

**VII- T- 1      PHARMACEUTICS IX**  
**(PHARMACEUTICAL TECHNOLOGY I)**

Formulation considerations, technology involved, equipment (machine) employed, layouts, problems to be encountered, packaging and evaluation of following dosage forms.

1.      Solid Dosage Forms- Tablets, Tablets coatings and Capsules.
2.      Liquid Dosage Forms- Liquid Orals, Dry Syrups.
3.      Semisolid Dosage Forms- ointments, Creams, Suppositories, Gels.
4.      Sterile Dosage Forms- Parenteral ( Small Volume Parenterals & Large Volume Parenterals ) and ophthalmic Preparations.
5.      Pharmaceutical Aerosols

Reuirements of GMP and cGMP and Regulatory controls.

**Blood Products and Plasma Substitutes:**

Collection, processing and storage of whole human blood, concentrated human RBC, dried human plasma, human normal immunoglobulin, plasma substitutes, ideal requirements, PVP, Dextran, etc. for control of blood pressure,

**Surgical products:**

Definition, surgical cotton, surgical gauzes, bandages, adhesive tapes, absorbable and non absorbable sutures, ligatures and catguts, Medical prosthetics and organ replacement materials.

**VII- P- 1      PHARMACEUTICS IX PRACTICAL**  
**( PHARMACEUTICAL TECHNOLOGY I)**

Formulation, Evaluation and stability testing of preparation concerning dosage forms listed in theory.

### **Books Recommended**

- 1. Rawlins, E.A., Text Book Of Pharmaceutics, Bailliere Tindall.**
- 2. Lachman, L. , Liberman, H.A. and Kanig, J.L., The Theory and Practice of Industrial Pharmacy, Lea and Febiger, Philadelphia.**
- 3. Liberman, H.A., lachman, L. and Ker Inc. New York.**
- 4. Pharmacopoeia Of India, Ministry of Health and family Welfare, Govt. of India, New Delhi.**
- 5. Avis, K.E., Lachman, L. and Liberman, H.A., Pharmaceutical Dosage Forms-Parenteral Medication Vol.1-2, Marcel Decker Inc., New York.**
- 6. Banker G.S. and Rhode C.T., Modern Pharmaceutics, Marcell Decker Inc., New York.**
- 7. Bean, H.S., Beckeet, A.H. and Carless, A.H., Advances in Pharmaceutical Sciences, Vol.1-4, Academic Press, London.**

**VII-T-2 PHARMACEUTICS-X**  
**(PHARMACEUTICAL JURISPRUDENCE)**

A brief review of drug and pharmaceutical industries and drug legislation in India.

**An elaborate study of the following:**

- a) Pharmacy act
- b) Drugs and Cosmetics Act and Rules
- c) Medicinal and toilet preparations (excise duties) act and rules
- d) Narcotic drugs and psychotropic substances act and rules
- e) Essential commodities and drug price control order-new drug policy
- f) Drugs and magic remedies (objectionable advertisement) act

**A brief study of the following:**

- a) Poisons act and rules
- b) Medical termination of pregnancy act and rules
- c) Prevention of cruelty to animals act
- d) State shops and establishments act and rules
- e) Insecticides act
- f) AICTE act
- g) Factory act
- h) Minimum wages act
- i) Patent act

A brief study of various prescription / non-prescription products, Medical / Surgical accessories, diagnostic aids, appliances available in the market.

**Note:** Latest amendments of all the above acts and rules should be covered.

**Books Recommended:**

- 1. Jain, N.K., Text Book of Forensic Pharmacy, Vallabh Prakashan, New Delhi.**
- 2. Mithal, B.M., Text Book of Forensic Pharmacy, national Book Depot, Calcutta.**
- 3. Report of Drug Enquiry Committee.**
- 4. Bare Acts Pertaining to Syllabus.**

## VII-T-3 PHARMACEUTICAL CHEMISTRY VIII

### (MEDICINAL CHEMISTRY-III)

The synthesis of the selected drugs, mode of action, classification, uses, SAR of the following category of drugs:

- A) Steroids and related drugs. Steroidal nomenclature and stereochemistry, androgen and anabolic agents, estrogens and progestational agents adrenocorticoids.
- B) Diuretics and cardiovascular drugs.
- C) Antimetabolites (including sulphonamides).
- D) Chemotherapeutic Agents.
- E) Anti-viral Agents.
- F) Immuno- suppressive and anti HIV agents.
- G) Amino acids, Proteins and peptide hormones.
- H) Anti-neoplastic agents.
- I) Thyroid and Antithyroid Drugs.
- J) Insulin and Oral hypoglycemic agents.
- K) Drugs affecting uterine motility, oxytocins (including prostoglandins and Ergot alkaloids).

#### **Books Recommended:**

1. Foye, W.C., Principles of Medicinal Chemistry, Lea and Febiger, Philadelphia.
2. Wolff , M.E. Ed., Burger's Medicinal Chemistry, John Wiley and Sons, New York.
3. Hansch, C., Comprehensive Medicinal Chemistry, Pergarnon Press, Oxford

- 4. Delgado, J.N. and Remers, W.A.R, Wilson and Giswold's Text Book of Organic, Medicinal and Pharmaceutical Chemistry, J.Lippincott Co., Philadelphia.**
- 5. Nogrady, T., Medicinal Chemistry-A Biochemical Approach, Oxford University Press, New York, Oxford.**
- 6. Kar, A., Medicinal Chemistry, Willey Eastern Ltd., New Delhi.**
- 7. Patrick, G., An Introduction to Medicinal Chemistry, Scientific Distributors, Mumbai.**
- 8. Malone, Dyson and Purey, May's Chemistry of Synthetic Drugs.**
- 9. Parimoo, P., Text Book of Medicinal Chemistry, CBS Publishers and Distributors, New Delhi.**
- 10. Thomas, G., Introduction to medicinal Chemistry, CBS Publishers and Distributors, New Delhi.**

#### **VII-T-4 PHARMACOGNOSY-IV**

General introduction, classification and brief description of different chromatographic techniques with detailed emphasis on application of TLC, HPLC and HPTLC in the evaluation of herbal drugs including finger printing methods.

Industrial production and analysis (assay in natural sources, extracts and products) of phytoconstituents of pharmaceutical importance like; Quinine, Calcium Sennosides, Podophyllotoxin, Taxol, Artemisine, Diosgenin, Atropine, Ergometrine, Digoxine, Papain Glycerrhetic acid Morphine, Vincristine, Ephedrine.

Utilization of aromatic plants and derived products with special reference to isolation of Sandalwood oil, Mentha oil, Vetiver oil, Eucalyptus oil and Lemongrass oil.

Historical development of plant tissue culture, their types, nutritional requirements, growth and maintenance. Application of PTC in Pharmacy.

An introduction of marine Pharmacognosy and novel agents from marine sources. Herbs as health foods.

#### **VII-P-4 PHARMACOGNOSY-IV PRACTICALS**

Isolation of some phytoconstituents mentioned in theory and estimation of natural sources using chromatographic or other recommended methods.

Some experiments on plant tissue culture.

Evaluations of herbal drug preparation using thin layer chromatography and paper chromatography.

### **Books recommended**

- 1. Trease, G.E. and Evans, W.C., Pharmacognosy, Bailliere Tindall, Eastbourne, U.K.**
- 2. Tayler, V.C., Brady, L.R. and Robers, J.E., Pharmacognosy, Lea and Febiger, Philadelphia.**
- 3. Shah, C.S. and Quadry, J.S., A Text Book of Pharmacognosy, B.S. Shah Publishers, Ahmedabad.**
- 4. Kokate, C.K., Purohit, A.P. and Gokhale, S.B., Pharmacognosy, Nirali Prakashan, Pune.**
- 5. Indian Pharmacopoeia, Ministry of Health and Family Welfare, Govt. of India, New Delhi.**

Wallis, T.E., Text Book of Pharmacognosy, Jand A Churchill Limited, London.

## VII-T-5 PHARMACOLOGY-III

### Pharmacology and Pathophysiology of Cardiovascular System –

- a) Digitalis and Cardiac glycosides.
- b) Antihypertensive drugs.
- c) Antianginal and Vasodilator drugs including Calcium channel blockers and  $\beta$ -adrenergic antagonists.
- d) Antiarrhythmic drugs.
- e) Antihyperlipidemic drugs.
- f) Drugs used in the therapy of shock.

### Drugs Acting on the urinary System –

Diuretics, fluid and electrolyte balance.

### Pharmacology and Pathophysiology of Endocrine System –

Hypothalamic and pituitary hormones .

Thyroid hormones and antithyroid drugs, parathormone, calcitonin and vitamin D

Insulin, oral hypoglycemic agents and glucagon.

- a) ACTH and Corticosteroids.
- b) Estrogens, anti-oestrogens, progestins and oral contraceptives.
- c) Androgens and anabolic steroids.
- d) Drugs acting on the uterus.

### Chemotherapy and Cardiovascular System -

- a) General principles of chemotherapy
- b) Sulfonamides and co-trimoxazole

- c) Antibiotics-Penicillin, Cephalosporins, Betalactams tetracyclines, Aminoglycosides, Chloramphenicol, Erythromycin, Quinolones and Miscellaneous antibiotics.
- d) Chemotherapy of tuberculosis, leprosy, fungal diastase, viral diseases, urinary tract infections and sexually transmitted diseases
- e) Chemotherapy of malignancy and immunosuppressive agents

### **VII-P-5 PHARMACOLOGY III- PRACTICAL**

#### **Pharmacology of Cardiovascular system:**

- a) To study the inotropic and chronotropic effects of drugs on isolated frog heart.
- b) To study the effects of drugs on normal and hypodynamic frog heart.
- c) To study the effects of blockers on isolated frog heart.

Clinical Pharmacology to demonstrate the effects of certain clinically used drugs on human volunteers like:

- a) Antihistaminic.
- b) Anti-anxiety and selective drugs.
- c) Analgesics.
- d)  $\beta$ -blockers.

#### **Books recommended**

1. Hardmen, J.G., Limbired, L.E., Molinoss, P.B., Ruddon, R.W. and Gil, A.G., Goodman and Gillman's The Pharmacological basis of Therapeutics, Pergamon Press.

2. **Satoskar, R.S. and Bhandarkar, S.D., Pharmacology and Pharmacotherapeutics.**
3. **Tripathi, K.D., Essentials of Medical Pharmacology.**
4. **Kulkarni, S.K., Handbook of Experimental Pharmacology, Vallabh Prakashan, New Delhi.**
5. **Crossland, J and Thomson, J.H., Essential of Pharmacology, Harper and Row, Publishers, New York.**
6. **Craig, C.R. and Stitzel, R.R., Modern Pharmacology, Little Brown and Company.**
7. **Rang, M.P. , Dale, M.M. and Ritter, J.M., Pharmacology, Churchill Livingstone.**
8. **Paul, L., Principles of Pharmacology, Chamman and Hall.**
9. **Herfindal, E.T. and Hirschman, J.L., Clinical Pharmacy and Therapeutics, William and Wilkins.**
10. **Katzung, B.G., Basic and Clinical Pharmacology, Prentice Hall International.**

