Major Examination
Bioorganic and Medicinal Chemistry

Note : Attempt all questions. All questions carry equal marks.

1. Describe how was cimetidine designed and developed as an anti peptic ulcer drug ab initio giving details of choice of initial lead compounds and their modifications based upon QSAR studies. What factors allowed further development of cimetidine to ranidtidine?
2. How do NADH model compounds mimic biological reductions. Discuss the role of metal ions, non- covalent interactions and stereochemistry of hydrogen transfer by taking suitable examples.
3. What are flavins? How will you proceed to develop synthetic reagents based upon flavin mimetic oxidants How will you identify and establish plausible intermediates in flavin sensitized oxygenations.
4. How is Hansch equation for QSAR been modified to include steric and ionic factors? Discuss briefly the utility of Topliss scheme and Craig plots in the design of new drug candidates by taking suitable examples.
5. Distinguish local and volatile anaesthetics. What is molecular mechanism of anesthesia? Why halothane is still being used as an anaesthetic despite more powerful anaestheics are known. Why pure oxygen cannot be administered to patients sufferering from anorexia?
6. Define and exemplify carecerands, crown ethers, spherands and cryptands by taking one example each. Discuss their major properties and potential uses in organic synthesis.
7. Write short notes on (1) Symport and antiport mechanism for ion transport (2) Hydrophobicity/hydrophilicity balance (3) Size and shape selectivity in bioorganic chemistry
8. What do you understand by molecular recognition? How will you proceed to organize molecular assemblies for recognition of cations, anions and neutral molecules?