

B.Sc. III Year
SEMESTER - V
SUBJECT-PHARMACEUTICAL CHEMISTRY
PAPER - MEDICINAL CHEMISTRY-II

Max.Marks:85

Min. Marks:28

UNIT I

Drug Design and Drug Metabolism:

Biotransformation, Factors affecting Drug Metabolism, Pathway of Drug Metabolism-Phase-I and Phase-II, Significance of Drug Metabolism in Medicinal Chemistry.

A general study of the Physio-Chemical properties in relation to biological activities, Stereochemistry and Drug Action, Isosterism and Bioisosterism, Concept of Lead Compound. Computer Aided Drug Design and Molecular Modeling.

UNIT-II

- (a) **Antibiotics:** Introduction, Classification and uses of Penicillin and Semisynthetic Penicillins. Study of general structures and uses of Streptomycin, Neomycin, Kanamycin and SAR of Tetracycline.
- (b) **Classification of Broad-Spectrum Antibiotics-**Macrolides, Aminoglycosides & Fluoroquinolones.
- (c) **Antitubercular Drugs:** Introduction, Synthesis, Mode of action & uses of PAS, INH, Ethambutol & Ethionamide.

UNIT-III

Cardiovascular Drugs: Introduction, Cardiovascular Diseases.

Synthesis, Mode of Action, Uses and Side Effects of Amyl Nitrate, Sorbitrate, Verapamil and Atenolol, Diisopyramide & Procainamide.

UNIT-IV

- (a) **Antiviral:** Introduction, Replication and Transformation, Classification, Synthesis, Uses and adverse effect of Amantidine HCl, Idoxuridine, Methisazone, Introduction to Anti-HIV agents.
- (b) **Antimalarials:** Classification. SAR of 4-Aminoquinolines and 8-Aminoquinolines. Synthesis, Mode of action and uses of Chloroquine, Amidoquine, Pamaquine, Pyrimethamine.

UNIT-V

- a) **Antineoplastic Agents:** Classification, Pathophysiology of cancer. Synthesis and Mode of action of 5-Fluorouracil, 6-Thioguanine, Thiotepa, Melphalan, Busulfan.
- (b) **Antiamoebics:** Synthesis and uses of Bialllyl Unical, Metronidazole, Mentamide & Iodoquinol.

Books Recommended

1. Harkishan Singh, V.K. Kapoor, Medicinal and Pharmaceutical Chemistry, Vallabh Prakashan.Delhi.
2. John H.Block John M, Beak, Jr. Organic Medicinal and Pharmaceutical Chemistry, Lippio or Williams & Wilkins.
3. Harkishan Singh, V.K. Kapoor, Organic Pharmaceutical Chemistry, Vallabh Prakashan.Delhi.
4. Pandya. Text book of Medicinal Chemistry, Vol-I &II.
5. Ashutosh Kar, Medicinal chemistry, New Age International (P) Limited. Publishers.
6. Advanced Organic Practical. O.P. Agrawal, Goyal Publishing House, Meerut (U.P.)
7. Advanced Inorganic Practical: Gurdeep Raj, Goyal Publishing, House, Meerut (U.P.)
8. Stenlake and Beckett, Practical Pharmaceutical Chemistry Part I, CBS Publishers and Distributors New Delhi.

B.Sc. III Year
PHARMACEUTICAL CHEMISTRY: SEMESTER V
PRACTICAL

Examination: 4 hours

Max. Marks:50

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| I | A) Preparation and Synthesis:
(i) Cold relieving balm
(ii) Pain relieving balm
(iii) Cold Cream.
(iv) Sodium Chloride Injection | 6 Marks |
| | B) Volumetric Estimation:
(i) To determine % of Calcium Carbonate in precipitated chalk.
(ii) Estimation of ferrous and ferric ion in given mixtures. | 6 Marks |
| II | Assay:
(i) Lithium Carbonate.
(ii) Ammonium Chloride.
(iii) Citric Acid | 12 Marks |
| III | Identification test of carbohydrates and proteins | 12 Marks |
| IV | Chromatography:
(i) TLC of Tablets
(II) Column Chromatography. | 06 Marks |
| V | Viva-voce: | 06 Marks |
| VI | Practical record | 08 Marks |