M.Sc. Chemistry (Final Year)
Specialisation: Chemistry and analysis of Foods, Drugs and Water syllabus
III SEMESTER
(For the batch during the academic year 2020-2021)

Paper -I: Chemistry of Drugs -I

Unit-I : Basic consideration of drugs : Classification , nomenclature, metabolism. Development of drugs : Sources , Genesis of drugs - molecluar modification general and special processes: prodrugs (prolongation of action ,shortening of action, drug localisation, transport regulation, adjunct to pharmaceutical formulation); rational drug design.Theoritical aspects of drug action: Structure-activity, Physicochemical parameters and pharmacological activity; drug receptors; mechanism of drug action.

Unit-II : Drugs affecting the central nervous system: Sedatives and hypnotics - Barbiturates (structure-activity relationship, metabolism); benzodiazepines(structure - activity relationship, metabolism); miscellaneous compounds. Synthesis of phenobarbital, hexobarbital nitrazepam and oxazepam. Anaesthestics : General anesthetics; local anesthetics- Modeof action, structure-activity relationships. Synthesis of methohexital and chloro-procaine. Analgesics: synthetic analgetics, structure - activity relationships, antipyretic analgetics, ant- inflammatory analgetics, metabolism and mode of action.opioid analgesics and antagonists. Synthesis of meperidine , methadone and 6,7 -benzomorphans. Tranquilizers : phenothiazine dervatives - stucture- activity relationship, metabolism and mode of action; other tranquilizers. Synthesis of chlopromazine.

Unit-III: Drugs acting on autonomous nervous system (ANS). Adrenergic agents : Chemicel classification,structure- activityrelationship mode of action ; Adrenergic blocking agents: Synthesist Ephedrine , propranolol, methyl dopa ; cholinergic agents : Classification, structure - activity relationships- therapeutic actions.Cholinergic blocking agents: chemical classfication. Synthesis:Cyclopentolate ganglionic blocking agents.

Unit-IV: Drugs curing allergic and urinary infection: Antihistaminics : chemical classification ; metabolism, structure -activity relationship, mode of action. Synthesis : Diphenhydramine, tripelånnamine , chlorcyclizine , promethazine. Diuretics (Drugs acting on renal system): Classification, structure- activity relationships and mode of action of organomercurials, phenoxy acetic acids, purines carbonic anhydrase inhibitors, benzothiadiazines , sulphamoyl benzoic acid derivatives, endocrine antagonists. Synthesis : Meralluride , acetazolamide , furosemide.

Books Recommended for paper-I

1. Essentials of medicinal chemistry , eds., Korolkovas and Burkhaltar, J.H., John wiley & sons .

2. Text book of Organic medicinal and pharmaceutical chemistry by wilson and Gisvold.

3. Synthetic drugs by O. D. Tyagi.

References :

1. Swinyard, E.A., " Remington's phramaceutical sciences ", Ed., Artor Osal, Mack publishing company co., 1980, p.873.

2. "Medicinal Chemistry " Volumes, ed. Burger.

'3. The Organic Chemistry of Drug synthesis by Daniel Lednicer and Lester A. Mitscher

Note : The above highlighted unit shall be studied under self study cum assignment mode by the students and considered for mid-II examination