

II B.Tech. I Semester Regular Examinations, November -2005
BIOORGANIC CHEMISTRY
(Bio-Technology)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss in detail about polymolecular level of complexity. [16]
2. (a) Define a living cell. [5]
(b) How many types of living cells are there? Name them with suitable examples. [6]
(c) Explain the difference between them with a generalized diagram. [5]
3. (a) What are enzymes? What is the nature of an enzyme? What type of enzymes involve in digestion of food? Give examples. [2+2+2+2]
(b) Explain the action of α -Chymotrypsin on the digestion of food material. [8]
4. (a) What is an enzyme? [8]
(b) Explain mechanism of chymotrypsin. [8]
5. Describe the Carboxypeptidase in terms of: [4x4=16]
(a) β -sheet structure.
(b) Structure of enzyme-substrate complex.
(c) Catalytic mechanism in
(d) Transition state analogs of
6. (a) How many oxidation states cobalt has explain? [8]
(b) Explain in detail that coenzyme B₁₂ involved in various reactions. [8]
7. (a) Explain how cyclodextrins are prepared? [8]
(b) Explain the hydrolysis of m-ter-butylphenyl. [8]
8. Explain in detail that the rate of hydrolysis increases by the introduction of hydrophobic group in ester. [16]

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1. What do you mean by molecular adaptation? Explain with three examples. [8+8]
2. Write short notes on
 - (a) Explain mechanism of detoxification in the mammal [8]
 - (b) Activation of amino acid. [8]
3. (a) What are reversible inhibitors and irreversible inhibitors? Explain. [4+4]
 - (b) Explain transition state analogue with suitable examples. [4+4]
4. (a) What is photosynthesis ? How magnesium involves in the energy transfer?
[4+4]
 - (b) What is Hill reaction? Explain in detail. [4+4]
5. (a) Explain the functions of metal ions present in the proteins. [8]
 - (b) Explain the mechanism of carboxypeptidase. [8]
6. (a) What do you mean by oxidation? [8]
 - (b) Explain with different examples of oxidation reactions. [8]
7. (a) What do you mean by molecular wire? [8]
 - (b) Explain enzymatic peptide synthesis. [8]
8. Explain in detail how isoeuphenol is synthesized. [16]

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1. (a) What do you mean by organic chemistry? [8]
(b) Explain with different examples how organic chemistry plays important role in bio-organic chemistry. [4+4]
2. (a) Define a living cell. [5]
(b) How many types of living cells are there? Name them with suitable examples. [6]
(c) Explain the difference between them with a generalized diagram. [5]
3. (a) Define mutation. [5]
(b) What is chemical mutation. [5]
(c) Explain transition state analogue of chemical mutation. [6]
4. (a) Define immobilized enzyme. [8]
(b) Discuss in detail methods and applications of immobilized enzymes. [8]
5. Describe in detail various classes of peptide cleaving enzymes. [16]
6. How could you correlate the biomodels of copper with its ions. [16]
7. Discuss in detail that the presence of Ni(II) in the cyclodextrin rate of hydrolysis increases. [16]
8. Explain Van Tamelen's synthesis. [16]

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1. Explain in detail about some of the advantages and problems encountered in bio-Organic models for the study of enzyme. [16]
2. Write short notes [4x4=16]
 - (a) Claisen condensation
 - (b) Benzoin condensation
 - (c) Cannizzaro reaction
 - (d) Bayer-villiger reaction.
3. (a) What is an enzyme? What is its composition and nature? How it functions. [2+3+3]
(b) Explain the properties of an enzyme. [8]
4. What is multifunctional catalysis? Describe it in detail with an example. [8+8]
5. Describe the hydrolysis of amides and peptides. [16]
6. Explain in detail about the reduction of water with hydrogen formation by irradiation of semiconducting particles. [16]
7. (a) What do you mean by molecular wire? [8]
(b) Explain enzymatic peptide synthesis. [8]
8. Explain the reason for the rate enhancement in phenanthryl derivative. [16]
