

DIPLOMA IN PHARMACY (PART –I)

PHARMACEUTICS-I

Theory (75 hours)

1. Introduction of different dosage forms. Their classification with examples-their relative applications. Familiarisation with new drug delivery systems.
2. Introduction to Pharmacopoeias with special reference to the Indian Pharmacopoeia.
3. Metrology-Systems of weights and measures. Calculations including conversion from one to another system. Percentage calculations and adjustments of products. Use of alligation method in calculations, Isotonic solutions.
4. Packing of Pharmaceuticals–Desirable features of container-types of containers. Study of glass and plastics as materials for containers and rubber as material for closures-their merits and demerits. Introduction to aerosol packaging.
5. Size reduction Objectives and factors affecting size reduction, methods of size reduction- Study of Hammer mill, Ball mill, Fluid Energy Mill and Disintegrator.
6. Size separation-Size separation by sifting. Official Standard for powders. Sedimentation methods of size separation. Construction and working of cyclone separator.
7. Mixing and Homogenisation-Liquid mixing and powder mixing, Mixing of semisolids, Study of Silverson Mixer-Homogeniser, Planetary Mixer; Agitated powder mixer; Triple Roller Mill; Propeller Mixer, Colloid Mill and Hand Homogeniser. Double cone mixer.
8. Clarification and Filtration -Theory of filtration, Filter media; Filter aids and selection of filters. Study of the following filtration equipments-Filter Press, Sintered Filters, Filter Candles, and Metafilter.
9. Extraction and Galenicals-(a) Study of percolation and maceration and their modification, continuous hot extraction-Applications in the preparation of tinctures and extracts. (b) Introduction to Ayurvedic dosage forms.
10. Heat processes Evaporation-Definition Factors affecting evaporation-Study of evaporating still and evaporating Pan.

11. Distillation–Simple distillation and Fractional distillation; Steam distillation and vacuum distillation. Study of vacuum still, preparation of Purified Water I.P. and water for injection I.P. Construction and working of the still used for the same.
12. Introduction to drying processes-Study of Tray Dryers: Fluidized Bed Dryer, Vacuum Dryer and Freeze Dryer.
13. Sterilization-Concept of sterilization and its differences from disinfection- Thermal resistance of micro-organisms. Detailed study of the following sterilization process.
 - (i) Sterilization with moist heat,
 - (ii) Dry heat sterilization
 - (iii) Sterilization by radiation
 - (iv) Sterilization by filtration and
 - (v) Gaseous sterilization.Aseptic techniques-Application of sterilization processes in hospitals particularly with reference to surgical dressings and intravenous fluids. Precautions for safe and effective handling of sterilization equipment.
14. Processing of Tablets-Definition; Different types of compressed tablets and their properties. Processes involved in the production of tablets; Tablets excipients; Defects in tablets. Evaluation of Tablets; Physical Standards including Disintegration and Dissolution. Tablet coating-sugar coating; film coating, enteric coating and microencapsulation (Tablet coating may be dealt in an elementary manner.
15. Processing of Capsules-Hard and soft gelatin capsules; different sizes capsules; filling of capsules; handling and storage of capsules, Special applications of capsules.
16. Study of immunological products like sera vaccines, toxoids & their preparations.

PRACTICAL (100 hours)

Preparation (minimum number stated against each) of the following categories illustrating different techniques involved.

1. Aromatic waters	3
2. Solutions	4
3. Spirits	2
4. Tinctures	4
5. Extracts	2
6. Creams	2
7. Cosmetic preparations	3
8. Capsules	2
9. Tablets	2
10. Preparations involving sterilization	2
11. Ophthalmic preparations	2
12. Preparations involving aseptic techniques	2

Books Recommended: (Latest editions)

1. Remington's Pharmaceutical Sciences.
2. The Extra Pharmacopoeia -Martindale.