air.
3. Replace water with the following solution-

10% Nitric acid

10% Chromic acid

Mix both these acids in equal parts.

4. Heat the test tube filled with macerating tube.
5. Stop heating as soon as the material becomes soft and pulpy.
6. Transfer the fluid to a watch glass.
7. Drain out all the macerating fluid. Wash the material repeatedly with water.
8. The material is now stained with and destained with water.
9. The pulp of the material is crushed with the glass rod and teased by a needle so that it is spread over the slide.
10. The material is mounted in glycerine.

#### II. Harlow's method:

1. Sliced and boiled material is treated with chlorine water for two hours.
2. It is then washed with tap water.
3. The material is then boiled in sodium sulphate for about 15 minutes.
4. The liquid is transferred to a watch glass.
5. The material is now washed repeatedly with water.
6. It is teased with needle or crushed with glass rod.
7. The teased material is evenly spread on the slide, stained in safranin and then mounted in glycerine.

#### III. Schultze's method

1. Material is sliced and boiled in a test tube filled with water.
2. The tube is now filled with conc. Nitric acid, to which a few crystals of potassium chlorate are added.
3. It is heated slowly and gradually till the material is bleached white.
4. The liquid is then transferred to watch glass and drained out leaving only the material.
5. Later it is teased or crushed, till individual cells appear isolated.



## **CHAPTER 6**

### **CHROMATOGRAPHY**

Chromatography is a technique used to separate and purify molecules from a complex mixture employing a stationary phase and a mobile phase.

#### **6.1 Types of Chromatography**

There are basic two types of chromatography based on partitioning and adsorption phenomena. Paper and TLC are partitioning chromatography and column is a adsorption chromatography.

Paper Chromatography

Ascending Paper chromatography

Descending Paper Chromatography

Thin Layer Chromatography

Column Chromatography

##### **6.1.1. Paper Chromatography**

Paper chromatography can be performed in ascending or descending mode.

###### **6.1.1.1 Ascending Paper chromatography**

The flow of solvent is in the upward direction, against the gravitational force.

Stationary Phase- Paper, Mobile Phase-Solvent used

The sample is loaded onto the paper or TLC plate with the help of a capillary or autopipette and developed using a mobile phase.

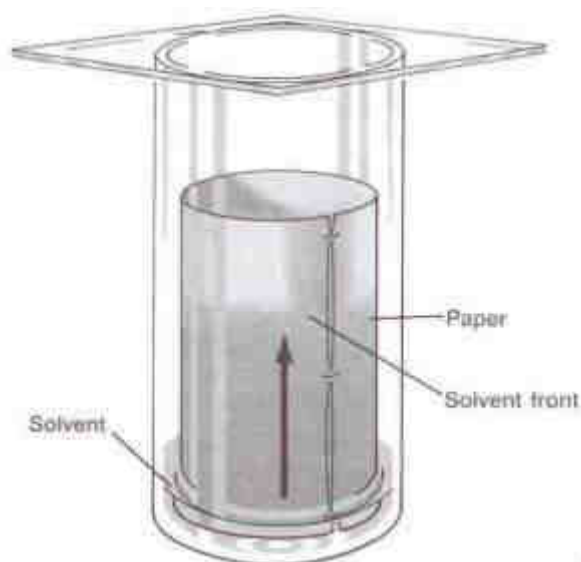


Fig 6.1.1 Set up for Ascending Paper Chromatography

#### 6.1.1.2 Descending Paper Chromatography

The flow of solvent is in the downward direction aided by the gravitational force.

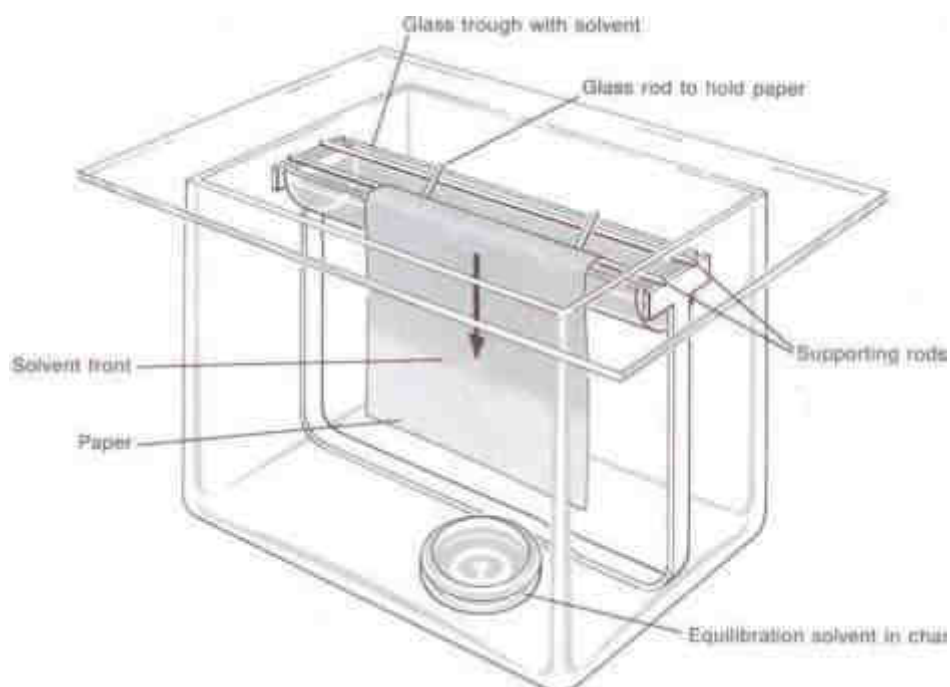


Fig 6.1.2 Set up for Descending Paper Chromatography

Stationary Phase- Paper, Mobile Phase-Solvent



### 6.1.2 Thin Layer Chromatography



Fig 6.1.3 Set up for Thin Layer Chromatography

Thin Layer chromatography is generally performed in ascending mode

Stationary Phase- Silica, Mobile Phase-Solvent used

Note: Solvent systems used given in appendi

### 6.1.3 Column Chromatography

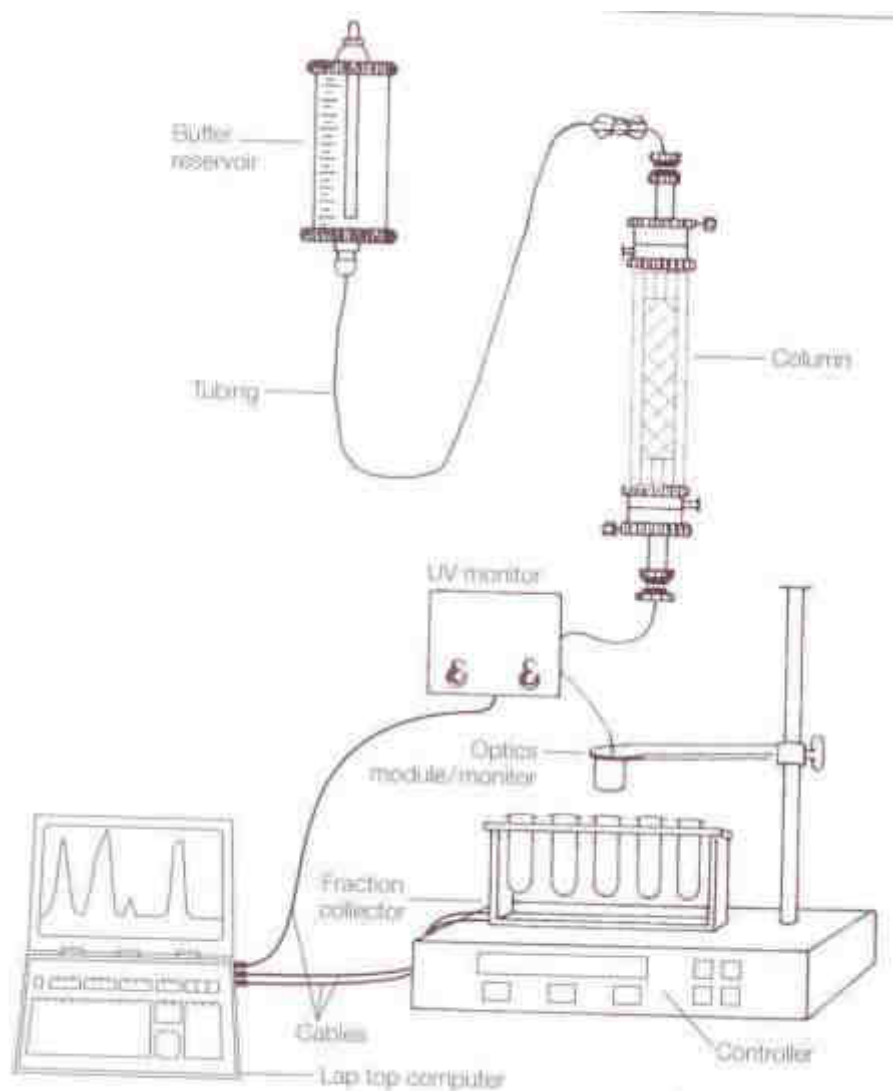


Fig 6.1.4 Set up for Column Chromatography

Stationary Phase- Ion exchange resin (Dowex/CM Cellulose/DEAE Cellulose)/Silica/Sephadex Mobile Phase-Buffer.

### Procedure for performing column chromatography

The sample is loaded on to the column

The column is developed by passing the mobile phase/buffer

The fractions are collected in different tubes

The sample collected is detected by absorption.

### 6.2 Preparation for the set up of chromatography

### **6.2.1 Paper Chromatography**

Chamber saturation with solvent

Whatman No.1 paper cut and used.

### **6.2.2 Thin layer chromatography**

Chamber saturation

Preparation of TLC plates/Activation of prepared TLC plates

### **6.2.3 Column Chromatography**

#### **Preparation of matrix before column packing (Pretreatment of matrix)**

Gel filtration matrix need to be swollen in appropriate buffer or solvent.

Adsorbents need to be activated by heat.

Ion exchange resins to be prewashed in acid/base to obtain the required ionized form.

#### **Column Packing**

Add glass wool and seal the bottom of column.

Column packed by slowly adding a slurry of the material/matrix in solvent.

Ensure that no air bubbles are entrapped.

Solvent level above the material /matrix in the column is maintained at least 2 cm above packed column edge.

#### **Washing of the column**

By passing excess of mobile phase /buffer through the column.

Regeneration of ion exchange column bywashing the column with NaOH/HCl depending of the type of the matrix/material.

#### **Unpacking of column**

Using glass rod, unpack slurry gently and invert into desired container using excess solvent.

#### **Storage of column**

Prepacked columns/gel/matrix stored in 20% ethanol after washing with antimicrobial agents like sodium azide.

## CHAPTER 7

### ELECTROPHORESIS

Electrophoresis is the study of movement of charged particles in an electric field. Various types of electrophoresis are as follows:

#### 7.1 Types of Electrophoresis

Paper electrophoresis

Starch gel electrophoresis

Polyacrylamide gel electrophoresis (PAGE)

Agarose Gel Electrophoresis

##### 7.1.1 Paper electrophoresis:

Sample is applied on to the Whatmann filter paper or cellulose acetate paper moistened with the buffer solution. This method is used for separation of low molecular weight compounds such as amino acids, small peptides and nucleotides.

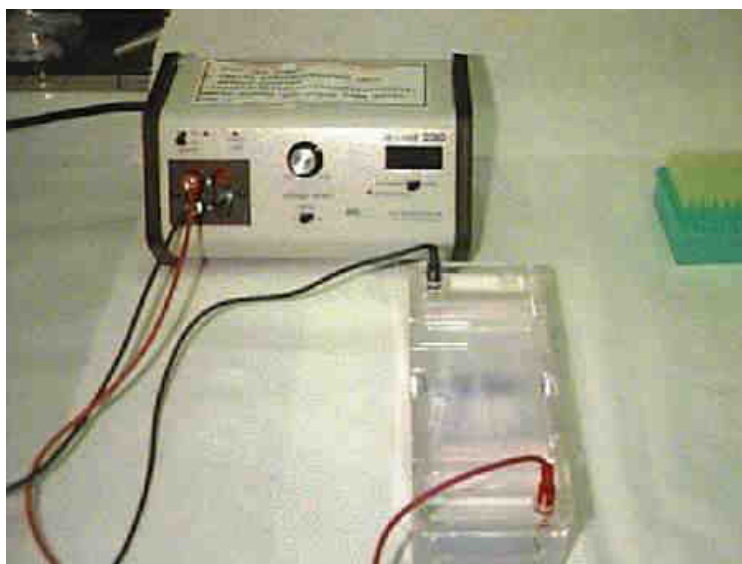


Fig 7.1.1 Apparatus for paper electrophoresis of amino acids

##### 7.1.2 Starch gel electrophoresis

Starch gels are prepared by heating and then cooling a partially hydrolysed starch in an appropriate buffer. The separation is achieved due to the difference in charges as well as size. Isoenzymes can be separated by this method.

### **7.1.3 Polyacrylamide gel electrophoresis (PAGE)**

It is used for the characterization and analysis of proteins and nucleic acids. The gel with low percentage of polyacrylamide has larger pore size and is suitable for separation of high molecular weight compounds and high percentage gel has smaller pore size and is used for separation of relatively low molecular weight compounds.

### **7.1.4 Agarose Gel Electrophoresis**

Agarose gels are more porous and have a larger pore size as compared to polyacrylamide gels and are therefore used to fractionate large macromolecules such nucleic acids. Agarose gels are cast by boiling agarose in the presence of buffer, poured into a gel tray and allowed to harden to form a gel matrix. Porosity is determined by the concentration of agarose. Higher the concentration, smaller the pore size and lower the agarose concentration, larger the pore size. When electric current is applied across the gel, DNA molecules that are negatively charged at neutral pH migrate towards the anode at rate determined by their molecular weights. DNA molecules of the same size but different conformations travel at different rates.

## **7.2 Principle**

Any charged ion or molecule migrates when placed in an electric field. The rate of migration of a compound depends on its net charge, size, shape and the applied current. The movement of a charged molecule in an electric field is directly proportional to the charge density. Molecules with different charge/mass ratio migrate under the electric field at different rates and hence get separated.

## **7.3 Safety**

Safety considerations are important during the preparation and execution of electrophoresis experiments. We can encounter chemical and electrical hazards,.

### **7.3.1 Chemical safety**

Some of the chemicals used in these procedures are hazardous.

1. Acrylamide monomer and bis acrylamide are a neurotoxins and a suspected carcinogens.
2. TEMED is a carcinogen.
3. Ethidium bromide, the dye used for visualization of DNA is a potent carcinogen.
4. Agarose gel can be a mild irritant.
5. Handling procedures include using double latex gloves for all preparation and hazardous materials in a hood while wearing a disposable dust mask.

6. Direct UV light used in Transilluminator for visualization can cause burns and damages to eye, hence always use eye protection and lab coat. Always use acrylic sheet between the UV source and yourself.

### **7.3.2 Electrical safety**

The voltage and current used in these exercises are harmful. As we are using 50-200 volts

The following items should be checked prior to initiating any experiment in electrophoresis.

1. Work area: The bench and floor should be dry. When locating, or working around or near an electrophoresis unit, avoid unintentional grounding points and conductors (e.g., sinks and other water sources, metal plates, aluminum foil, jewellery, pipes, or other metal equipment).
2. Inspect insulation on the high voltage leads for signs of deterioration (e.g., exposed wires, cracks or breaks, etc.) and ensure that these items are not hanging over the bench top. The plug should have a protective plastic sleeve that shields the plug as it is inserted into the power supply. Exposed plugs are a shock hazard and should be replaced with shielded plugs.
3. Power supply. All power supply should be connected to earthed plug points. Do not switch on till the electrodes are dipped in buffer and you are about to start electrophoresis.
4. Inspect the buffer tanks for cracks or leaks, exposed connectors, or missing covers, and correct deficiencies prior to use.
5. Ensure that your gloved hands are dry while connecting the leads or touching any electrical apparatus.
6. Electrophoresis chambers should be covered with the lid when in use, Do not make contact with the electrode buffer or electrodes with hand, while the power supply is on.
7. Do not leave electrophoresis equipment unattended.
8. If electrophoresis buffer is spilled or leaks from the gel box, stop the run, remove electrodes and clean up the bench top immediately.
9. On the completion of electrophoresis Turn off the power supply and wait for 15 seconds (the voltage may not be completely discharged from internal capacitors) before making any disconnection.

## 7.4 Agarose Gel Electrophoresis

### 7.4.1 Instrument

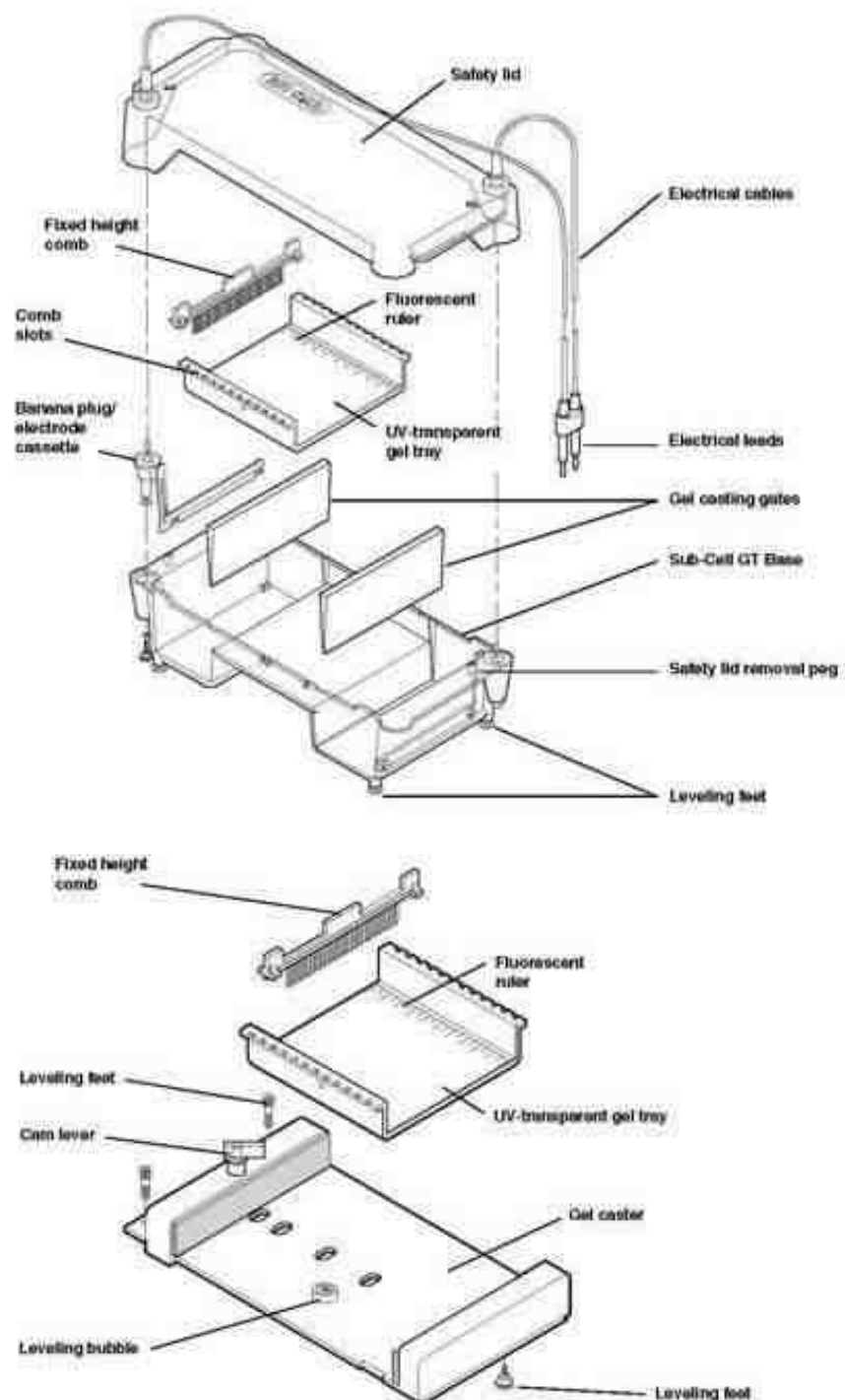


Fig. 7.4.1 Equipment for agarose gel electrophoresis



### 7.4.2 Procedure

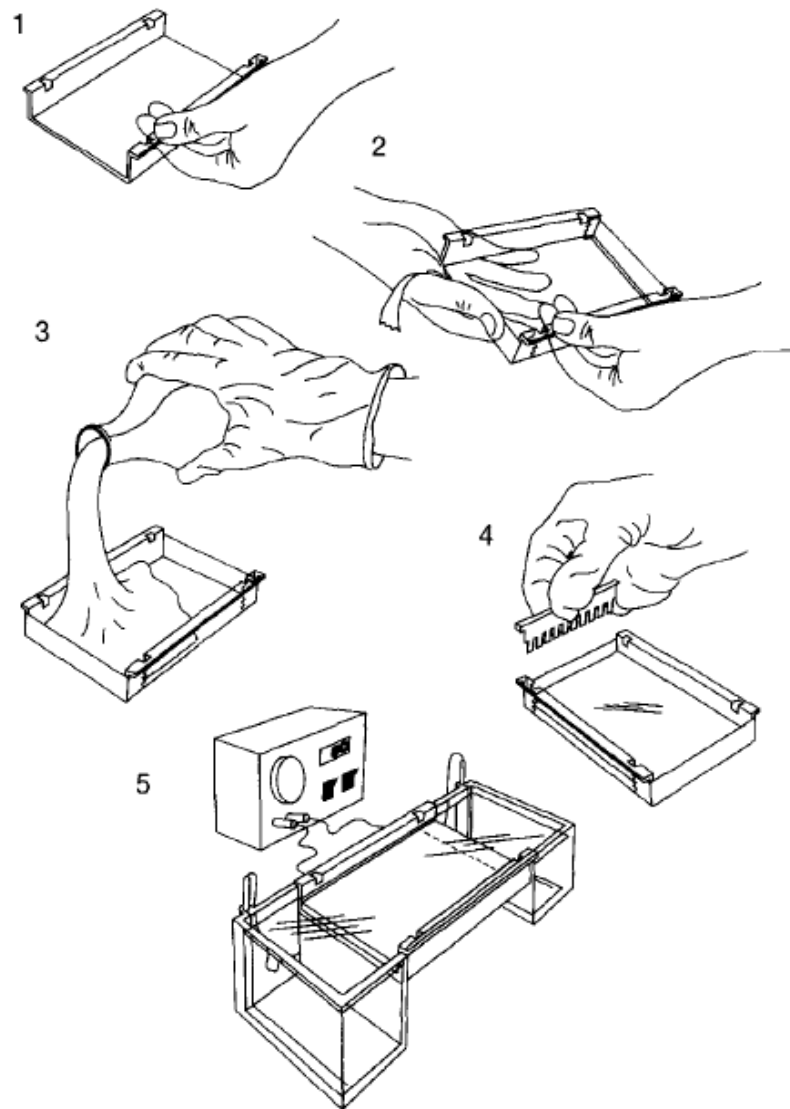


Fig. 7.4.2 Preparation of Gel

1. Weigh 1g agarose in 100 ml 1X TBE buffer to make 1% agarose solution. Heat the mixture in boiling water bath or microwave until the solution becomes clear. Handle with proper gloves to prevent burns.
2. The clean casting gel tray is sealed with scotch tape on the ends. It is placed horizontally on the table. Position the comb above the plate so that the comb does not touch the bottom surface such that an intact well is formed and gel also doesn't break while handling.
3. Allow solution to cool to about 60 °C before pouring. Hot agarose (>60 °C) may cause the tray to deform and this will decrease the lifetime of the tray. Add Ethidium bromide to the warm gel solution (discard the tips in Biohazard waste).

4. Pour the warm agarose solution in to the gel tray slowly to prevent formation of air bubbles. Allow the gel to solidify at room temperature.
5. To run, remove the scotch tape and place gel tray in an electrophoresis chamber and fill with electrophoresis buffer to submerge the gel. Now gently remove the comb
6. Connect the electrodes. Attach the wires correctly; match the red and black jacks on the electrodes with the red and black plugs of the power pack.
7. Switch on the power supply and check for formation of bubbles under the electrodes.
8. Switch it off before loading the samples.
9. Loading the samples: To prepare samples for electrophoresis, add 1  $\mu$ l of 6x gel loading dye for 5  $\mu$ l of DNA solution. Mix well. Load the DNA in the well with help of a micropipette. Note: Sample wells are often difficult to see. Well visualization can be enhanced by placing black paper or tape under the base or trays.
10. Place the lid on the DNA cell carefully. Do not disturb the samples. Set power supply at 50 volts and allow the gel to electrophoresce until dye markers have migrated an appropriate distance.
11. Turn off the electric current and remove the gel from the gel tank, with gloved hands.
12. Analyze the gel by placing it on the UV transilluminator.

#### **7.4.3 Precautions**

1. Ethidium bromide is a suspected carcinogen and should be handled with extreme care.
2. Do not touch the gel when electric current is ON.
3. Always wear gloves, eye glasses, and a laboratory coat.
4. Do not look at UV radiations with naked eyes.
5. Dispose-off all tips and used gels in Biohazard waste appropriately.
6. Agarose boils over and its spillage can cause burns. Use mittens while handling hot solutions. Do not swirl it while it is very hot.

#### **7.4.4 Disposal of Gels and Solutions used in Electrophoresis Procedures**

Ethidium bromide is a highly toxic and potentially mutagenic chemical that may be fatal if swallowed, inhaled, or absorbed through the skin. Always wear gloves when handling ethidium bromide and/or ethidium bromide-labeled gels.

The electrophoretic waste by-products of the DNA identification process must be managed and disposed off with the proper procedures so as to protect public health and the environment. Ethidium bromide may present a hazard if it is poured down the drain untreated or placed in the trash. Therefore it should be disposed off as a special waste.

The following are the recommended disposal procedures for ethidium bromide:

A. Electrophoresis Gels:

The used gels must be dried before its disposal. For drying, the gels can be placed under the hood in an open container before bringing to the waste room for disposal. Then used dried gels can be packed in sealable, disposable plastic containers and kept in the sun for allowing the photo leaching to occur. This may take few to several weeks for the complete photo leaching to occur. Then the dried gels can be discarded as regular chemical waste.

B. Contaminated Gloves and Other Equipments:

Contaminated gloves, needles, syringes, scalpel, etc. must be discarded carefully into a plastic bag and then can be autoclaved.

C. Ethidium Bromide Solutions

Dilute aqueous solutions containing less than 0.5 mg/ml, should be collected for disposal as hazardous waste.

1. Charcoal Filtration Filtering the aqueous ethidium bromide waste solutions, free of other contaminants, through a bed of activated charcoal is a relatively simple and effective method for removal of ethidium bromide. The filtrate may then be poured down the drain.

D. Use of Ethidium Bromide Alternatives

Consider switching to less-toxic alternatives to ethidium bromide (SYBR Safe™ DNA gel stain, for example) to reduce potential hazardous exposures in the lab.

E. Ethidium Bromide Spill Cleanup

- Absorb with paper towel and then treat area with 70-95% ethanol/isopropanol and wipe carefully. Repeat as necessary (if still fluorescing).
- Final rinse with soap and water (paper towels for this step were discarded into regular trash).
- DO NOT clean ethidium bromide spills with bleach solutions.

## 7.5 SDS PAGE

### 7.5.1 Instrument

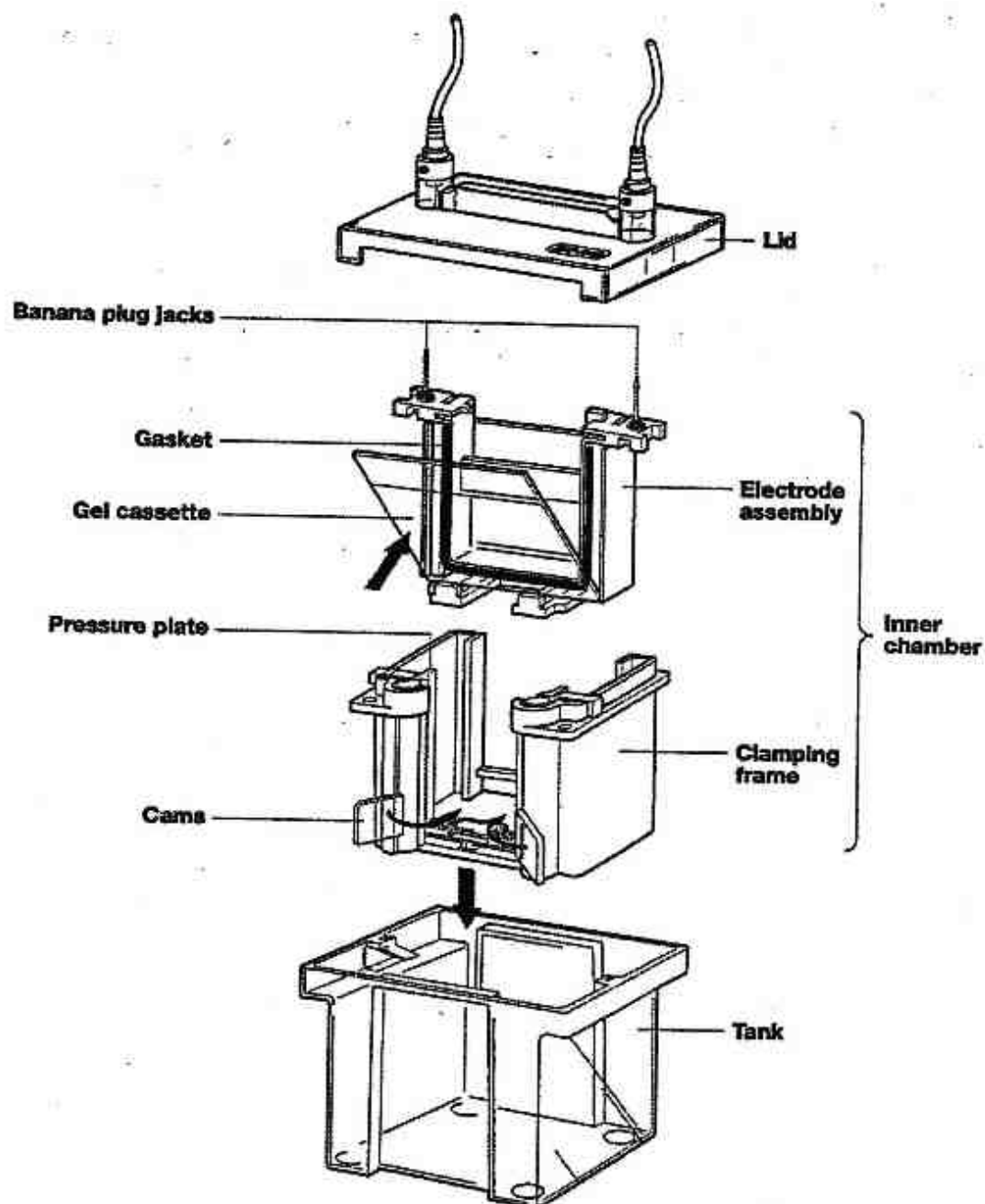


Fig. 7.5.1 Apparatus for vertical gel electrophoresis

## 7.5.2 Procedure

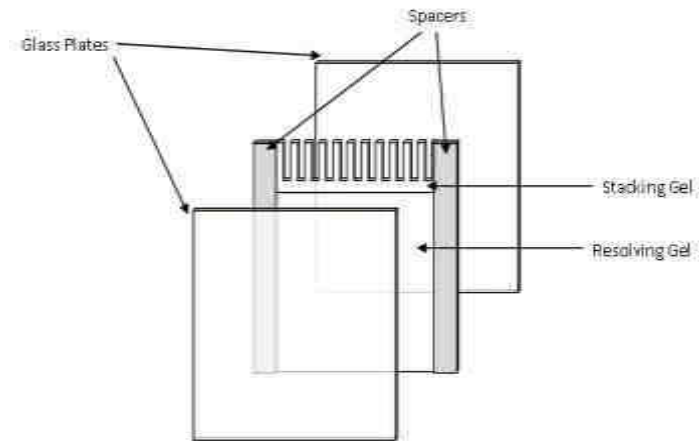


Fig. 7.5.2a Arrangement of glass plate and spacers (always use combs and spacers of same thickness)

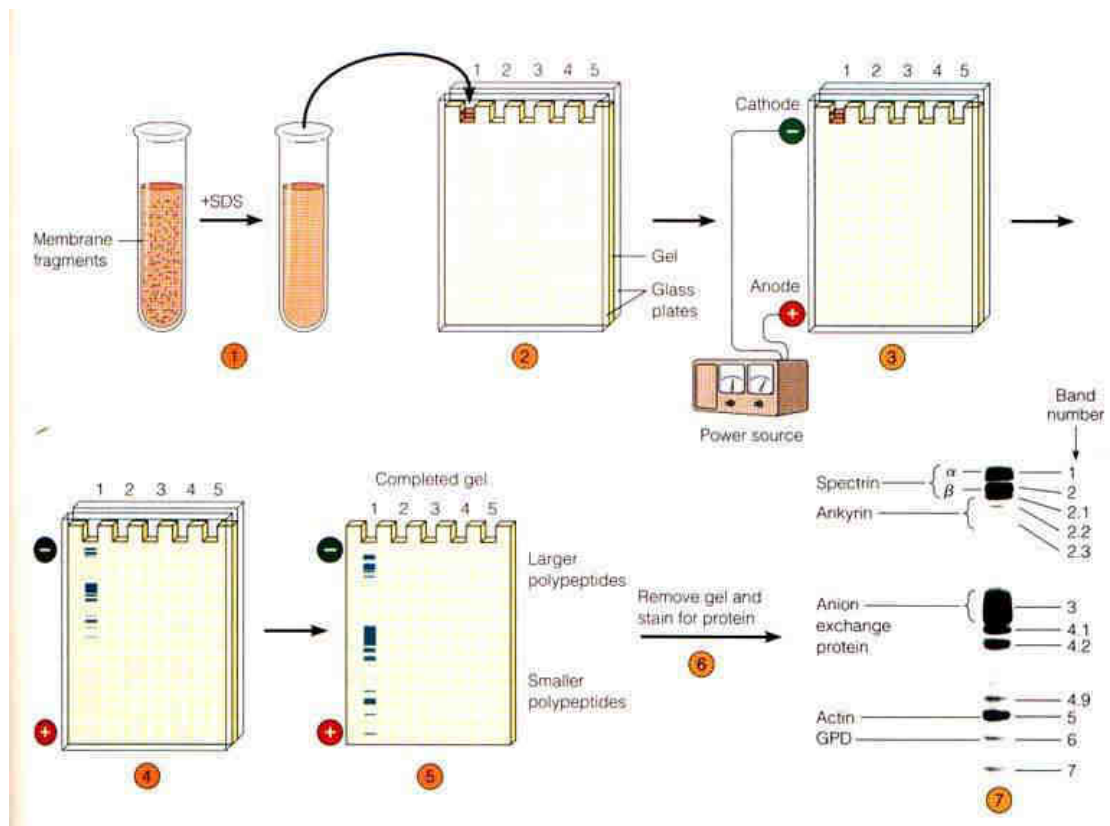


Fig. 7.5.2b Preparation of Polyacrylamide gel

## **Materials:**

**Chemical reagents:** Acrylamide/Bisacrylamide, 10% (w/w) SDS, 1.5M Tris-HCl (pH- 8.8), 0.5M Tris-HCl (pH- 6.8), Sample Buffer (5X), 5X electrode (running) Buffer, 10% APS, TEMED, Staining solution, De-staining solution.

**Equipment:** Electrophoretic unit, power bank, water bath, rocker.

**Plastic ware/ Glassware:** Micropipette, microtips, microcentrifuge tubes.

## **Reagents Preparation:**

- **Acrylamide/Bis** (30%T,2.67%C)  
Acrylamide (29.2g/100ml)

N’N’-bis-methylene-acrylamide (0.8g/100ml)

Make 100ml with deionized water. Filter and store at 4<sup>0</sup>C in the dark.

- **Sample Buffer (5X)**  
0.5M Tris-HCl, pH 6.8- 1.0 mL

Glycerol- 0.8mL

10% (w/v) SDS- 1.6 mL

0.5 %( w/v) bromophenol blue - 0.2 mL

β-Mercaptoethanol- 0.4 mL

Deionized Water- 4.0 mL

- **5x Electrode (Running)Buffer**  
Tris base- 1.5 g

Glycine- 7.2 g

SDS- 0.5 g

Deionized Water- 100 mL

- **Staining Solution**  
0.1% (w/v) Coomassie Brilliant Blue

20% (v/v) Methanol

10% (v/v) Acetic acid

- **De-staining solution**

5 parts of methanol

1 part of acetic acid

4 parts of water

### **Pouring the resolving gel**

1. Clean glass plates with soap and water, then wipe with ethanol. Assemble the glass plates and spacers.
2. With a Pasteur pipette, seal the bottom of the plates by spreading 1% agarose in SDS PAGE electrophoresis buffer along the bottom of the glass plates so it goes up the gap by capillary action.
3. Transfer the resolving gel to a test tube and add APS/TEMED. Mix quickly and pour the resolving gel solution to the centre of the plates to a height about 4 cm from the top for the large plates. Leave enough space for the stacking gel. Marking a region below the comb for the height of the stacker by inserting the comb into the dry form.
4. Add water to the top to prevent oxygen from getting into the gel which could oxidize it and inhibit polymerization. Allow the resolving gel to polymerize for 30 minutes.
5. Add the stacking gel reagents to a test tube.
6. Now mix the ingredients for the stacking gel pour the solution quickly into the gel casting form. Insert the comb straight down. Remove any bubbles from underneath the comb, if possible, by moving the comb gently from side to side so the bubbles get into the space in between and float up.
7. Allow the stacking gel to polymerize for 20 to 30 minutes.
8. Pour 200 mL Tris-glycine-SDS electrophoresis buffer into the upper and lower chambers.
9. Sample Preparation

Mix sample 4:1 with the sample buffer. Boil for 5-10 minutes in boiling water bath. Load the gel using the long gel-loading tips or a Hamilton Syringe. Be sure to include a lane with molecular weight standards.

10. Connect the red and black electrical leads to the matching colored electrodes of the electrode assembly. Plug in the electrodes into the matching color receptacles on the power supply. Run gels at a constant current of 15 mA. It should take about an hour to run. After the dye front enters the resolving gel, turn the current up to 30 mA. Run until the dye front just flows out of the gel.
11. After the run take out the glass plate open the glass plate with a blunt plastic spatula. Remove the gel into a staining tray and keep the gel for staining for 30 minutes on a gel rocker. Rinse well with water.
12. De-stain with destaining solution overnight on a gel rocker
13. Store the gel or take a picture for analysis.



Table 7.5.1 Composition of a 10% resolving gel and 4% stacking gel prepared

Components	For 10% resolving gel	For 4% stacking gel
	Volume	Volume
30% Monomer	3.3 ml	1.3 ml
Tris-Cl Buffer (pH 8.8)	2.5 ml	-
Tris-Cl Buffer (pH 6.8)	-	2.5 ml
Water	4.04 ml	6.04 ml
10% SDS	100 $\mu$ l	100 $\mu$ l
10% APS	50 $\mu$ l	50 $\mu$ l
TEMED	10 $\mu$ l	10 $\mu$ l
Total	10 ml	10 ml

Table 7.5.2 The resolving gel percentage to be used for different protein size:

Protein Size (kD)	Resolving gel (%)
300-200 Kd	4-6 %
<200-100 kD	7-8 %
30-100 kD	10 %
<30 kD	12-15 %

### 7.5.3 Disposal

Although polymerized acrylamide is not regulated as a hazardous waste, polyacrylamide gels often contain un-polymerized residual acrylamide which is a toxic material that can pose a hazard when introduced to the environment. Use the following guidelines when disposing of polyacrylamide gels.

- Polyacrylamide gels should be disposed as done for Chemical Waste.
- Stained SDS gels may also be dried and discarded in regular trash.

### 7.5.4 Precautions

1. Acrylamide and TEMED are suspected carcinogens and should be handled with extreme care.
2. Connect the black electrodes to black plugs on the power supply with black wires, similarly for red plugs and wires.
3. Do not touch the gel when electric current is ON.
4. Always wear gloves, eye glasses and a laboratory coat.
5. Dispose-off all tips and used gels appropriately. Always polymerize the unused acrylamide solution before discarding in waste as unpolymerized acrylamide is toxic

## **CHAPTER 8**

### **FIELD BIOLOGY**

#### **General Procedures and Precautions:**

1. Before conducting field experiments, the site should be thoroughly surveyed for relevance of study as well as safety.
2. Permissin from authorities should be taken, especially in case samples have to be collected.
3. First aid kits should be readily available
4. Light and comfortable full sleeves clothes, and boots should be worn to avoid mosquito and insect bites

#### **8.1 SOIL: Collection of soil samples:**

- **Sieving**

The soil sample is passed through a 6 cm (4 meshes per inch) sieve by rubbing with fingers.

Stones and gravels on the sieve are discarded.

- **Drying**

Generally, the soil sample is dried at room temperature (at about 25°C and the relative humidity of 20-60%).

Some analyses require fresh moist samples from the field and some need oven-dried samples.

- **Grinding**

The bigger particles of soil are broken up by grinding with a roller or with wooden pestle-mortar.

The heavy soils are passed through a 2mm sieve before they get dried completely.

- **Mixing**

The sieved, dried and ground sample is placed on a piece of clean cloth.

The opposite corners of the cloth are grasped and one corner is held down pulling the others across the sample. This process is repeated in the reverse direction. The same procedure is carried out using the two corners. This process is continued for 6 or 7 times so that mixing will be thorough.

- **Storing**

The sample of the soil is placed in paper cartons using a polythene bag as an inner lining, or in an air tight glass jar with a screw-cap.

It is labelled properly with the location from where the soil is taken and the date of the sampling.

## **8.2 Water:** collection, storage & analysis of polluted water

Collection of samples: The objective of sampling is to collect a portion of material small enough in volume to be conveniently transported to and handled in the laboratory while still accurately representing the material being sampled. This implies first that the relative proportion or concentration of all pertinent components must be same in the sample as in the material being sampled, and second that the sample must be handled in such a way that no significant changes in composition occur before the tests are performed.

Water Sampling Procedures Perform an inspection of the site.

Please note the following aspects:

- 1) Potential pollution sources (industrial, agricultural, domestic, animals)
- 2) Condition of water (clear, cloudy, color, smell, foam)
- 3) Map of Site (electronic or sketched, photograph if possible)
- 4) Brief written description of site.

Samples and Controls:

- 1) Sample all sites in triplicate.
- 2) Collect all samples in 100mL or 1L Whirlpak bags
- 3) Use a field blank. This consists of taking one of Whirlpak bags, filled with deionized water, along to the sampling site. The bag is opened for roughly the same amount of time it took you to sample. The bag is then reclosed and returned to evaluate with your samples.
- 4) Use a lab blank.
- 5) All samples must be clearly labeled by site, number of sample, and status as field blank (FB) or lab blank (LB). Use an indelible marker to label all bags before trying to take sample (wet plastic does not take ink well).

In addition to the sample IDs, all samples should be dated..

**Sampling Procedure:**

- 1) If sampling a body of running water, point the mouth of the bag upstream and your hands downstream to avoid contamination.
- 2) If sampling from a water faucet, run the faucet for 1 minute before obtaining a sample.
- 3) Rinse the bag twice with the sample water prior to filling and closing.
- 4) Fill bag as full as possible. Half-filling the bottle leaves more room for oxygen which will promote degradation of your sample.
- 5) Collect data such as temperature and pH which affect the solubility of many ions.

**8.3 INSTRUMENTS USED IN FIELD****8.3.1 LUXMETER: Measurement of Light Intensity****Principle**

The energy input of light measured in lux or foot candle is termed as the intensity of light. It affects the entire ecosystem its influence on plant growth. Too much or too little light intensity adversely affect the plants in their environment. The instrument “luxmeter” is used to measure the intensity and brightness of light. It is expressed in lux (metre candle) or foot candle.

**Lux** is defined as the light intensity from a standard candle at one mere distance.

1-foot candle= 10.764 lux



Fig. 8.3.1 Luxmeter

### Construction and working

Luxmeter consists of two parts: a photoelectric cell and ammeter. The photocell is a metallic plate which produces an electric current when light falls on it. The current produced is proportional to the amount of light falling on it. When light falls on the photocell, the current produced deflects the needle of the ammeter in direct proportion to the amount of light produced. The scale over which the needle moves is calibrated in lux units.

### 8.3.2 ANEMOMETER: Measure Wind Velocity

#### Principle:

Wind affects the plant growth in exposed areas, along the sea coasts and at high altitudes in the mountains. Many microorganisms, pollen grains, seeds and fruits are dispersed to long distances through wind. It also affects the shape and size of the plant. The velocity of wind is measured with the help of an instrument called Anemometer. It is expressed in km/h.



Fig. 8.3.2 Anemometer

#### Construction and Working

In this instrument many blades are attached to a circular wheel. Due to the effect of wind the wheel revolves on its pivot, which is attached to a gear. The instrument is set at a place and its gear is started. The set of needles indicate the velocity on the meter.

### 8.3.3 PSYCHROMETER (Wet and dry bulb thermometer)

#### Principle

Humidity is an important ecological factor, since it influences activities of organism and limits their distribution by its daily as well as vertical and horizontal variations. The amount of water vapour present in air is referred to as the humidity. The actual weight of moisture present in unit weight of air is termed as absolute humidity. The relative humidity of air is to the quantity of vapour present in any volume had the air been completely saturated. It is measured by using Psychrometer and gives instantaneous value. It is expressed in percentage.



## Working and construction

It consists of two ordinary thermometers fixed to a board. The bulb of one of them is open to the air but the bulb of the other is wrapped with a piece of cotton wick for the purpose of wetting. Therefore, the instrument is called as wet and dry bulb thermometer. An inbuilt fan is provided for rapid and free contact of moving air. As the water from the wet wick evaporates, it cools the bulb, thus lowering the reading of wet bulb thermometer. The rate of evaporation depends on the dryness of the air. Therefore, the greater the fall in the wet bulb thermometer, the drier is the air. If the wet bulb thermometer records a reading lower than the one with the dry bulb, relative humidity is less than 100%. The difference between the dry bulb and the wet bulb thermometer readings gives the fall in temperature. A reference to a conversion table about the fall in temperatures at any given atmospheric temperature gives the relative humidity value.

## 8.4 Herbarium: Sample Collection and Preparation of Herbarium sheets

A collection of dried plant specimen, mounted on sheets is known as herbarium. Freshly-picked specimen are dried and pasted on mounting paper of regulation-sized herbarium sheets. Purpose of such a collection is to study the vegetation of a locality and maintain its record.

### [I] Preparation of herbarium sheets

**1. Equipment.** On excursion, for the collection of plants, several items required to be carried include-

1. Trowel or pick,
2. Collecting can (vasculum) or field plant press,
3. Heavy laboratory plant press,
4. Blotting papers or newspapers,
5. Collecting sheets,
6. Mounting sheets
7. Gum, gummed tape, labels, notebook, pen and pencil, etc.



Trowel or pick is used to dig out the plant as a whole wherever possible. A light-weight field press is most practical. It is made by taking two pieces of plyboard or heavy binder's board of 12" X 17" size. These are held together by two pieces of heavy cord or strapped or buckled together and press can be carried over the shoulders. A heavy

plant press carries sheets of size at least 11.5 x 17 inches. It is made of iron and tied and tightened by iron chain and screws. This is used for pressing specimen after they are brought to the laboratory. Vascuum may be used in case only a small number of plants are to be brought back.

**2. Collection.** Collected plants are placed in the collecting sheets. The most practical size is 16.5 x 23 inches; when folded 16.5 x 11.5 inches. Old newspapers serve this purpose to an appreciable extent and a large supply should always be included in the kit. A specimen collected should represent root, stem, leaves and flowers. The plants are placed between the sheets or newspapers in such a way that relation between different organs is maintained. Herbaceous plants, 2 feet or less higher, may be collected entire. These can be bent to V or N shape whenever necessary. The most desirable is to collect a branch, about one foot high, containing leaves and flowers. In cases, where entire plant or branch cannot be folded to the size of herbarium sheet, only reproductive and fruiting parts and a stem with a few leaves are collected. Delicate reproductive parts collapse even if pressed fresh. These can be pressed perfectly by applying bits of moist paper to the fresh reproductive structures and spreading them when plants are placed in the press. If parts of the herbaceous plant are thick and difficult to dry, split them before placing on the collecting sheet. Water plants collapse if dried by usual method. These should be rolled up in wet paper when in the field and brought to the laboratory. On return to the laboratory, these plants are placed in water and floated out on sheets of white paper. The sheets are taken out of water carefully, so that the various parts do not cohere. The white sheets are placed in the blotting paper and then dried as usual.

After specimen has been collected and placed in collecting sheet, it is kept in plant press. This collecting sheet be placed in between blotting papers, one on either side. While on collection it is important to note date, locality, habitat, height, method of branching, colour of reproductive parts, common name, etc. This should be noted separately in a field-book.

**3. Pressing.** The collecting sheets should be transferred to a heavy laboratory press. It must be remembered that specimen would acquire the same shape, as on collecting sheet, after pressing. The press is securely tightened. It may also be equally useful if field press is kept under heavy weight. The press should be placed in a warm, well-aired place to dry. After 24 hours, press is taken out and opened. The old newspapers and blotting sheets are replaced by new unused ones. At least such 3-4 changes are given at an interval of 2-3 days. An average specimen takes about a week for complete drying. Sometimes to hasten the process of drying, plant press may be placed near the source of heat.

**4. Mounting.** The specimen is ready for mounting once they are completely dry. The standard size of the sheet is 16.5 x 11.5 inches. However, 16 x 10 inches size also has been used. The paper should be of good weight and not thin and flexible. The quality should be so, that it does not turn yellow even with a considerable lapse of time. ,

To mount, one of the following methods would be found convenient –

1. The gum is spread on a glass plate and specimen is laid on it. As soon as all the parts come in contact with gum, it is lifted and then placed in a position on a mounting sheet.
2. The specimen is inverted and painted with gum by a brush and then transferred to a mounting sheet.
3. The specimen is placed on a herbarium sheet and small strips of gummed tape or cellulose tape are pasted at suitable places, so that most of the part remains loose
4. After mounting the specimen, a label is pasted in the right hand lower corner of the sheet. This carries information regarding botanical name of the plant, common name, date, collector's name, place of collection, etc.

**5. Arrangement of sheets.** The sheets are finally arranged in accordance with standard classification (preferably Bentham and Hooker's for Angiosperms or the most accepted ones for other groups of plants). The sheets are arranged into groups according to species, genera, families, classes, orders, series and sub-divisions, etc. Each group is placed in a separate envelope, slightly larger than the herbarium sheets (e.g. 17 x 12 or 17 x 11 inches). Each of such envelopes must be labelled and a proper index written or pasted over it.

**6. Care of sheets.** Herbarium sheets are often attacked by museum pests, fungi, etc. To guard against them, specimens are fumed with carbon bisulphide, 3-4 times a year. Mounted specimen may also be treated with mercuric dichloride or copper sulphate. To prevent them from attack, powdered naphthalene balls or gamaxene powder be also spread from time to time. This ensures durability and long life of the herbarium sheet.

## **CHAPTER 9**

### **WASTE DISPOSAL AND BIOSAFETY**

#### **9.1 Fumigation**

Fumigation is a method of bacterial control that completely fills an area with gaseous pesticides or fumigants to poison the microbes within. It is utilized to control the contamination within the laminar hood and room where the microbial experiments are done.

##### **9.1.1 Decontamination of Laminar Hood-Fumigation**

1. Seal off the hood or room. Never allow personnel in the environment when the hood is being decontaminated, as highly toxic agents are used. Place boundary tapes or other obvious notices to alert anyone that they are not to approach or attempt to operate the hood until decontamination is complete.
2. Notify the institution's safety officers of the date and time that the decontamination is to be done, as well as the type of fumigation agent being used (formaldehyde or hydrogen peroxide).
3. Prepare the hood. Switch the hood on but turn the hood's internal fans off. (This step will not be necessary in some hood models, so check with your manufacturer.) If the safety alarms are triggered, simply mute these. Attach a sign to warn employees that the hood is being fumigated. If a permit-to-work is required then attach this to the hood.
4. Prepare the fumigation solution and begin procedure. Into a petridish, mix 30 ml of formalin and 3g of  $\text{KMnO}_4$ . This amount can be increased or decreased according to the type, size and manufacturer of your specific hood; check the specifications before beginning.
5. Evacuate and seal the hood and the room respectively.
6. Leave to fumigate for at least 16 hours or overnight.
7. Purge the hood. After the fumigation is complete, switch the cabinet on. If dampers were previously fitted, open them and remove rubber bungs on night doors. Wait until the extraction fans have started. Then slowly remove the night door completely. Keep the hood operating with the fan running for at least two hours. The hood is ready to use after this. Wipe down the fumigation boiler with damp laboratory wipes.

#### **9.2 Chemical Waste**

1. DO NOT POUR HAZARDOUS CHEMICALS DOWN THE SINK!
2. Rest of the chemicals have to be diluted with water and flushed properly down the sink with large amounts of water.
3. Exhaust fan should be on when the disposal of the chemicals are done.
4. Solid waste has to be disposed off by packaging in the proper containers.



### 9.3 Animal Waste

1. Place all animal waste in plastic bags labeled 'ANIMAL WASTE FROM BIOSCIENCES FOR DISCARD
2. Discard EITHER BY BURNING OR BURIAL IN AN INSTITUTIONAL MARKED REGION.'
3. Do not allow discarded animal specimens to accumulate in teaching laboratories. NEITHER THROW IN THE DUSTBIN DIRECTLY.

### 9.4 Blood /Saliva/Urine/any Biological Sample

1. Discard all the biological samples after addition of 1% sodium hypochloride or 1% perchloric acid in an autoclavable bag for decontamination.



## 9.5 Microbial Waste

1. Microbial wastes of bacteria are collected in autoclavable containers and autoclaved before disposal.
2. Once the waste has been successfully autoclaved, the waste is no longer considered biohazardous. It may now be disposed of to the appropriate municipal waste stream with a label of 'AUTOCLAVED' put on the bag.



3. Glasswares can be reused by washing after autoclaving.
4. Cotton plug if made by covering in the gauze or muslin cloth can be reused by autoclaving.

## 9.6 Carcinogenic Agents

1. Ethidium bromide, propidium iodide, acridine orange, acrylamide, agarose gels, SDS page etc should not be discarded in the sink directly.
2. Gels and solutions are needed to either photo-bleached in the sunlight or chemically bleached using 1% sodium hypochlorite solution.
3. After bleaching, these should be pooled together in an autoclavable bag or biodegradable bag or paper bag and buried in an appropriate place and depth so that it will remain undisturbed.

## 9.7 Lab Inspection

At the end of each semester, the TA's are required to do the final lab inspection. The inspection includes:

1. Returning equipment and unused items to their assigned domains.
2. Scrubbing all countertops /bench tops
3. Organizing lab supplies/chemicals
4. Cold storage to be checked for temperature

5. Cleaning microscopes, computers, aquariums/terrariums, spectrophotometers, autoclaves, pH meters, shakers, BOD incubators and other equipment used in the teaching lab
6. Laminar hood to be checked for sterility/contamination
7. Stock checking of chemicals and glasswares.
8. Annual/semester maintenance of lab equipments
9. pH of distilled water and double distilled water to be checked
10. water baths, dry baths, BOD and other temperature control units for temperature maintenance
11. Centrifuge rotors to be checked



## APPENDIX I

### A1. PREPARATION OF COMMON LABORATORY REAGENTS

#### **Dilute Hydrochloric acid (5N):**

Measure 0.4166 L of conc. hydrochloric acid. Transfer it to 1 L volumetric flask and add distilled water to make up volume up to the mark in volumetric flask.

#### **Dilute Sulphuric acid (5N):**

Measure 0.1388 L of conc. sulphuric acid. Transfer it to 1 L volumetric flask and add distilled water to make up the solution up to the mark in volumetric flask.

#### **Dilute Nitric acid (5N):**

Measure 0.3125 L of conc. nitric acid. Transfer this to 1 L volumetric flask and add distilled water to make up the solution up to the mark in volumetric flask.

#### **Dilute Acetic acid (5N):**

Measure 0.3496 L of conc. acetic acid. Transfer this to 1 L volumetric flask and add distilled water to make up the solution up to the mark in volumetric flask.

#### **Phosphoric acid, (9 N or 3M):**

Measure 0.2054 L of conc. phosphoric acid. Transfer it to 1 L volumetric flask and add distilled water to make up the solution up to the mark in volumetric flask.

#### **Dilute Sodium hydroxide (2N):**

Dissolve 80 g of NaOH in approximately 200 mL distilled water taken in a volumetric flask of 1 L. Make the solution 1 L by adding distilled water up to the mark.

#### **Ammonium hydroxide (5N):**

Measure 0.333 L of conc. ammonia. Transfer it to 1 L volumetric flask and add distilled water to make up the solution up to the mark in volumetric flask.

**Barium hydroxide (0.2 M or 0.4 N):** Dissolve 63 g of  $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$  in distilled water taken in volumetric flask of 1 Litre.

**Potassium hydroxide (3 M or 3 N):** Dissolve 176 g of KOH (95%) in water and dilute to 1 Litre.

#### **Potassium permanganate solution (0.1N)**

Weigh 3.16 g  $\text{KMnO}_4$  to prepare 0.1 N  $\text{KMnO}_4$  solution in 1 L. Generally a little bit excess is taken, say 3.25 g, since some crystals of  $\text{KMnO}_4$  will be remain un-dissolved that have to be removed by filtration. Since  $\text{KMnO}_4$  is not a primary standard it has to be standardized against a primary standard such as oxalic acid or sodium oxalate. Dissolve it in little distilled water and then add more distilled water to make up the solution up to mark in 1 L volumetric flask.

#### **Potassium dichromate solution (0.5N)**

Weigh 24.5 g potassium dichromate and dissolve it in dilute sulphuric acid. Add distilled water to this and make up the solution up to mark in 1 L volumetric flask.

#### **Silver nitrate solution (0.1N)**

Weigh 16.987 g of silver nitrate. Transfer it into 1 L volumetric flask. Add little water to dissolve it and add more distilled water to make up the solution up to the mark in volumetric flask.

#### **Sodium carbonate solution (2N or 1M)**

Weigh 106 g of  $\text{Na}_2\text{CO}_3$ . Transfer the weighed amount of  $\text{Na}_2\text{CO}_3$  in volumetric flask (1 L). Dissolve it in little water and then add more distilled water to make up the solution up to mark in 1 L volumetric flask.

## **A2. REAGENTS FOR QUALITATIVE ANALYSIS**

#### **Ammonium molybdate reagent (1N or 0.5 M)**

**Procedure:** Ammonium molybdate is prepared by treating molybdenum oxide with excess ammonia. There are two ways to prepare ammonium molybdate solution.

**Method 1:** Mix 72 g of  $\text{MoO}_5$  (or 81 g of  $\text{H}_2\text{MoO}_4$ ) with 200 mL of water, and add 60 mL of concentrated ammonium hydroxide. When solution is complete, filter and pour filtrate, very slowly and with stirring, into a mixture of 270 mL of conc.  $\text{HNO}_3$  and 400 mL of water. Allow it to stand overnight, filter and dilute to 1 Litre.

**Method 2:** The reagent is prepared as two solutions which are mixed as required, therefore always providing fresh reagent of proper strength and composition. Since ammonium molybdate is an expensive reagent, and an acid solution of this reagent as generally prepared is stable for only a few days, the method will avoid loss of reagent and provide more assured results for quantitative work.

Solution 1: Dissolve 100 g of ammonium molybdate in 400 mL of water and 80 mL of 15M  $\text{NH}_4\text{OH}$ . Filter if necessary.

Solution 2: Mix 400 mL of 16 M nitric acid with 600 mL of water. Mix the calculated amount of solution 1 with twice its volume of solution 2, adding solution 1 to solution 2 slowly with vigorous stirring.

**Ammonium oxalate solution (0.5 N)**

Weigh 71 g of the crystalline ammonium oxalate and transfer it to a 1 L volumetric flask. Dissolve this salt in minimum distilled water then make up the solution up to the mark.

**Ammonium hydrogen phosphate solution (0.5N)**

Weigh 24.6 g of ammonium hydrogen phosphate and transfer it to 1 L volumetric flask. Dissolve it in 100 mL of water and make up the solution to the mark by adding more of distilled water.

**Ammonium sulphate solution (2N or 1M)**

Weigh 132 g of  $(\text{NH}_4)_2\text{SO}_4$ . Transfer the weighed amount of salt in volumetric flask (1 L). Dissolve it in little water and then add more distilled water up to the mark.

**Bromine water (0.5N in water)**

Measure 12.9 L of bromine and transfer it to 1 L volumetric flask. Add distilled water to make up the solution up to the mark in volumetric flask.

**Calcium chloride solution (0.5N)**

Weigh 55.5 g of  $\text{CaCl}_2$  and transfer the weighed amount of salt in volumetric flask (1 L). Dissolve this salt in little water and then add more distilled water to make up the solution up to mark in 1 L volumetric flask.

**Ceric ammonium nitrate (40% in 2N  $\text{HNO}_3$ )**

Weigh 100 g of the ceric ammonium nitrate salt and dissolve it in 2N  $\text{HNO}_3$  in 250 mL flask.

**Ferric chloride solution (0.5N)**

Weigh 135 g hydrated ferric chloride salt and dissolve it in distilled water containing 20 mL conc.  $\text{HCl}$ . Add more distilled water up to the mark in volumetric flask.

**Neutral  $\text{FeCl}_3$  solution (10%)**

Dissolve 10 g  $\text{FeCl}_3$  in 100 mL water. Add  $\text{NH}_4\text{OH}$  dropwise till a slight precipitate persists on shaking. Use filtrate as neutral  $\text{FeCl}_3$  solution. Precipitation indicates that  $\text{HCl}$  produced by hydrolysis of  $\text{FeCl}_3$  has been neutralized and added ammonium hydroxide which reacts with  $\text{FeCl}_3$  to precipitate  $\text{Fe}(\text{OH})_3$ .

**Ferrous sulphate solution (0.5N)**

Weigh 139 g hydrated ferrous sulphate salt and transfer it to a volumetric flask and add 10 mL conc.  $\text{H}_2\text{SO}_4$ . Now add little water to dissolve it and make up the solution up to the mark in volumetric flask.

**Dimethyl glyoxime reagent (1%)**

Dissolve 1 g of the solid dimethylglyoxime in 100 mL of 95% ethyl alcohol.

**Lead acetate solution (0.5N)**

Dissolve 81.3 g of lead acetate in approximately 200 mL distilled water taken in volumetric flask of 1 L. Add more distilled water up to the mark.

**Nessler's reagent:**

Nessler's reagent is prepared by the mixture of Mercuric chloride (50 g in 50 mL in cold water),

Potassium iodide (22 g in 350 mL of water) & Caustic soda, i.e. NaOH (200 mL of 5N).

Dissolve 200 g of NaOH in distilled water taken in 1 L volumetric flask and make up the volume up to the mark. Dissolve 50 g of KI in minimum quantity of cold water and add a saturated solution of mercuric chloride (about 22 g in 350 mL of water will be needed) in KI solution with continuous stirring until an excess is indicated by the formation of a precipitate. Then add 200 mL of 5N NaOH and dilute to 1 L. Allow to stand until clear; then decant into a well-stoppered bottle.

**Ammonium carbonate solution (4N or 2M)**

Weigh 192 g of the commercial salt which is a mixture of  $(\text{NH}_4)\text{HCO}_3$  and  $\text{NH}_4\text{CO}_2\text{NH}_2$ . Dissolve this salt in 140 mL conc.  $\text{NH}_3$  in 500 mL of 3N  $\text{NH}_4\text{OH}$  and dilute to 1 L.

**Mercuric chloride (0.1N):**

Dissolve 27 g of the salt in 1 litre of water.

**Potassium chromate (0.25 N):**

Dissolve 49 g of the salt in 1 litre of water.

**Potassium ferricyanide (0.05N):**

Dissolve 16.462 g of the salt in 1 litre of water.

**Potassium ferrocyanide (0.1N):**

Dissolve 53 g of the salt in 1 litre of water.

**Potassium iodide (0.5N):**

Dissolve 83 g of the salt in 1 litre of water.

**Potassium thiocyanate or sulphocyanate (0.5N)**

Dissolve 49 g of the salt in 1 litre of water.

**Stannous chloride (0.25N)**

Dissolve with heat 56 g of the salt in 100 mL conc. HCl and dilute it to 1 litre. Keep a few pieces of granulated zinc in the stored solution to avoid oxidation.

**Ammonium acetate (3N)**

Dissolve 231 g of the salt in 1 litre of water.

**Barium chloride (0.5N)**

Dissolve 61 g of the salt in 1 litre of water.

**Bromine water (0.5N)**

A saturated aqueous solution is prepared by shaking 35g or 11ml liquid bromine with water. Add more bromine if necessary to a slight excess.

**Calcium chloride (0.5N)**

Dissolve 55 g of the hydrated salt in 1 litre of water.

**Chlorine water (6.8g/l):** Saturate 250 ml of water with chlorine. The chlorine may be prepared by dropping conc. HCl upon  $\text{KMnO}_4$ . Preserve it in a dark colored bottle.

**Lime water (0.5N):** Dissolve 3 g of  $\text{Ca(OH)}_2$  in 1 litre of distilled water, shake, stir and then keep with tight cover for a day, decant the clear and colorless solution.

**A3. REAGENTS FOR VOLUMETRIC ANALYSIS**

**Phenolphthalein solution (50% in alcohol):**

Weigh out 0.5 g of phenolphthalein. Prepare a 50% ethanol (ethyl alcohol) solution consisting of 50 mL ethanol and 50 mL water. Dissolve the phenolphthalein thoroughly in the 50% ethanol solution.

#### **Iodine solution (0.1 N)**

Weigh 12.7 g iodine ( $I_2$ ) and dissolve it in little water and then add 25 g of KI. Add more distilled water to this and make up the solution up to mark in 1 L volumetric flask.

#### **Potassium Iodide solution (1N)**

Weigh 166 g of KI and transfer it in volumetric flask (1 L). Dissolve it in little water and then add more distilled water up to mark in 1 L volumetric flask.

#### **Methyl orange solution (1% in water)**

Weigh 0.1 g of methyl orange and dissolve in 100 mL of distilled water. Filter it if necessary.

#### **Eriochrome black-T reagent (0.4% in methanol)**

Weigh 0.4 g of Eriochrome black-T solid and dissolve it into 100 mL measuring flask containing methanol.

#### **Sodium thiosulphate solution (0.1N or 0.1M)**

Weigh 24.8 g of sodium thiosulphate pentahydrate and transfer it in volumetric flask (1 L). Dissolve it in little distilled water and then add more distilled water to make up the solution up to mark in 1 L volumetric flask. Add 0.1 g of  $Na_2CO_3$  to improve its stability, store overnight, and filter through fine grade paper.

#### **Starch solution (1% in water)**

For preparation of 1% starch indicator solution, mix 0.5 g soluble starch with 2-3 mL deionized water. Pour the starch into 50 mL boiling deionized water with stirring. Continue heating the solution until the solution is nearly transparent. Cool the solution to room temperature before use.

### **A4. COMMON ORGANIC SOLUTIONS**

**2, 4-DNP Reagent (in alcohol):** Dissolve 2 g of 2,4 dinitrophenylhydrazine in 10 ml of concentrated sulphuric acid. To this mixture add 100 cm<sup>3</sup> methanol carefully and with cooling. Warm the resulting solution to dissolve any remaining solid.

**2, 4-DNP Reagent (in water):** Dissolve 4 g of 2,4 dinitrophenylhydrazine in 35 ml of concentrated HCl. To this mixture add 65 water carefully. Shake and filter the solution after some time.

**Barfoed's reagent:** Dissolve 6.5 g of cupric acetate in 100 ml of 1% acetic acid in water. Shake and filter, if required

**Benedict A:** Dissolve 8.65g of  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  in 50 ml of  $\text{H}_2\text{O}$ .

**Benedict B:** Dissolve 86.5 g of sodium citrate and 50 g of anhydrous  $\text{Na}_2\text{CO}_3$  in 350 ml  $\text{H}_2\text{O}$ .

**Benedicts Reagent:** Pour Benedicts solution A slowly into solution B and make up the volume to 500 ml. Mix well.

**Bayer's reagent:** Dissolve 2g of  $\text{KMnO}_4$  in 100 ml of water (2% Solution)

**Bromine in Acetic Acid:** Dissolve 20 ml of Bromine in 280 ml of Glacial acetic acid. Keep the bottle stoppered else the bromine will escape out.

**Bromine in  $\text{CCl}_4$ :** Add 2ml of bromine to 50ml of  $\text{CCl}_4$ .

**Bromine in Water:** Dissolve 5 ml of Bromine in 100 ml of water. Stopper the bottle

**Cerric ammonium nitrate:** Dissolve 40 g of Cerric ammonium nitrate in 100 ml of warm 2N nitric acid.

**Fehling's A:** 17.3 g of  $\text{CuSO}_4$  in 250 ml  $\text{H}_2\text{O}$  containing few drops of conc.  $\text{H}_2\text{SO}_4$ .

**Fehling B:** 8.65g of sodium potassium tartarate (Rochelle salt) and 35 g of NaOH in 250 ml  $\text{H}_2\text{O}$ .

**$\text{FeCl}_3$  Solution:** Dissolve 40 g of  $\text{FeCl}_3$  in 50 ml of Conc HCl and make up the solution to 500 ml using water.

**Neutral  $\text{FeCl}_3$  :** Dissolve  $\text{FeCl}_3$  in water. Add  $\text{NH}_4\text{OH}$  dropwise till there is a start of precipitation. Filter. Use filtrate as neutral  $\text{FeCl}_3$  solution. (Precipitation indicates that HCl produced by hydrolysis of  $\text{FeCl}_3$  has been neutralized and added ammonium hydroxide is reacting with  $\text{FeCl}_3$  to precipitate  $\text{Fe}(\text{OH})_3$ )

**Molisch reagent:** 10% alcoholic solution of  $\alpha$ -naphthol.

**Schiff's reagent:** Dissolve 0.5 g of Fuschine (Rosaniline hydrochloride) in 250 ml of warm distilled water. Cool, saturate with  $\text{SO}_2$  (solution becomes colourless or pale yellow), add about 0.5 g of animal charcoal. Shake, filter and dilute to 500 ml with water. If the pink colour reappears then add Sulphite solution dropwise till the colour just disappears



**Sodium nitroprusside:** Dissolve 100 mg of sodium nitroprusside in 100 ml of water.

**DNSA reagent:** Solution "A" is **prepared** by dissolving 5 g of 3,5-DNSA in 100 ml of 2N NaOH solution. Solution "B" is **prepared** by dissolving 150g of sodium potassium tartarate in about 300 ml distilled water. Mix solution A and B and Dilute to 500 ml on cooling.

**Follin's reagent:** 1:1 solution diluted with water

## Appendix II

### COMMON BUFFERS USED IN THE LABORATORY

The buffers described in this section are suitable for use either in enzymatic or histochemical studies. The accuracy of the tables is within  $\pm 0.05$  pH at 23 °C. In most cases the pH values will not be off by more than  $\pm 0.02$  pH even at 37 °C and at molarities slightly different from those given (usually 0.05 M).

#### 1. Hydrochloric Acid-Potassium Chloride Buffer.

Stocks solutions

A: 0.2 M solution of KCl (14.91 g in 1

L) B: 0.2 M HCl

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p
9	1.
7	1.
6	1.
5	1.
4	1.
3	1.
2	1.
2	1.
1	1.
1	1.
1	2.
8	2.
6	2.

## 2. Glycine-HCl Buffer.

Stocks solutions

A: 0.2 M solution of glycine (15.01 g in 1 L)

B: 0.2 M HCl

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
5	3	1	2
6	3	2	2
8	3	3	2
1	3	4	2

## 3. Phthalate-Hydrochloric Acid Buffer.

Stocks solutions

A: 0.2 M solution of potassium acid phthalate (40.48 g in 1 L)

B: 0.2 M HCl

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
4	2	1	3
3	2	9	3
3	2	6	3
2	2	2	3
2	3		

#### 4. Aconitate Buffer.

Stocks solutions

A: 0.5 M solution of aconitic acid (87.05 g in 1 L)

B: 0.2 M NaOH

20 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
1	2	8	4
2	2	9	4
2	2	9	4
3	3	1	4
4	3	1	5
5	3	1	5
6	3	1	5
6	3	1	5
7	4		

## 5. Citrate Buffer.

Stocks solutions

A: 0.1 M solution of citric acid (21.01 g in 1 L)

B: 0.1 M solution of sodium citrate (29.41 g  $\text{C}_6\text{H}_5\text{O}_7\text{Na}_3 \cdot 2\text{H}_2\text{O}$  in 1 L, the use of the salt with  $5\frac{1}{2} \text{H}_2\text{O}$  is not recommended).

x mL of A + y mL of B, diluted to a total of 100 mL

x	y	p
4	3	3
4	6	3
4	1	3
3	1	3
3	1	3
3	1	4
3	1	4
2	2	4
2	2	4
2	2	4
2	2	5
1	3	5
1	3	5
1	3	5
1	3	5
9	4	6
7	4	6

## 6. Acetate Buffer.

Stocks solutions

A: 0.2 M solution of acetic acid (11.55 g in 1 L)

B: 0.2 M solution of sodium acetate (16.4 g  $\text{C}_2\text{H}_3\text{O}_2\text{Na}$  or 27.2 g of  $\text{C}_2\text{H}_3\text{O}_2\text{Na}\cdot 3\text{H}_2\text{O}$  in 1 L).

x mL of A + y mL of B, diluted to a total of 100 mL

x	y	p
4	3	3.
4	6	3.
4	9	4.
3	1	4.
3	1	4.
2	2	4.
2	3	4.
1	3	5.
1	3	5.
8	4	5.
4	4	5.

## 7. Citrate-Phosphate Buffer.

Stocks solutions

A: 0.1 M solution of citric acid (19.21 g in 1 L)

B: 0.2 M solution of dibasic sodium phosphate (53.65 g of  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$  or 71.7 g of  $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$  in 1 L).

x mL of A + y mL of B, diluted to a total of 100 mL

x	y	p
4	5	2.
4	7	2.
3	1	3.
3	1	3.
3	1	3.
3	1	3.
3	1	3.
3	1	3.
3	1	4.
2	2	4.
2	2	4.
2	2	4.
2	2	4.
2	2	5.
2	2	5.
2	2	5.
2	2	5.
1	3	5.
1	3	6.
1	3	6.
1	3	6.
1	3	6.
9	4	6.
6	4	7.



## 8. Succinate Buffer.

Stocks solutions

A: 0.2 M solution of succinic acid (23.6 g in 1L)

B: 0.2 M NaOH

25 mL of A + x mL of B, diluted to a total of 100 mL

x	p	x	p
7	3	2	5
1	4	3	5
1	4	3	5
1	4	3	5
2	4	4	5
2	4	4	6

## 9. Phthalate-Sodium Hydroxide Buffer.

Stocks solutions

A: 0.2 M solution of potassium acid phthalate (40.84 g in 100 mL)

B: 0.2 M NaOH

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
3	4	3	5
7	4	3	5
1	4	3	5
1	4	4	5
2	5	4	6

## 10. Maleate Buffer.

Stocks solutions

A: 0.2 M solution of acid sodium maleate (8 g of NaOH + 23.2 g of maleic acid or

19.6 g of maleic anhydride in 1 L)

B: 0.2 M NaOH

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
7	5	3	6
1	5	3	6
1	5	4	6
2	5	4	6
2	6		

## 11. Cacodylate Buffer.

Stocks solutions

A: 0.2 M solution of sodium cacodylate (42.8 g of  $\text{Na}(\text{CH}_3)_2\text{AsO}_2 \cdot 3\text{H}_2\text{O}$  in 1 L)

B: 0.2 M HCl

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
2	7	2	6
4	7	3	5
6	7	3	5
9	6	4	5
1	6	4	5
1	6	4	5
2	6		

## 12. Phosphate Buffer.

Stocks solutions

A: 0.2 M solution of monobasic sodium phosphate (27.8 g in 1 L)

B: 0.2 M solution of dibasic sodium phosphate (53.65 g of  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$  or 71.7 g of  $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$  in 1 L).

x mL of A + y mL of B, diluted to a total of 200 mL

x	y	p	x	y	p
9	6	5	4	5	6
9	8	5	3	6	7
9	1	5	3	6	7
8	1	6	2	7	7
8	1	6	2	7	7
8	1	6	1	8	7
7	2	6	1	8	7
7	2	6	1	8	7
6	3	6	1	9	7
6	3	6	8	9	7
5	4	6	7	9	7
5	4	6	5	9	8

## 13. Tris(hydroxymethyl) aminomethane-maleate (Tris-maleate) Buffer.

Stocks solutions

A: 0.2 M solution of Tris acid maleate (24.2 g of tris(hydroxymethyl) aminomethane + 23.2 g of maleic acid or 19.6 g of maleic anhydride in 1 L)

B: 0.2 M NaOH

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
7	5	4	7
1	5	5	7
1	5	5	7
2	5	5	7
2	6	6	7
3	6	6	8
3	6	7	8
4	6	8	8
4	6	8	8

#### 14. Barbital Buffer.

Stocks solutions

A: 0.2 M solution of sodium barbital (veronal) (41.2 g in 1 L)

B: 0.2 M HCl

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p
1	9.
2	9.
4	8.
6	8.
9	8.
1	8.
1	8.
2	7.
2	7.
3	7.
3	7.
4	7.
4	6.

Solutions more concentrated than 0.05 M may crystallize on standing, especially in the cold.

### 15. Tris(hydroxymethyl) aminomethane (Tris) Buffer.

Stocks solutions

A: 0.2 M solution of tris(hydroxymethyl) aminomethane (24.2 g in 1 L)

B: 0.2 M HCl

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p
5	9.
8	8.
1	8.
1	8.
2	8.
2	8.
3	7.
3	7.
4	7.
4	7.

### 16. Boric Acid-Borax Buffer.

Stocks solutions

A: 0.2 M solution of boric acid (12.4 g in 1 L)

B: 0.05 M solution of borax (19.05 g in 1 L; 0.2 M in terms of sodium borate) 50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
2	7	2	8
3	7	3	8
4	8	4	8
7	8	5	9
1	8	8	9
1	8	1	9

### 17. 2-amino-2methyl-1,3-propanediol (Ammediol) Buffer.

Stocks solutions

A: 0.2 M solution of 2-amino-2-methyl-1,3-propanediol (21.03 g in 1 L)

B: 0.2 M HCl

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
2	1	2	8
3	9	2	8
5	9	3	8
8	9	3	8
1	9	4	8
1	9	4	7



### 18. Glycine-NaOH Buffer.

Stocks solutions

A: 0.2 M solution of glycine (15.01 g in 1 L)

B: 0.2 M NaOH

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p	x	p
4	8	2	9
6	8	2	9
8	9	3	1
1	9	3	1
1	9	4	1

### 19. Borax-NaOH Buffer.

Stocks solutions

A: 0.05 M solution of borax (19.05 g in 1 L; 0.02 M in terms of sodium borate)

B: 0.2 M NaOH

50 mL of A + x mL of B, diluted to a total of 200 mL

x	p
0	9.
7	9.
1	9
1	9
2	9
2	9
3	9
3	9
4	1
4	1

## 20. Carbonate-Bicarbonate Buffer.

Stocks solutions

A: 0.2 M solution of anhydrous sodium carbonate (21.2 g in 1 L) B:  
0.2 M solution of sodium bicarbonate (16.8 g in 1 L)

x mL of A + y mL of B, diluted to a total of 200 mL

x	y	p
4	4	9.
7	4	9.
9	4	9.
1	3	9.
1	3	9.
1	3	9.
2	2	9.
2	2	9.
2	2	1
3	2	1
3	1	1
3	1	1
3	1	1
4	9	1
4	7	1
4	5	1

## APPENDIX III

### AIII. I Maintenance/storage of stock culture

#### Bacterial glycerol stock

Put 0.5ml bacterial culture in a sterile eppendorf tube.

1. Add 0.5ml of sterile 80% (v/v) glycerol solution.
2. Freeze on dry ice or directly into  $-70^{\circ}\text{C}$ .
3. Store at  $-70^{\circ}\text{C}$ .
4. Cells are best maintained for about 4-6 months, but will probably work for a whole year.

#### 1. Preparation of slats:

1. Prepare an agar slants
2. Inoculate a culture to be stored by patching using a tip.
3. Allow growth of the bacteria over night.
4. Layer with mineral oil.
5. Store at  $4^{\circ}\text{C}$ .
6. Such culture can be stored for about 1 month.

#### 2. Recovery of bacteria from stocks

1. From a glycerol stock remove 200  $\mu\text{l}$  and inoculate into 5 ml of fresh LB broth.

Grow overnight. Sub-culture to obtain a viable culture.

2. Decant mineral oil from slant. Scrap the colonies from slant and inoculate into a fresh LB broth. Grow overnight. Sub culture viable colony

### AIII. II Preparation of reagents

#### A. Staining reagents:

- I. Safranin

1. To 100ml of distilled water add 1 g of safranin.
2. Shake on a shaker for 30 minutes. Use a magnetic stirrer is not available.
3. Filter and store in a dark coloured bottle.

## II. Acetocarmine

1. Mix 45 ml of glacial acetic acid and 55ml of distilled water.
2. Boil the above solution.
3. To the boiling mixture, add 1g acetocarmine.
4. Cool the solution and filter.
5. Store the stain in dark.

## III. Cotton blue

1. Prepare 90% alcohol by 90ml absolute alcohol in 10ml distilled water.
2. Dissolve 1g aniline blue, add 100ml of 90% alcohol.
3. To stain fungi, cotton blue can be mixed with lactophenol.

## IV. Erythrosine

1. Prepare 90% alcohol by 90ml absolute alcohol in 10ml distilled water.
2. Dissolve 1g of erythrosine in 100ml of 90% alcohol.

## V. Grams's iodine

1. Dissolve 2g iodine and 3mg potassium iodide in 300ml of distilled water.

## VI. Sudan black

1. Prepare 70% ethanol by adding 70ml ethanol to 30ml distilled water.
2. Dissolve 0.3g of Sudan Black in 99.7ml of 70% ethanol.
3. Keep in a closed container of 12h at 37°C.
4. Incubate at 60°C for 30 min.

## **B. Mounting medium**

### 1) Lactophenol

1. To 100ml of lactic acid add 100g of phenol.
2. To the above solution, add 100ml of glycerine and 100ml of distilled water.

2) Glycerine

1. To 5ml gelatin add 35ml of glycerine.
2. To the above solution add 30ml of distilled water.

### Common Stains in Biology: Uses and Their Preparation

- I. **Acetocarmine stain:** It is mainly used to stain chromosomes in the study of cells.

**Preparation of Acetocarmine stain (100mL):**

- Glacial acetic acid - 45 ml
- Carmine powder - 2 g
- Dissolve in 55 ml Distilled water



- II. **Methylene blue stain:** This stain may be used both as aqueous or alcoholic stain. It is a basic stain and so mainly stains acidic parts such as DNA of the nucleus and fungal bodies. it is a vital stain

**Preparation of Methylene Blue stain (100mL):**

**Aqueous Methylene blue:**

- Methylene blue - 100 mg
- Distilled water - 100 ml
- The stain is dissolved in distilled water



**Alcoholic Methylene blue:**

- Methylene blue - 0.3 g
- 95% Ethyl alcohol - 30 ml
- Dissolve in 100 ml Distilled water

- III. **Feulgen stain:** is used for the identification of chromosomal material or deoxyribonucleic acid (DNA in paraffin-embedded tissue or cell specimens)





#### **Preparation of Feulgen Stain (40 mL):**

- Weigh out 200 mg of Basic Fuchsin into 250 mL beaker
  - Pour 40 mL boiling dH<sub>2</sub>O over the Basic Fuchsin, swirl to dissolve
  - Cool solution to 50-60°C, filter through Whatman No. 1 paper and transfer to a 100ml brown glass stoppered bottle (UV light attacks the large stain molecule and can weaken the intensity of staining)
  - Add 6.0 mL 1N HCl, mix. (Caution: corrosive acid)
  - Dissolve 0.6 g K<sub>2</sub>S<sub>2</sub>O<sub>5</sub> (potassium metabisulfite) by shaking bottle vigorously by hand for 15 seconds and then using magnet stirrer for 2 hours to decolorize the solution. Set in dark for 24 hours to bleach.
  - Decant or filter through activated charcoal (e.g., Norit) to further clarify (if desired).
- Storage:** Store in light-proof bottle in refrigerator. (I.e. wrap in aluminium foil to exclude light.)

**Precaution:** Handle Basic fuchsin with care.

- IV. **Bromophenol Blue:** Used as a pH indicator, a color marker, and a dye. Bromophenol blue is also used as a color marker to monitor the process of agarose gel electrophoresis and polyacrylamide gel electrophoresis.

#### **Preparation of 1% bromophenol blue (10 ml)**

- Bromophenol blue = 100 mg
- ddH<sub>2</sub>O (double distilled water) = 10 ml
- Mix 100 mg of bromophenol blue with 10 ml of ddH<sub>2</sub>O

**Storage:** Room temperature.



This stock should have an intense orange color and should be discarded if the color has turned to green

- V. **Fast green stain:** is used as a quantitative stain for histones at alkaline pH after acid extraction of DNA. It is also used as a protein stain in electrophoresis and starch.

#### **Preparation of 0.1 % Fast Green Stain (100 mL):**

- Fast green dye powder = 100mg

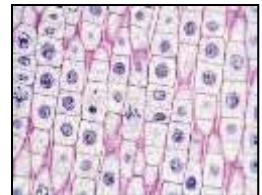


- Dissolve in 100 ml distilled water and filter by stirring
- Filter the Fast Green staining solution using a 75mm filter.

As the Fast Green staining solution evaporates with use, add additional solvent, not dye solution to maintain the correct dye concentration.

### **Precautions for Stain Preparation:**

- At all times gloves should be worn.
- While weighing the components of the stain (in the powder form) wear masks
- Aspirate acids with glass pipette only.



### **Staining of onion root tip (Feulgen Stain/Schiff's reagent):**

**Material:** Onion root tip

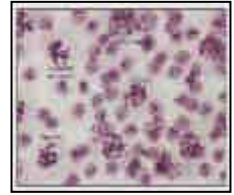
- Rinse the root tips with distilled water (5 min) followed by 1N HCl (2-3 min)
- Hydrolyse the material in 1N HCl at 60°C for about 10-12 minutes.
- Rinse the material with cold 1N HCl followed by running water for 10 min.
- Stain the material in Schiff's reagent for about 30 minutes (in a cavity block covered with black paper as staining should be done in dark).
- Rinse the root tips with distilled water.
- Place a small slice of the root tip on a slide.
- Place a cover slip on the slide and press down with the thumb. The root tip should be spread on the slide (but make sure the cover slip does not break).
- Observe under microscope.

### **Staining of Cheek cells (Methylene Blue):**

- Use the back/blunt side of a tooth pick and scrape the inside of the mouth.
- Spread the smear on a slide and wait for it to dry.
- Add a drop of methylene blue onto the slide.
- Place a cover slip.
- Observe under the microscope.



**Study of Meiosis in grasshopper testis (Feulgen Stain/Schiff's reagent):**



- Identify the male grasshopper.
- Using sharp scalpel cut at the 7th segment and press gently to release a yellow fluid clumps (which is genital organ covered with yellow fat bodies).
- Transfer the clump carefully to a cavity block containing saline for washing.
- Shake gently with a needle so the fat bodies and follicles get separated. Also agitate gently with a needle to separate the individual follicles.
- Hydrolyse the material in 1N HCl at 60°C for about 10-12 minutes.
- Rinse the material with cold 1N HCl followed by running water for 10 min.
- Stain the material in Schiff's reagent for about 30 minutes (in a cavity block covered with black paper as staining should be done in dark).
- Rinse the material in distilled water.
- Transfer it onto a slide and place a cover slip. Using your forefinger press gently and prepare squash carefully.
- Observe under the microscope.

***GOOD LAB  
PRACTICES***

## **Do's**

1. Wear a clean, full sleeve, cotton lab coat and fasten the buttons. Wear disposable gloves while handling hazardous material. Tie your hair properly.
2. Maintain silence while working and listen to the instructions carefully.
3. Keep your work area clean.
4. Weigh/ pipette out appropriate amount/ volume of chemical/ reagent.
5. Always read the label on reagent bottle before using it.
6. Keep the reagent bottle back in their appropriate places after use.
7. Always use a matchstick or candle for lighting the burner.
8. Use a clean spatula/ dropper to transfer solid/ liquid reagents.
9. Throw the waste material in notified bins.
10. Use a pair of tongs while handling hot objects/ apparatus.
11. Wash your hands properly before leaving the lab.
12. Inform your teacher immediately in case of any accidents.

## **Don'ts**

1. Use of mobile phones is strictly prohibited in the lab.
2. Do not eat in the lab.
3. Do not waste chemicals.
4. Do not point the open end of the test tube towards yourself or at anybody else.
5. Do not contaminate the reagent bottles with dirty droppers.
6. Do not use a burning paper for lighting the burner.
7. Do not keep reagent bottles open. Do not throw, taste or smell any chemicals.
8. Do not handle hot objects/ apparatus with bare hands.

9. Do not dispose matchsticks, paper or any kind of solid waste in sinks.
10. Do not touch electrical appliances with wet hands.
11. Do not accumulate unused chemicals/ equipment on your work table.
12. Do not mouth pipette any hazardous reagents.



## **❖ Waste Disposal**

### **1. Chemical Waste**

- Do not pour hazardous chemicals down the drain.
- Remaining chemicals have to be diluted with water and flushed properly down the sink with large amounts of water.
- Exhaust fan should be on when the disposal of chemicals is done.
- Solid waste has to be disposed of by packaging in proper labelled containers.

### **2. Animal Waste**

- Place all animal waste in plastic bags labelled “ANIMAL WASTE FOR DISCARD”.
- Discard either by burning or by burial in an Institutional marked region.
- Do not allow discarded animal specimens to accumulate in teaching laboratories.
- Do not discard animal waste in the dustbin directly.

### **3. Blood/ Saliva/ Urine/ any Biological sample**

- Discard all the biological samples after addition of 1% sodium hypochloride or 1% perchloric acid in an autoclavable bag for decontamination.

### **4. Microbial Waste**

- Microbial waste of bacteria must be collected in autoclavable containers and autoclaved before disposal.
- Glassware can be reused by washing after autoclaving.
- Cotton plug if made by covering in the gauze or muslin cloth can be reused by autoclaving.

## **5. Carcinogenic agents**

- Ethidium bromide, propidium iodide, acridine orange, agarose gels, SDS polyacrylamide gels etc. should not be discarded in the sink directly.
- Gels and solutions need to be either photo bleached in sunlight or chemically bleached using 1% sodium hypochlorite solution.
- After bleaching, these should be pooled together in an autoclavable bag or biodegradable bag or paper bag and buried in an appropriate place.

### **❖ Fumigation of the Laminar Hood**

1. Seal off the hood or the room. Never allow personnel in the environment when the hood is being decontaminated.
2. Prepare the hood. Switch the hood on but turn the hood's internal fans off.
3. Prepare the fumigation solution and begin the procedure. In a petridish, mix 30 ml of formalin and 3 gm of  $\text{KMnO}_4$ . This amount can be increased or decreased according to the type and size of the hood.
4. Leave to fumigate for at least 16 hours or overnight.
5. Purge the hood. After fumigation is complete, switch the cabinet on. Keep the hood operating with the fan running for atleast two hours. The hood is ready for use.

## ❖ **Blood collection**

1. Thread the appropriate needle into the holder until it is secure, using the needle sheath as a wrench.
2. Before using, tap all tubes that contain additives to ensure that all the additive is dislodged from the stopper and the wall of the tube.
3. Use a sterile blood collection tube. When drawing blood for cultures, wipe the stopper with a suitable antiseptic solution. Check the stopper to make certain it is dry before performing the venipuncture.
4. Insert the blood collection tube into the holder and onto the needle up to the recessed guideline on the needle holder. Avoid pushing the tube beyond the guideline because a premature loss of vacuum may result. The tube will retract slightly. Leave it in this position.
5. Make sure the donor's arm is in a downward position to prevent reflux.
6. Grasp the donor's arm firmly. The phlebotomist's thumb should be used to draw the skin taut. This anchors the vein. The thumb should be one or two inches (2.5 cm or 5.0 cm) below the venipuncture site.
7. With the bevel up, line up the needle with the vein and puncture the vein. Grasp the flange of the needle holder and push the tube forward until the end of the needle punctures the stopper. Blood can now be observed filling the tube. Maintain the tube below the site when needle is in the vein.
8. Remove the tourniquet as soon as blood flow is established. Once the draw has started, do not change the position of the tube until it is withdrawn from the needle. During the procedure, do not allow the contents of the tube to contact the stopper. Movement of the fluid back and forth in the tube can cause back-flow of blood into the venous system and possible adverse patient reaction.
9. Keep constant, slight forward pressure (in the direction of the needle) on the end of the tube. This prevents release of the shut-off sheath and stopping of blood flow. Do not vary pressure or reintroduce pressure after completing the draw.
10. For tubes containing anticoagulant (i.e., light blue and lavender top) fill the tube until the vacuum is exhausted and blood flow ceases. This will ensure that there

is a correct ratio of anticoagulant to blood. It is normal for the tube not to be completely filled.

11. When the blood flow ceases, remove the tube from the holder. The shutoff sheath re-covers the point, stopping blood flow until the next tube is inserted.
12. Mix immediately after drawing each tube that contains an additive by gently inverting the tube five to 10 times. To avoid hemolysis, do not mix vigorously.

# *Standard Operating Procedures*



## *Autoclave*

### **Operating instructions:**

1. Load the material to be autoclaved and avoid crowding or stacking.
2. Check the water level mark. Add water if needed.
3. Close the lid of the machine tightly.
4. Switch on the mains, set the temperature to 121°C and allow the steam to build up.
5. As soon as steam starts to build up, close the steam release valve and allow the pressure to build up till 15psi.
6. Allow the autoclave to run for 20 minutes and then switch off the heating.
7. Slowly release the pressure by opening the pressure release valve.
8. Open the lid carefully and allow the contents to cool down.
9. Use heat resistant gloves to carefully transfer the containers to their designated area.
10. Close the autoclave door but do not seal it when not in use as this will shorten the life span of the rubber gasket on the door.

### **Do not autoclave materials containing:**

1. Solvents, volatile, chlorinated compounds (HCl, bleach) or corrosive chemicals (e.g. phenol, trichloroacetic acid, ether, chloroform) etc.
2. Materials contaminated with chemotherapeutic agents
3. Radioactive material (without prior approval)
4. Non autoclavable plastics
5. Heat sensitive materials (e.g. antibiotics, hormones, antibodies etc.)

**Daily/ Weekly Maintenance Activity:**

1. Disinfect the exterior surfaces of the autoclave.
2. Check door gaskets for wear.
3. Clean interior walls with trisodium phosphate, other mild detergent or as directed by the manufacturer. Rinse with tap water after cleaning.
4. Check both primary and secondary containers for integrity (stress fractures, cracks, chips etc.)

# *Centrifuge*

## **Operating instructions:**

1. Place the empty rotor along with the lid (without sample) on the centrifuge rotor shaft. Align the rotor properly and secure it with the screw.
2. Switch ON the mains and set the temperature. If set at a low temperature, then allow the centrifuge to attain the set temperature.
3. Load the samples symmetrically after balancing the tubes.
4. Close the rotor lid and the centrifuge lid.
5. Set the speed and timer and allow the run to proceed.
6. After the run is complete, press the brake button and allow the rotor to come to a halt.
7. Open the centrifuge lid and rotor lid and retrieve your samples.
8. Switch OFF the machine.

## **Maintenance instructions:**

1. After every run at low temperature, leave the centrifuge lid open and allow it to come to room temperature. Wipe dry all the water to prevent corrosion.
2. Clean all metal buckets thoroughly at regular intervals.
3. Periodically, wipe the drive shaft with a slightly greased rag to prevent corrosion.
4. Clean the centrifuge body with a mild cleaning agent.

## *Conductivity Meter*

### **Operating instructions:**

1. Turn on the main switch.
2. Turn on the switch of the instrument.
3. Wash the electrode, dipped in KCl solution, with distilled water and wipe it with a tissue paper.
4. Set the knob to 2-20 mho conductance sensitivity. This can be changed as per the requirement and the solution for which conductance is being measured.
5. For calibration, place the electrode in 0.9% NaCl standard solution and set the conductance to zero using "Calibration knob".
6. Now wash the electrode again with distilled water, wipe with a tissue and dip it in the sample solution. Note the conductance.
7. Wash the electrode with distilled water each time before dipping into other sample solution.
8. When done, finally wash the electrode with water, wipe with a tissue and place it in the KCl solution.

## ***Laminar Air Flow Hood***

### **Operating Instructions:**

1. Switch on the ultraviolet lamp to sterilize the work bench of the laminar flow hood for 15 minutes.
2. Turn off the ultraviolet lamp once laminar flow is in use. Turn on the fluorescent light lamp unless any chemical being used is photosensitive.
3. Keep the air flow on for at least 10 min before starting work.
4. Put on a lab coat and a pair of gloves.
5. Disinfect the work area with 70 % Ethanol.
6. Open the gas valve and put on the Bunsen burner. Adjust the flame. (Note: Keep any inflammable substances away from the burner).
7. Place items into the cabinet, at least 5 inches from the front and approximately 3 inches from the rear, without unnecessary disruption of the airflow.
8. Make sure that there is a biohazard waste container inside (Beaker containing 1% Teepol) and outside the cabinet.
9. Minimize the movement of arms and reduce the frequency of placing hands/ arms into the biosafety cabinet and taking them out.
10. Clean the hood after usage. Avoid leaving items near the hood. Dispose of all the live material, such as tubes of cells or container of tissue. Dispose of the biological waste in secure, biohazard containment units and seal these to prevent aerosols from re-entering the hood space and establishing new spots of contamination.
11. Close the gas valve when work is completed. Wipe the bottom and side surfaces of the biosafety cabinet with a disinfectant. Close the air flow and the biosafety cabinet shield.
12. Turn on the UV light system for 15 minutes.

**Maintenance instructions:**

1. Check that front cover and glass panels do not leak UV.
2. Once a month, clean beneath the internal shelves and work surfaces.
3. In case of spillage, immediately put 70% ethanol on the spill and clean it.
4. To remove marks on the hood work surface, put 1% SDS solution on the area, rub it and leave it for 5 minutes. Then clean it with water followed by 70% ethanol.
5. The HEPA filter should be regularly checked by the company personnel and replaced if necessary.



## ***Micropipette***

### **Operating instructions:**

1. Select the correct size micropipette and tips.
2. Dial the volume adjustment knob to set the proper volume in the volume indicator.
3. Hold the micropipette vertically over the solution and push the plunger down to the first stop.
4. Insert the tip into the solution.
5. Slowly release the plunger and note that the solution is drawn into the tip because of suction.
6. Look at the tip to be sure that there are no bubbles.
7. Dispense the solution touching the tip to the side of the target container. Slowly depress the plunger to the second stop. Before releasing the plunger, remove tip from target container.
8. Be sure the tip is empty. Then use the tip ejector to dispose of the tip into an appropriate disposal container.
9. Release the micropipette back to its maximum volume so as to avoid constraint on spring.

### **Maintenance instructions:**

1. Wipe the micropipettes with alcohol before and after use.
2. Expose the micropipettes to UV light for 20 minutes for aseptic work.
3. Micropipettes should never be left in wound state.
4. Do not pipette acids and strong volatile compounds/ solvents with a micropipette.

5. Do not invert/ tilt the micropipettes as the solution sucked up should not reach the plastic shaft. If the solution touches the shaft, immediately remove the tip and clean the shaft with tissue paper.

6. Care must be taken to use the micropipettes for pipetting volumes only within the prescribed range for the said micropipette

# *Microscope*

## **Operating instructions:**

1. Plug the cords into the microscope and switch on the mains.
2. Keep your slide to be viewed with the coverslip on the stage.
3. Always start and end with the lower power Objective with the lowest magnification.
4. Adjust the knobs to obtain a field of visibility.
5. Then focus step wise in the higher magnification.
6. Do not remove slides with the high power Objective into place. This will scratch the lens.
7. Clean the eye piece and objective.
8. Always wrap electric cords and cover the microscopes before returning them to the cabinet.

## **Maintenance and cleaning instructions:**

1. Microscopes should be stored with the low power Objective clicked into place.
2. Always carry microscopes by the arm and set the flat on your desk.
3. Always place the plastic cover over the microscopes when not in use to avoid accumulation of dust.
4. Clean all oculars and objectives with lens paper before and after each use.
5. Use immersion oil with oil immersion objective only.
6. After the use of immersion oil, lens must be immediately cleaned with Ethyl ether or Xylene.
7. Do not use alcohol, acetones or any other ketones for cleaning the lens as these can dissolve the sealants around the lens.

## *pH meter*

### **Operating instructions:**

1. Ensure that the plug for the pH meter is inserted into the socket. Turn on the switch.
2. Turn the power button on. Ensure the 'Mode' knob points to pH. Wipe clean the electrode gently with tissue paper.
3. Dip the electrode into standard buffer of pH 4.0. Set the pH to 4.0 by turning the knob marked 'Calibration'.
4. Wipe the electrode and dip into standard buffer of pH 9.0. Again set the pH to 9.0 by turning the knob marked 'Calibration'.
5. The device is now calibrated. For high sensitivity measurements, a third point calibration with standard buffer of pH 7.0 may be made.
6. Wipe the electrode again and dip into solution the pH of which is to be measured. Allow the reading to become steady. This is the pH of the solution.

### **Precautions:**

1. Handle the electrode very gently as it is extremely fragile.
2. Use a soft tissue to wipe the electrode.
3. Wipe the electrode before dipping into any new solution.
4. The electrode must not be allowed to dry at any point and should be kept in 3M KCl solution of pH 7.0.
5. When adjusting pH of a solution, care should be taken that acid/base being used to adjust it should not be poured directly onto electrode.

# *Spectrophotometer*

## **Operating Instructions:**

1. Turn on the main switch.
2. Turn on the switch of the instrument.
3. Set the required wavelength using the “Wavelength Knob”.
4. Set the filter to 1, 3 or 5 to set the “DARK”. To set “Dark”, set the transmittance to zero using “Set Zero” Knob without placing the cuvette in the cuvette holder.
5. Now change the filter according to the required wavelength.
6. Set up the “Instrument Blank” using distilled water. To set up the “Blank” set absorbance to zero using the calibration knob with distilled water in the cuvette.

Note: Transmittance must be 100 at this point.

7. Now, set up the “Reagent Blank”.
8. Take the reading of your samples.
9. When done, rinse the cuvette twice with distilled water, wipe with a tissue paper and keep it safely in the cuvette box.
10. Close the lid of the spectrophotometer, switch of the instrument button and finally switch off from the main switch.

## **Precautions:**

1. A warm up period of 15-20 minutes is essential.
2. Filter should be set in accordance to the wavelength chosen.
2. Do not touch the set zero knob after setting the dark.
3. Ensure the cuvette is only filled  $\frac{3}{4}$ <sup>th</sup> of the way.

4. Always hold the glass cuvette from its opaque sides.
5. Clean the outsides of the cuvette to ensure its dry before placing it in the instrument.
6. Ensure that the transparent sides of the cuvette lie in the path of the light when placed in the slot.
7. Avoid spilling any solution in the cuvette on or inside the instrument. Clean the slot in case of any spillage immediately.
8. Always zero the instrument with a blank.
9. The absorbance value should be noted after the reading has stabilized or after 30 seconds.
10. Appropriate cuvettes should be used. Glass or plastic cuvettes can be used for measurements from 380 to 780 nm and Quartz cuvette should be used for measurements below 380 nm i.e. UV range.
11. Polystyrene cuvettes should not be used or cleaned with chloroform, acetone, ether etc.
12. For cleaning the cuvettes with residues, dip hem in weak acid solution (nitric acid or chromic acid) for 10 minutes followed by rinsing them with water.
12. The instrument should be covered when not in use.



## ***Weighing Balance***

### **Operating instructions:**

1. Do not bump or place objects on the bench after zeroing the balance.
2. Close the balance door while weighing an object, in order to prevent air currents from disturbing the reading.
3. Never weigh chemicals directly in contact with the balance pan. Use containers such as beakers, flasks and weighing bottles.
4. Do not handle objects to be weighed with bare hands. Moisture, grease and dirt on fingers will affect the weight of the objects.
5. Let hot objects cool before massing. The object to be weighed should be at room temperature.
6. Mass hygroscopic materials rapidly since they will absorb water during massing.
7. When making repetitive massing, always use the same procedure.
8. There should be no spilling of any chemical inside the balance; transfer of chemicals should be done outside the balance.
9. Do not leave spilled chemicals on or around the balance. Clean it immediately after use.

### **Cleaning instructions:**

1. Use a small balance brush to gently sweep any residue from the balance.
2. Moisten a thin wipe with purified water and carefully clean the pan and around the scales. Wipe dry.
3. Remove the pan to facilitate more thorough cleaning.
4. If you've moved your scales and it has a leveling bubble, check that it's centered.

5. Do not press down on the balance pan as this can damage the internal mechanism.
6. Do not turn the scales upside down and shake it to help remove residue.
7. Do not use cleaning fluids that are harsh like ethanol as it will react with agar, salts and other common ingredients.
8. Do not leave salts on the scales. This can corrode the scales resulting in poorer performance.



**BALAJI AND PADMAVATHI HOSTEL**  
**SRI VENKATESWARA COLLEGE**

[www.svc.ac.in](http://www.svc.ac.in)

## **ADMISSION SCHEDULE 2019-2020**

**Sale and receipt of Application forms  
Friday - 28.06.2019**

**Last date of receipt of Application  
Tuesday- 23.07.2019**

**Notification of Admission List  
Saturday - 27.07.2019**

**Check College Hostel website [www.svc.ac.in](http://www.svc.ac.in) for selected candidates**

**Admission and Payment of Fee  
And Formal Interaction with Wardens  
Monday & Tuesday 29 & 30-07-2019**





## Principal's Message

Dear Applicant,

You have already been introduced to the vision that supports Sri Venkateswara College through the College prospectus. Having successfully waded through the initial throes of a general admission to the college, you are now evincing a desire to be part of the residential set-up. I thank you for your interest in the College Residences and welcome you to take a preliminary glimpse of the spirit that underlines this exceptional facility.

At SVC, we believe that 'education' is a wholesome, holistic exercise and as such we strive to give a whole new meaning to the word. Coupling this basic premise with the idea of a sense of belonging to one family- the SVC family- we look at ourselves as 'care-givers.' The home that we offer to you, within the premises of the college, is a major constituent of this effort at imparting a sensitive, well- balanced education.

At SVC then, we strive to give the comforts that will provide the matrix for a full-fledged immersion in the spirit of the college and an optimum ambience for the fulfilling pursuit of both the academic and the co-curricular. The residence, in being the hub of harmonious co-existence- multicultural, multiethnic and multireligious- is representative of the SVC character .In this effort then, we make our contribution to the nature of good human beings who have inculcated the qualities of respect for others and are thus well- equipped to meet the challenges of the world.

I wish you the best in gaining access to the singular advantage of being part of this set-up.

-Dr. (Mrs.) P. Hemalatha Reddy



# ABOUT THE HOSTEL

The Sri Venkateswara College Hostel, located within the college campus was set up in 2008. It consists of two blocks: The Sri Balaji Boys' Hostel and Sri Padmavati Girls' Hostel. The foundation stone for the buildings was laid on 2nd November 2004 by Late Dr. Y.S. Rajasekhara Reddy (Hon. Chief Minister of Andhra Pradesh), in the presence of Dr. T. Subbarami Reddy (M.P., Rajya Sabha), Chairman, T.T.D. Trust Board. The first batch of hostel residents graduated in the year 2009.

At the Venkateswara hostels, we strive to give the comforts of a home as well as the optimum ambience for fulfilling both academic and co-curricular pursuits of the residents. This home away from home is the hub of a harmonious co-existence of multicultural, multiethnic and multireligious students all representative of the SVC character. The Hostel provides accommodations for 144 students, 72 each for Boys and Girls.

This on-campus residential facility is offered to full-time undergraduate students. Only those students whose parents do not reside in or around the National Capital Region of Delhi (Gurgaon, Noida, Greater Noida, Ghaziabad, Faridabad etc.) are eligible for admission. Due to the limited availability of accommodations, admission to the hostel is granted based on academic merit. The allocation of hostel rooms is decided by the Hostel Committee. The Hostel Administrative functionaries, in co-operation with the Hostel Students Association, work towards the efficient and smooth function of the Hostel. They contribute to the maintenance of a harmonious community life. The home that we offer to you, within the premises of the College, is a major constituent of the College's effort at imparting a sensitive, well-balanced education.





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# Administration

- Principal
- Bursar
- Warden (Boys Hostel)
- Warden (Girls Hostel)
- Administrative Officer
- Junior Assistant cum Care Taker
- Junior Assistant cum Care Taker

Dr. (Ms.) P.Hemalatha Reddy

Dr. A.K Chaudhary

Dr. Mukti Kanta Sukla

Dr. Nandita Narayanasamy

Mr Virendra Kumar

Ms. N.Uma Devi

Mr. Vikas Mishra



Dr. Nandita Narayanasamy  
Warden (Girls Hostel)



Dr. Mukti Kanta Sukla  
Warden (Boys Hostel)



Junior Assistant cum Care Taker  
Mr. Vikas Mishra



Junior Assistant cum Care Taker  
Ms. N.Uma Devi

## Hostel Office:

The maintenance of accounts and routine activities are supervised by the Hostel Junior Assistants cum Care Taker Ms. N. Uma Devi and Mr. Vikas Mishra, who is available in the hostel office from 9.00 am to 5.00 pm on all working days.

## Hostel Committee for Academic Year 2019 - 20

The hostel is managed by a committee. The principal is the Chairperson of the Hostel committee and the detailed constitution of which is given below.

Dr. (Ms.) P.Hemalatha Reddy, Principal	Chairperson
Professor (Ms.) Swati Saha	Member G.B.
Dr. A. K Chaudhary, Bursar	Member
Dr. Mukti Kant Sukla, Warden, Boys Hostel	Member
Dr. Nandita Narayanasamy, Warden, Girls Hostel	Convenor
Dr. Neeraj Sahay, Staff Council representative	Member
Dr. Sunita Jain Staff Council representative	Member
President, Hostel Students Association (Boys)	Member
President, Hostel Students Association (Girls)	Member

The committee shall discuss and make recommendations on (a) admission to Hostel (b) discipline of resident students (c) maintenance and development of Hostel and (d) any other matter pertaining to the Hostel. Hostel committee has the right to amend /change /make new rules whenever required for the smooth functioning of the Hostel. Any member of teaching staff /hostel student's association may be requested to attend the meeting of the Hostel Committee as and when required as a special invitee.

For further enquiries and clarifications, the Wardens Dr Mukti Kanta Sukla (Boys' Hostel) and Dr. Nandita Narayanasamy (Girls' Hostel) may be contacted in the Hostel Office

Hostel Phone Number: 011-24112197.

Hostel Students Association:

The Hostel Students Association assists and participates in the efficient and smooth functioning of the Hostel. It contributes to the maintenance of harmonious community life. The office bearers are either directly elected or are appointed by the principal on merit basis in consultation with the wardens. The office bearers will hold office for one academic session. The minimum eligibility conditions for appointment of the office bearers are as follows:

1. President (Boys & Girls) (2) III year student having 6.00 CGPA aggregate in I & II year
2. Sports Secretary (Boys & Girls) (2) II year students having 6.00 CGPA aggregate in I year
3. Cultural Secretary (Boys & Girls) (2) II year students having 6.00 CGPA aggregate in I year
4. Common Room Secretary (Boys & Girls) (2) III year students having 6.00 CGPA aggregate in I & II year
5. Mess Secretary (Boys & Girls) (2) III year students having 6.00 CGPA aggregate in I & II year
6. Cleanliness Secretary (Boys & Girls) (2) II year students having 6.00 CGPA aggregate in I & II year

The principal and the wardens shall have the right to attend any meeting of the Hostel Students Association.



# Facilities

## Accommodation:

The Hostel provides accommodations for 144 students, 72 each for boys and girls. All the rooms are double seated and are furnished with ceiling fan, wardrobe, table, chair & bed for each student. In addition, each hostel has a visitor's room. Every floor is provided with 4 common washrooms and toilets. All bathrooms of the hostel are fitted with both electric Geysers and Solar water heating system.



## Mess & Dining Hall:

The Mess is managed by a contractual agency recommended and approved by the Hostel Committee. Two separate dining halls are provided for boys and girls. Meal timings are as follows:

Breakfast  
8.00 am to 9.00 am

Lunch  
1.00 pm to 2.00 pm

Dinner (Summer)  
8.00 pm to 9.00 pm

(Winter)  
7.30 pm to 8.30 pm

## Telephone:

A telephone facility is available round the clock in the hostel premises where local /STD calls can be received.



## Reading Room:

The hostel has two air-conditioned reading rooms (separate for boys & girls). Internet facilities are provided.



## Sports & Entertainment:

The hostel has two common rooms (separate for boys & girls) where facilities for indoor games like carrom board and chess, along with television viewing, are provided. The hostel is close to the college playground which has a basketball court, a football field and practice cricket pitches. Besides, each hostel has a table tennis room. Also a few gym equipment have been installed both Girls and Boys Hostel for residents use.

## Medical:

Whenever needed residents may utilize the medical services provided at the W. U. S. Health Centre, located in South Campus, University of Delhi. Each resident is required to fill up the W.U.S.Health Centre form and pay a membership fee. The College Nurse is available from 9.00 am to 4.00 pm on all working days.

In case of a medical emergency, a student is taken to the nearest hospital and the local guardian is duly informed. The local guardian is required to take charge thereafter and the entire responsibility for treatment and expenses will be borne by the parents / local guardian and the college will not be responsible in any way for the further course of treatment. A student is requested to provide at the time of admission information about any specific medical problems he / she is known to suffer from.

## Banking:

Andhra Bank (South Campus Branch) is located in the college campus where resident students are advised to open their accounts.





# DISCIPLINE AND SECURITY



- Security guards are on duty 24x7 in both the Girls and Boys Hostel.
- CCTV cameras are installed at both the gates and outside the Warden's Office in both hostels.
- Lockers provided for residents to keep their valuables safe.
- Residents are allowed 4 late-nights and 4 night-outs in a month.
- Residents are required to record their exit from and entry into the hostel in the registers.
- Separate registers for Daily Entry, Late Nights and Night-Outs are maintained by the Hostel authorities.

## Special Rule for Night out and Late Night:

1. Late Night: Official SMS from Local Guardian and Parent which is registered here.
2. If you do not have relative or friend in Delhi then a teacher from the concerned department will become the local guardian if they agree.
3. Association students need to get permission from the concerned Convenor to avail both late night and night out.
4. The gates of hostel will close by 10:30 for Late Night. Beyond that it is the responsibility of the local guardian to take the student.
5. Night attendance will be Biometric and entry after night out and late night will be a biometric entry.
6. If a late night is taken without information then the late night for that month is cancelled.

## Housekeeping





# Admission

## Criteria:

1. Only those students who have secured admission into regular UG courses in Sri Venkateswara College, New Delhi, are eligible for Hostel accommodation. The allotment of hostel will be based on the marks obtained in the last qualifying examination i.e., merit, and admission interview.
2. Only those students whose parents do not reside in or around the National Capital Region of Delhi (Gurgaon, Noida, Greater Noida, Ghaziabad, Faridabad etc.). Proof of residence in the form of attested photocopy of Ration Card or such other document which provides proof of their residence is to be submitted along with application.

Admission to the hostel can not be claimed as a matter of right. The total no. of seats available for students who are going to be admitted for 2019-20 academic year, are 24 in Boys Hostel and 24 in Girls Hostel. (The allotment of seats is on merit following the Statutory Quota Norms and other criteria laid by the College. The College reserves the right of allotment / cancellation of any seat at any time without assigning any reasons there off.)

## Re-Admission:

1. All the previous year residents who are promoted to the next class are required to apply afresh for admission. They are required to fill up the prescribed application form for re-admission to the hostel, providing appropriate information. The minimum eligibility criterion for readmission is as follow:
  - a). Students in Humanities Stream should get a minimum of 6.00 CGPA and above
  - b). Students in Commerce Stream should get a minimum of 6.50 CGPA and above
  - c). Students in Science Stream should get a minimum of 6.50 CGPA and above
  - d). Residents who fail to have the required attendance of 70 % in class in the previous academic session will not be eligible to get readmission in the hostel.
2. However, re-admission cannot be claimed as a matter of right and may be denied as a matter of rule:
  - a). If the student has failed, dropped out or has been disallowed from appearing in the University Annual Examination of the University because of lack of required attendance, or has scored less than the above mentioned percentage in the exams.
  - b). If a student has violated hostel rules or has been held guilty of breach of Hostel discipline or has committed an act of misconduct i.e. acts of vandalism, deliberate mischief, gross misdemeanor, frequent violation of late night, night out rules or non - payment of hostel dues and any fine has been imposed on him / her by Proctorial Committee / Warden / Principal. Under no circumstances will admission be given for more than three years for undergraduate students.

fees

# Hostel Fees

## A: Annual fee:

1.	Admission Fee	Rs.	200.00
2.	Furniture Fee	Rs.	700.00
3.	Medical & Counseling Fee/wus	Rs.	1000.00
4.	Garden fee	Rs.	100.00
5.	Development / Welfare Fee	Rs.	2000.00
6.	Hostel Sports and Cultural Fee	Rs.	1000:00
6.	Caution Money (refundable /adjustable)	Rs.	500.00
7.	Mess Security (refundable / adjustable)	Rs.	5000.00

<b>Total 1</b>	<b>Rs.</b>	<b>10,500.00</b>
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## B: Monthly Charges:

1.	Room Rent	Rs.	400.00
2.	Housekeeping and sanitation charges	Rs.	1350.00
3.	Maintenance Charges	Rs.	250.00
4.	Campus Security Charges	Rs.	1250.00
5.	Establishment Charges	Rs.	500.00
6.	Electricity Charges	Rs.	650.00
7.	Water Charges	Rs.	200.00
8.	Common Room & Facilities Fee	Rs.	300.00
9.	Mess Charges	Rs.	3050.00/as per actual

<b>Total II</b>	<b>Rs.</b>	<b>7950.00</b>
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One-time payment of annual fee and 1st quarter charges (July to September): Rs.10, 500 + (Rs. 7950 X 3)

Total amount payable at the time of admission to the hostel (for Undergraduate Courses) Rs.34, 350:00 for 3 months

Quarterly fee (July to May) to be collected in advance in 4 quarters 1st quarter 2nd and 3rd quarters for 3 months and 4th quarters for 2 months.

### Note:

1. By the end of every third month the resident has to pay another 3 months of mess advance at the same rate along with the excess on actual Mess charges of the previous 3 months, otherwise the mess facilities of the residents will be withdrawn.
2. Fee subject to change on the decision of College Governing Body
3. Hostel Security amount will be refundable only after the room has been vacated. Hostel Mess Security and Caution money are refundable through cheque only. Application has to be made on a prescribed form along with the photocopy of the room vacation slip and submitted to the hostel office. Security Money has to be claimed within one year after leaving the hostel, beyond which the same lapses to the Hostel Account.
4. In case of withdrawal, annual charges will not be refunded. However, monthly room charges will be realized only up to the month in which withdrawal is sought. It is calculated from the date of the written application's submission to the Warden for the withdrawal of admission.
5. Hostel charges are subject to revision from time to time.
6. In case a student after being admitted wants to get his /her admission cancelled, he/she will be entitled to refund of fees as per hostel / college rules.

## Fees for Foreign Students:

The foreign students admitted in the Hostel are required to pay one time registration fee of US \$200 or equivalent amount in rupees (Non - refundable) in addition to the usual Hostel fee at the time of initial admission. The SAARC country students may pay registration fee in Indian currency equivalent of US \$ 200, in case they are unable to pay in US dollars, for which prior permission of the Warden is needed.

## Scheduled of payment:

All hostel fees are to be paid quarterly and mess charges are to be paid monthly in advance. All fees should be paid by the 10th of each month except at the time of admission. The late fee fine structure is as follows.

- Late fee will be charged at the rate of Rs.25/- per day in addition to the usual charges for each day of default during the first 30 days after the due date, and at the rate of Rs. 50 /- per day afterwards .If the bill remains unpaid till the last day of the month the meals of the resident may be stopped and eviction proceeding initiated. A resident may however be re-admitted with the permission of the Warden, on payment of a readmission fee of Rs.100/- in addition to the requisite fine.
- A resident who fails to pay his quarterly hostel dues for more than one month may be asked to vacate the hostel accommodation with immediate effect.
- The residents going on long leave are also required to pay the fees within the stipulated period of time either in advance or by post in case of extension of stay.
- The Hostel will remain close from June to 15th July, every year. If a resident leaves the hostel without paying his full hostel and mess charges, hostel authorities could adjust his hostel dues against the Caution Money amount. Further, if the total outstanding dues exceed the caution money amount, in that case hostel administration / college would write to the examination branch to withhold his result.
- As the financial year of the hostel closes on March 31, all the hostel charges including that for the month of March must be cleared by March 10.

Residents are expected to open their Bank Accounts as and when their names are short listed before taking admission in the hostel. All hostel fees and mess charges are to be deposited in Andhra Bank, Sri Venkateswara College Branch, and New Delhi.



# Festivals @ svc Hostel









# Sports @ SVC Hostel

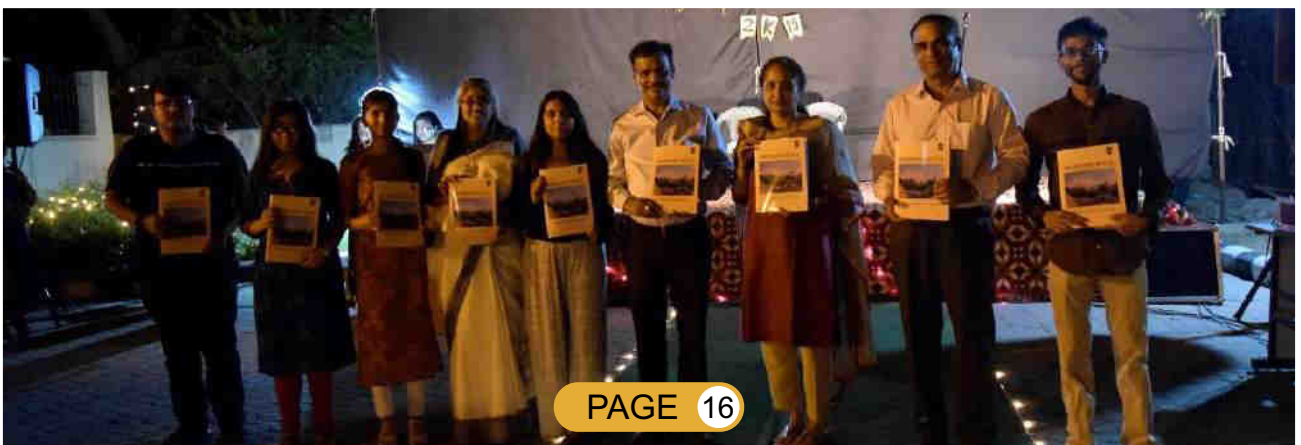








# Hostel-Fun Times





# 10 Years of Togetherness... Alumni Meet





# Hostel Trip To Manali and Kasol (2015 and 2016)





# Hostel Trip To Dharamshala (2017) Lonavla (2018)



# Alumni Speak...

“



“Ye safar tha suhana  
Ise sametne ko jee chahta h  
Firse jeene ko jee chahta h  
Woh Warden ka darr  
Late nights aur nightouts k pange  
Jo hamei hi padh jate the mehenge  
Cultural committee ka meeting k liye chillana  
Fir bhi hamara usme aur late Jana  
Aunty ka gudia gudia pukarna  
Mess menu k discussion pr ma'am ka 90 RS Wala funda  
Jo hamei aaj tk samajh na aaaya  
Subah 8:50 uthna taki brkfast miss na ho jaye  
Extra gulab jamun mangna aur  
Dosa k liye lambi line Mei Igna dosto k sath masti aur raat ko  
Shor hone pr guard aunty ki daant  
Woh padmavati ki raatei aur sabki choti-choti baatein  
Yaad aayenge hostel k festivals aur  
Ye choti si family.....!!!  
Kaash hum rok skte in lamho ko Pr  
Beet jayenge ye pal bhi Aur  
Reh jayengi toh bas kuch sunheri yaadeinnnnn!”

-Palak Bansal

“Gathering in one room for discussions and celebrations, countless sleepless nights, special way of celebrating birthdays and festivals, banging the doors in search of some food, converting late nights into night outs and opening accounts in night canteen during the exams are some experiences that you can only wish to have again.”

-Manish Jain



“I will miss not only the friends I made, but also the people working behind the scenes. Panditji in our first year who was so sweet to us and treated us like his own daughters; Bharti aunty who scolds us when we miss breakfast in the mornings or do not let her clean our room ('cause we are always late for college, duh); and all the others who make The Hostel 'a home away from home.'”

-Neha Agrawal



”



“

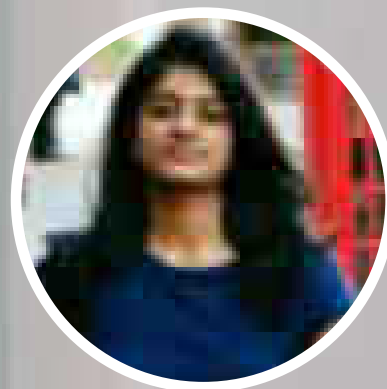


“Before joining this hostel, 'HOSTEL' was like a nightmare for me because the things which I heard about hostel was ragging, like a jail, spoiled mess food and so many things. But after joining and staying for 3 years in the hostel my perception has totally changed towards hostel. In short hostel is like a mini life for me because you meet new guys here and some of them become your best friends for your life. Hostel teaches us to adjust, have fun with discipline and the most important thing how to enjoy life. Your pain becomes your power when 72 persons are with you. In 3 years of my hostel life I have learnt so many things from seniors, batch mates and juniors too. For outsiders hostel is a jail and for insiders it's a different world. At last I finish with two lines: PEOPLE COME, PEOPLE GO, BUT HOSTEL STAYS FOREVER.”

-Shalabhdeep Goel

“Writing this testimonial takes me back to the day when I was too excited to experience Hostel life for the first time. Three years passed within a wink of an eye - hanging out with friends, taking part in hostel events, roaming joblessly in Satya, bunking classes, being harassed by juniors. The residents, teachers, workers even the building itself taught me a lot. A special mention of Warden ma'am who has been ever inspirational and contributed a lot in shaping me. All that I will take home from this hostel is a bag full of unforgettable memories worth remembering. Miss you all”

- Hamsa



One starts a journey for two reasons; either you wish to reach a destination or you want to enjoy the path with someone. Mine was the latter choice, I came here for the path and not for the destination. I wanted to smell the sense of freedom and live the way I dreamt of living. But then things changed,

I was to tread on the path alone. Completely broken, I couldn't find a place in this ocean of destinations. Eventually I took a hold of my life, changed my paths and realized that loneliness cannot and should not take my strength away. I always had people around me but only now did I start appreciating their meaning in my life. I feel blessed to be around the best people, to shake hands and share hugs with. I understood that people can be different from you and being different is just an aspect of life. I tried to become a part of this family to the fullest, took responsibilities, shared smiles, heard scolding's, felt stories, wept tears, all of which just made me more alive

I always wished for one thing in my life that whenever I leave a place my essence should stay behind and

I just hope that there will be at least one corner in this place that would make my presence felt.

Pranay Dasyam



”



**Sri Venkateswara College Hostel  
(University of Delhi)**

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**Ph: Hostel: 011 – 24112197**

**College: 011 – 24112196, 24118590, Tele / Fax: 24118535**

**Website: [www.svc.ac.in](http://www.svc.ac.in)**

**Email-id [hostelwarden@svc.ac.in](mailto:hostelwarden@svc.ac.in)**