



ANSWER ANY FOUR

4 X 25 = 100 Marks

1.
 - a) Explain the importance of computer graphics in drug design
 - b) Write briefly on the role used in genetically engineered drug discovery
 - c) Discuss the relative merits and demerits of Hansch analysis and free – Wilson analysis
2.
 - a) Discuss the statistical methods employed in QSAR analysis
 - b) Write the importance of molecular mechanics in modeling studies
 - c) Give an account of High Throughput screening (HTS)
3.
 - a) Discuss with examples the various approaches in the design of peptidomimetics
 - b) Write briefly on proton pump inhibitors
 - c) Discuss the role of ionization constants in drug design
4.
 - a) Discuss the methods available for the experimental determination of partition coefficient
 - b) Give an account of the intermolecular forces of be taken into account in drug design studies
 - c) How is X –ray crystallography useful in drug design
5. Discuss the criteria employed for : -
 - a) Receptor mapping b) Statistical analysis c) QSAR analysis
6.
 - a) Give an account of pyrimidine antagonist aimed at pyrimidine targets
 - b) Write briefly on the design of antihypertensive quinazolines
 - c) What is molecular structure and distance geometry

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Draw neat labeled diagrams wherever necessary. Answer **FOUR** questions

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1. Give a detailed account on serendipitously discovered drug prototypes and their derivatives for the class of drugs you have studied with appropriate example
2.
 - a) Explain the mechanism of action and chemical modifications in the development of synthetic penicillins over natural penicillins.
 - b) Explain the development of β - lactamase stable cephalosporins (15+10)
3.
 - a) Explain the general methods employed for determining the structure of alkaloids
 - b) Give a detail account on structural elucidation of Morphine based on chemical degradation, synthesis and spectral data (10+15)
4.
 - a) Give a detailed account on the genetically engineered drug discovery tools with reference to reagents used for screening, enzymes and receptors as drug targets with suitable examples
 - b) Give an account of blood glucose regulators (17+8)
5.
 - a) What are sex hormones? Give an account on chemistry of natural and currently used synthetic derivatives of male sex hormones.
 - b) Explain the development of antifertility agents (15+10)
6. Give detail account on protein engineering and site directed mutagenesis and explain the usefulness of these techniques in discovery of new therapeutics

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1.
 - a) Give an account of the stereochemical considerations to be taken into account in the determination of reaction mechanisms
 - b) Discuss with examples the relative acidities of aliphatic and aromatic carboxylic acids and phenols
2. Write briefly on:
 - a) Transannular rearrangements
 - b) Cannizaro reaction
 - c) 1, 4 and 1, 2 addition
 - d) Benzoin condensation
3. Give an account of the substitution reactions and discuss the evidence in favour of these reactions
4. Give an account of
 - a) Aromatic nucleophilic substitution
 - b) Wolff rearrangement
 - c) Beckmann rearrangement
 - d) Pinacol – pinacolone rearrangement
5.
 - a) What is homoeopathic and heterogeneous catalysis and write its importance
 - b) Discuss the photochemistry of butadienes
 - c) What are cyclo addition reactions
6. Write short note on:
 - a) Electrocyclic reaction
 - b) Reduction reaction
 - c) Conformation analysis
 - d) Resolution of racemic mixtures

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