

SHAMBHUNATH INSTITUTE OF PHARMACY

Ist Sessional Examination 2019-2020

D. Pharm. 2nd Year

Subject- HOSPITAL AND CLINICAL PHARMACY

Time: - 1.30 hrs.

Max. Marks: -20

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1. Attempt any five questions:

(5X4=20)

- i. Define hospital pharmacy. Explain the various functions and objectives of hospital pharmaceutical services.

Ans:-

* Hospital Pharmacy *

* Hospital pharmacy is one of the most important department in a hospital.

* Hospital pharmacy may be defined as the dept. which deals with storage, compounding, manufacturing, testing, packing & distribution of drugs.

* A hospital pharmacy is controlled by a qualified pharmacist.

Function :-> Pharmacy is recognized as an essential hospital services in all the major hospitals. It is managed by professionally qualified pharmacist.

The duties are purchasing, storing, handling & dispensing of medications drugs.

Pharmacist act as a link b/w the physician & public.

A pharmacist is required to perform various functions in hospital pharmacy are -

- * Proper storing of drugs
- * Manufacturing & distribution of drugs such as tablets, capsules, ointments & parenteral products
- * Dispensing of drugs as per the prescription of the medical staff.
- * Dispensing & sterilizing parenteral preparations
- * filling & labeling of all drug containers from which medicines & to be administered.
- * Management of stores in proper storage condⁿ & maintenance of records.
- * Establishment & maintenance of drug information center.

* Objectives of Hospital Pharmaceutical Services *

A practise of hospital pharmacy started in India in 1991 but become a respectable discipline only in 1960. The objectives of Hospitals Pharmacies are -

To ensure the availability of right medication at right time, in the right dose at the minimum possible cost.

- * To the functioning of pharmaceutical services in the hospital.
 - * To act as a counselling department for medical staff, nurses & for the patient.
 - * To act as a data bank on drug utilization.
 - * To participate in research project to plan, organise & implement pharmacy policy procedures in keeping with the established policies of the hospital.
 - * To integrate decision of the pharmacy & therapeutic committee.
 - * To co-ordinate & cooperate with other departments of a hospital.
- A pharmacist is required to perform various functions in hospital pharmacy is described below-
- * Providing specification for the purchase of drugs, chemicals, biological etc.
 - * Establishment & maintenance of drug information center which will provide information medication to the physician, nurses or any other competent persons to deal in drugs.
 - * Patient counselling service while supplying drugs specially from out patient dept.
 - * Discarding the expire drugs & containers which worn & missing the labels.
 - * Providing cooperation in teaching & research programmes of the hospital.
 - * Providing drug monitoring by studying various effects of drugs administered to the patient specially the In-door patient from patient.

ii. Explain the management and health delivery system in India.

* Management of Hospital *

- Planning
- Organisation
- Staffing
- Controlling

- * Management is a process of planning, organising, staffing & controlling.
- * Management principles are always same whether it is a school, club or hospital or institutions.
- * Hospital is a very complex organisation, it needs application of management concepts & techniques.
- * It should be given on material management, financial management, marketing management & Computer application.

* Material Management *

- * To develop a system of supply there will be an adequate stock of items required. But at the same time it should not be too much quantity to avoid wastage.

- * It should be stored in a manner that an item can be easily distributed according to the use of hospital.

Procedure of Material management →

- * To determine the categories of staff required estimate the quality & quantity of each item.
- * To procure the items of good quality from various sources at economical prices.
- * Received items are stored properly so as to prevent wastage during storage.
- * To develop a good control on the stock.
- * To develop a proper distribution system.

Store Management →

- * It is the function of receiving, storing & issuing of materials.
- * Hospital materials required Huge investment.
- * It is therefore necessary to ensure accuracy, preservation, unsafety of materials.
- * Purchase management or right quality, right qty., right price & right delivery.

functions →

- * Receipt of stores.
- * To receive, check, all the supplies.
- * Storage → To store all the materials properly to avoid damage.
- * Issue of material → To issue materials a/c to the requirement.
- * Documentation → To maintain the records of materials received, stored & issued.

* Health Care delivery System in India *

- * India is a union of 29 state & 3 union territory state are largely independent in matters related to the delivery of health care to the people.
- * Which states has developed its own system of health care delivery, independent of the central govt.
- * The central govt. responsibility consist mainly of policy making, planning, guiding, assessing, evaluating & co-ordinating work to the health state ministry.
- * The Health system in India has main links -
 - (a) Central
 - (b) State
 - (c) local or Periferal

- * At the Central → The official organ of the health system at the national level consist of -
 - (i) Ministry of Health & family welfare.
 - (ii) The directorate general of health services.
 - (iii) The central council of health & family welfare.

Function of Central →

- * Union list →
 - (i) International health relation & administration part valentine.
 - (ii) Regulation of labour in the working of mine & oils fields.
 - (iii) Regulation & development of medical, P'cutical, dental nursing profession.

- (*) Concurrent list →
They are responsibility of both, the Union & state govt.
- (i) Prevention & extension of communicable diseases.
 - (ii) labour welfare.
 - (iii) economic & social planning.
 - (iv) Population control & family planning.
- (b) At the State level →
- The health subject are divided into 3 grps.
- (i) federal grp.
 - (ii) Concurrent.
 - (iii) state.
- * Function →
- (i) Providing curative & Preventing services.
 - (ii) Prevention of any outbreak of any communicable diseases.
 - (iii) Promotion of health diseases.
 - (iv) Stablishing, training courses for health profession.
- (c) At the local or periferal level →
It is basically included the local area-
functions
- (i) Street lighting
 - (ii) Water supply.
 - (iii) Registration of birth & death.
 - (iv) Sanitation of drainage.
 - (v) family planning.
 - (vi) Health education.

iii. What is Drug Distribution System? Explain the Out-patient service.

Ans:-

- 2- pharmacy Controlled Inpatient based system:-
In such system, a defined range of drugs are available at in each and is managed by pharmacy staff.
- 3- pharmacy controlled system:-
The system that are based on direct patient labour. In this system, the drugs are taken to the patient rather than the ward. can be classed as using the unit dose system.
- Out patient services:- The drug distribution to the inpatient depart can be carried out from the out patient dispensing area. The staff handling the distribution of drugs to our patient can carry out that the distribution of drugs in inpatient department.
- In patient department can be located on the ground floor or first floor of the building but the should be near the outpatient department and centrally located so that the staff can easily reach there. The inpatient dispensing should be carried out by a pharmacist helped by skilled and qualified staff.
- In patient pharmacy is a multifunction department for storage, dispensing, manufacture

- Siting of IV fluid and ... is a great deal
 * In patient department is considered by the
 pharmacy since it is considered by the
 frequent stocks to the pharmacy to
 obtained drugs and supplied it to
 appropriate dispensary that hospital pharma-
 ceutical must assured that responsibility
 for medication from the time of their
 selection to the time of their administration
 drug distribution depends
 There are four (4) system for inpatient
 a) complete staff
 b) combination of one and two
 c) unit dose dispensing methods.

→ Individual prescription order system
 This system is generally used in small
 and hospital type of its economic consideration
 and service and main purpose requirements.

Advantages

- * All the medication orders are directly
 reviewed by the pharmacist, so that there
 is less chance of medication errors.
- * It provide closer among pharmacist
 physician nurse and life patient to the
 drugs

- i) Emergency
- ii) Referred out-patient.
- iii) Primary care (Ambulatory).

Samsung Triple camera

Emergency - A person given emergency
 or accident case for conditions which
 required immediate medical attention.

Referred out-patient - He is referred down
 by attending medical/dental practitioner for spec-
 ific treatment, other than an emergency
 treatment.

Primary care - Primary care is majority
 care. It describes a range of services
 adequate for meeting the great majority of
 daily personal health needs.
 * This majority includes the need for prevention,
 health maintenance and for evaluation and
 management of various symptoms, problems
 and chronic aspects of diseases.

Ambulatory patient - An ambulatory patient
 is able to walk and since out-patient
 receive primary health care and walk off,
 they are usually called Ambulatory patients.
 Most entire majority of the out-patient are
 Ambulatory.

Location of out-patient Dispensing

There is no set rule regarding the location
 of out-patient dispensing area. preferably
 it should be located on the ground floor

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of the building and near to the entrance of the building for easy access by the patients.

- * It should be close to the central registration and out-patient departments so that the patients do not find any difficulty in its location.
- * The out-patient dispensing area should be provided with proper seating and arrangement so that if long time is needed for filling the prescriptions, the patient can wait till the prescription is filled.

Receipt System:-
Drug in a hospital pharmacy may be obtained from one or more than one source as described below :-

- * Direct from the manufacturers.
- * Direct from the wholesalers.
- * By visiting the vendors.
- * From local retail pharmacy.
- * Through agents.
- * Through a hospital purchase centre or corporation.
- * From local manufacturing units of the hospital.

Issue System:-
No medication should be issued without the prescription written by a competent medical officer. After the issue has been made the

as well as out-patient clinics. It increases the efficiency of pharmacy department. Tablets and capsules are pre-packaged in small containers 12's, 24's, 48's, 100's etc.

Factors Determining Pack Size:-

There are no hard and fast rules for determining the pack size of a product. It depends on the local situation and the demand of a particular product.

- * Factors which determine the pack size are as follows:-
- > Demand for the product i.e. whether the product is required daily, occasionally. eg- Analgesic, Antacids, Antimalarials, Laxatives and blotics and toxoids are required throughout the year whereas Antimalarials are required occasionally.
- > How many units are to be packed and total no. of packages to be prepared.
- > What types of containers to be used so as to maintain therapeutic properties of the preparations?
- > Whether the product is packed by hand or machine.
- > Whether it requires special labelling conditions.
- > What are the conditions required for the

quantities supplied must be recorded in the issue register.

- * A proper account must be maintained regarding the quantity received and the quantity issued.
- * The difference plus the balance quantity in hand which should be physically verified for the proper maintenance of register and stores.

Cost recovery & Service charges:-

The price to be charged for filling the prescriptions should be reasonable fair to the patient as well as to the pharmacist.

- * The price should include the cost of ingredients, containers, time required and reasonable margin of profit.

Pre-packing of Drugs in Hospital pharmacy:-

- * In hospital pharmacy the concept of pre-packing is utilized in both the large & the small hospitals to fulfil the demand for pharmaceutical service.
- * In the small hospital pharmacist may pre-package only those items which he consider will require more time if filled when called for at the time of dispensing.
- * In large hospital it is economical to pre-package all issued stock items as well as the ordered prescribed tablet, capsules, syrup, ointment and creams used by both in-patients.

iv. Location and Layout flow chart of materials and men.

Ans:-

* Location & Layout *

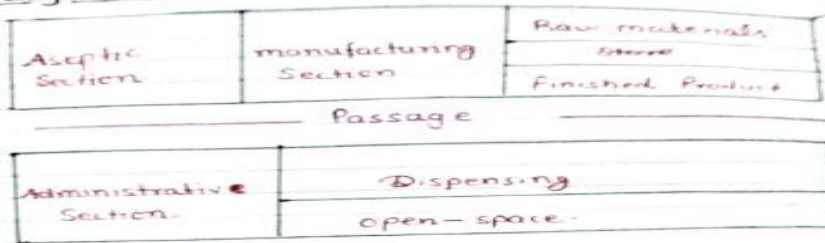
The pharmacy should be located in the hospital premises so that patient & staff can easily approach it.

In multistore building of a hospital, the pharmacy should be located on a ground floor, specially the dispensing unit.

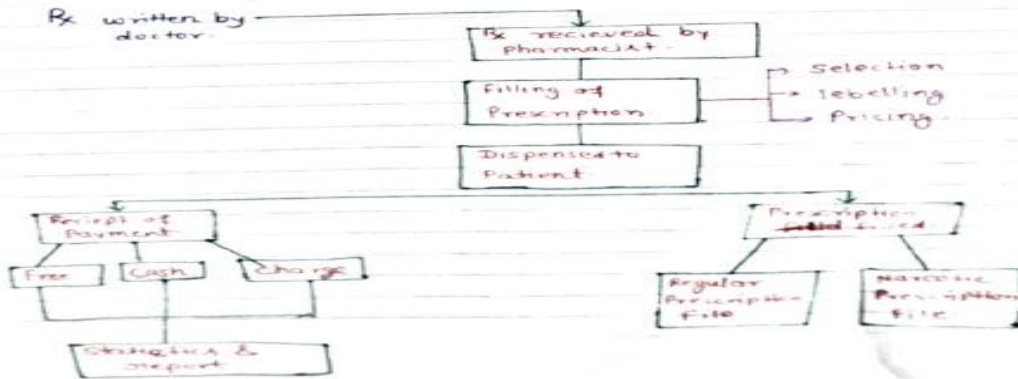
- * Out patient pharmacy should give it appearance & must have enough space for sitting of patient, to have to wait for medicines.
- * OPD waiting room should give a professional look.
- * It should have educating posters on health & Hygiene & light literature for reading.
- * Pharmacy space must be provided for routine, manufacturing of stock sol, bulk powder, ointment etc.
- * Pharmacy receives material from two sources—
 - (i) Medical Stores.
 - (ii) Manufacturing division of the hospital.

Medical store & manufacturing unit issue against requisition from various dept. Pharmacy dept. exist at quality control of materials.

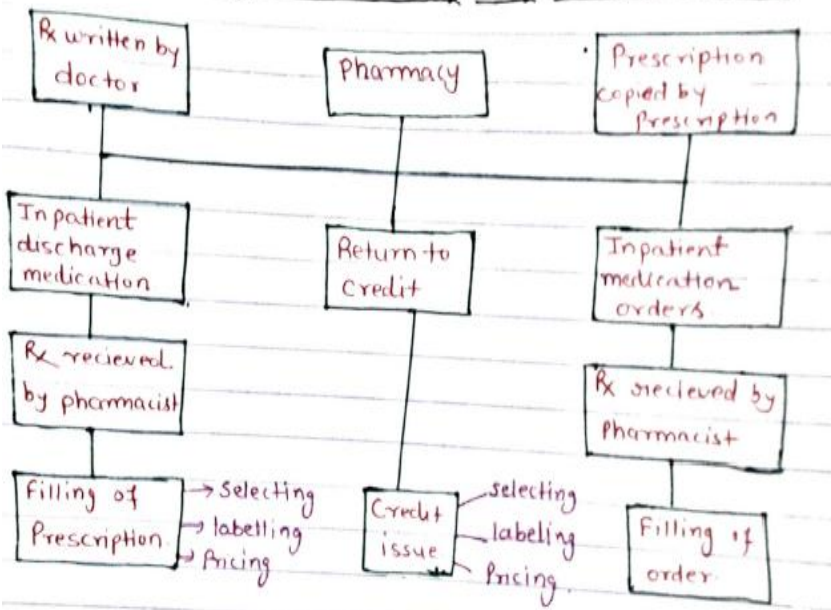
*** Lay out ***



**Flow chart for material & men :-
General flow chart for out-patients :-**



*** General flow chart for In-patient ***



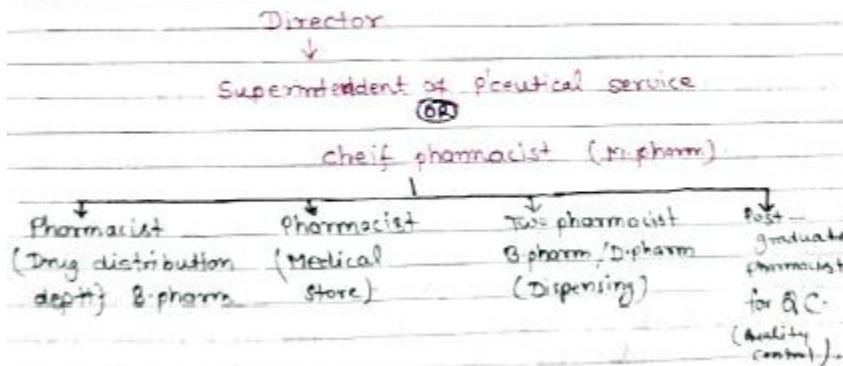
- v. Explain the basic needs, requirements and abilities for Hospital pharmacist.
Ans:-

* Requirements & Abilities *

- * Hospital pharmacy is an important dept of any hospital. It should have competent persons well-trained in the profession of pharmacy.
- * Hospitals mainly depend upon the service of diploma holders in pharmacy.
- The head of Hospital pharmacy deptt. should be a post-graduate in pharmacy in pharmaceuticals or hospital pharmacy.

Responsibilities of Hospital pharmacist →

- * Hathi committee have recommended that IV fluid manufacturing should be done under the supervision of M.pharm assisted by B.pharm & D.pharm holders.



* Technical ability →

- * He should have thorough knowledge of basic science pharmacology, toxicology, route of administration, stability etc.
- * A hospital pharmacist must provide information regarding proper handling of drug.
- * Ability to developed a manufacturing Section →
 - Mfg. with in a ^{Hospital} required control over supply, quality, equipment, raw material cost.
 - * Hospital pharmacist ^{has} to organise mfg. function by doing proper cost benefit analysis.

* Administrative ability →

- * Hospital pharmacist should be able to plan, organise & control various function of hospital pharmacy.
- * He should prepare work schedule for his staff.
- * He should framed various policy & procedure to get the work done.
- * He should interact with staff daily.
- * Hospital pharmacist must maintain the legal & administrative records properly.
- * Chief pharmacist is usually responsible for interviewing, selecting & evaluating the staff members for work in pharmacy.

(iv) Ability to control inventory →

- * Chief pharmacist has to exercise his duties on inventories of drugs which are lying at nursing station, supplied rooms & clinicals unit etc.
- * He has to communicate with supplier of drugs
- * He must check the quality of drugs & other supplies.

Ability to control & participate in research →

- * The pharmacist is required to maintain information about pharmaceutical journal
- * He must advise about new methods of preservation, preparation & to ^{improve} include test & efficacy of the prepⁿ.

* Ability to conduct teaching programmes →

- * The pharmacy staff can act as trainers for the pharmacy nursing staff.
- * He must prepare suitable teaching material for the nursing staff covering various aspects like - storage of drugs, proper use of drugs, dosage forms, conversion & percentage calculation of dosage
- * Chief pharmacist is also responsible for the practical training of pharmacy student

vi. Explain the Personal and facilities requirements for Hospital pharmacist.

* Personal & facilities Requirement *

Based on Individual ⇒

Facilitating ⇒ There are great variation in the size of floor space devoted to the pharmacy in hospitals of the same size & type.

* In smaller hospitals, with one pharmacist only, one room is usually required for the pharmacy, having a combination of dispensing, manufacturing, administering & all other section of a complete pharmaceutical service.

* When sterile product are to be prepared there should be a separate room or area for such work.

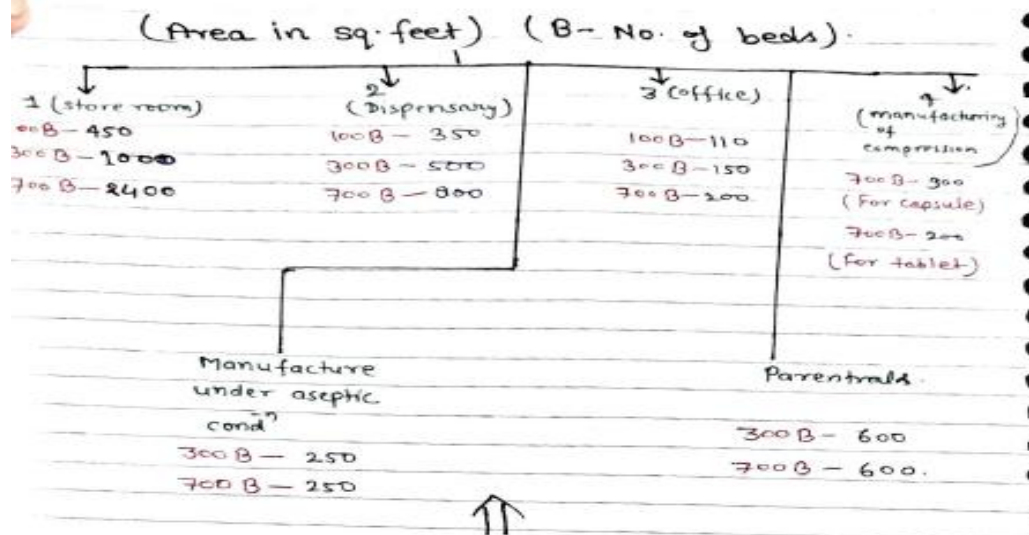
- * Narcotic safe with immediately tickler drawer
 - * Self space for pharmacy library
 - * Dispensing window for nurses & outpatient
 - * The parenterals are prepared in a separate room in large hospitals
- Depending upon the type of manufacturing undertaken in a hospital, with equipment such as ointments mills, mixing machines, fibres, powders mixtures, granulator, tablet compressing machine & filterpresses may be considered for installation in the hospital.
- Personal ⇒ The organised hospital pharmacy dept. has an integrated setup consisting of dispensing section, manufacturing section, quality control section & clinical pharmacy.
- * There are no standard rules regarding the requirement of personal dept. for Inpatient in patient pharmacy dept. &
 - * It is the nature & quantum of services to be provided that the govern of personal requirement.
- * The no. of pharmacist required for a hospitals are calculated on the basis of workload, like the no. of prescription received & dispensed, no. of bed available
 - * For a very small hospital min^m of 3-pharmacist are required.
 - * As the no. of beds increases, the no. of pharmacist also increases.

- * The pharmacist should possess adequate pharmacy qualification & experience
- * The following the suggested staff pattern of pharmacist.

Pharmacist Requirement →

Bed strength	No. of Pharmacist Required
Upto 50 Beds	3
Upto 100 Beds	5
Upto 200 Beds	8
Upto 300 Beds	10
Upto 500 Beds	15

- * If the pharmacy is also involved in the mfg of drugs & an adequate no. of pharmacy technicians, ~~its~~ residents, peers. it may be required.
- * Both measurable & non-measurable work load should be taken into the consideration for the determining the personnel requirement of the pharmacy requirement.



∴ Requirement on the bed strength. :-

Equipment ⇒ The usual equipments are -

- * Prescription case.
- * Sectional drawer cabinets with cupboard bases
- * Cabinet to store mortar & pestle
- * Refrigerator of suitable capacity.
- * Work tables & Counter for routine dispensing.
- * Cabinet for glass utensils - flask, beaker, & funnel.

- * Hospital will provide the opportunity for departmentalization of the pharmacy activity.
- * There should be a separate area for Inpatient service & unit dose dispensing, outpatient service & office for the chief pharmacist, a compounding, labelling room, store room, sterile product, a I.V. mixture room.
- * A separate area for drug information service & space assigned on various nursing unit, for unit dose, drug administration & clinical pharmacy service.

Floor space requirement ⇒

- * The pharmacy requires a min^m of 250 sq. feet for any sized hospital.
- * From that point onward, basic requirements for 10 sq. feet per bed in 100 bedded hospital, 6 sq. feet per bed in 200 bedded hospital, & on average of at least 5 sq. feet per bed in larger hospitals.
- * The floors of the pharmacy should be smooth, easily washable & acid resistant.
- * In manufacturing section, drains should be provided, walls should be smooth & painted in light colour.
- * Fluorescent lamps are placed immediately above the prescription counter.
- * Gas outlet are required on the work place table.

