

Code No: RR212304

Set No. 1

II B.Tech I Semester Supplementary Examinations, November 2006
BIO-CHEMISTRY
(Bio-Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Write a detailed account of various derivatives of sugars formed by chemical reactions.
(b) Discuss the importance of any two of them? [8+8]
2. Illustrate the branching points of glycogen and starch polysaccharides. Explain the salient features of these polymers. [16]
3. Write the structure and functions of the following:
 - (a) Palmitic acid
 - (b) Arachidonic acid
 - (c) Linoleic acid
 - (d) α -linolenic acid [4X4]
4. What is isoelectric point and explain its importance with reference to aminoacids. [3+13]
5. Describe the pathways in the biosynthesis of aromatic amino acids. [16]
6. Schematically trace the pathways involved in the synthesis of glucose from
 - (a) Glycerol
 - (b) Aspartate [8+8]
7. Where are the pigments of photo systems located in plants and bacteria? Write their role. [4+12]
8. Explain how the process of photosynthesis is involved in net primary production and an increase in plant biomass. [16]

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1. (a) Explain glycosidic bond with N-glycosidic and O-glycosidic bonds.
(b) How can you distinguish between the two types of glycosidic bonds? [8+8]
2. Describe the mobilization of sugars from polysaccharide storage as well as synthesis [16]
3. Describe how lovastatin inhibits cholesterol biosynthesis and write the importance of cholesterol as a biomembrance constituent. [10+6]
4. Write short notes on
 - (a) Ammonia formation in biological systems.
 - (b) Any three specialized products of amino acids.
 - (c) Zwitter ion. [5+5+6]
5. Describe the pathways in the biosynthesis of aromatic amino acids. [16]
6. Calculate the bioenergetics involved in the aerobic oxidation of
 - (a) Glucose
 - (b) Acetyl coAWrite the specific reactions involved. [8+8]
7. Write notes on
 - (a) chlorophylls and their role in trapping of solar energy
 - (b) anoxygenic photosynthesis [8+8]
8. What are the primary products of photosynthesis and how do other organisms use them? [5+11]

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1. (a) Explain with suitable examples reducing and non-reducing sugars?
(b) What is and invert sugar? Explain? [8+8]
2. Describe the mobilization of sugars from polysaccharide storage as well as synthesis [16]
3. Write the structure and functions of the following:
 - (a) Palmitic acid
 - (b) Arachidonic acid
 - (c) Linoleic acid
 - (d) α -linolenic acid [4X4]
4. What aminoacids are converted to alpha keto glutarate. Write the importance of these aminoacid reactions. [4+12]
5. (a) What are different biosynthetic families of amino acids:- Bacteria and plant discuss briefly.
(b) What are the processors for amino acid biosynthesis. [8+8]
6. Describe the pathways involved in:
 - (a) Glycogenesis
 - (b) Glycogenolysis [8+8]
7. Write notes on
 - (a) chlorophylls and their role in trapping of solar energy
 - (b) anoxygenic photosynthesis [8+8]
8. Plants have been said to face a dilemma of either “thirst or starvation”. Explain what this dilemma refers to. What leaf structures regulate the balance between thirst and starvation? What ratio is used to compare plants with regards to their efficiency of water use? [4+8+4]

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1. (a) What is a disaccharide ?
(b) Give two examples with structure?
(c) Discuss the role of any two disaccharides in nutritional metabolism? [3+4+9]
2. Write short notes on the following:
(a) Lectins
(b) Glycosaminoglycans
(c) Glycoproteins [5+5+6]
3. Describe how lovastatin inhibits cholesterol biosynthesis and write the importance of cholesterol as a biomembrance constituent. [10+6]
4. What is an amino acid? Justify the statement that amino acids are building block of proteins? [2+14]
5. Describe the pathways in the biosynthesis of aromatic amino acids. [16]
6. Schematically trace the pathways involved in the synthesis of glucose from
(a) Glycerol
(b) Aspartate [8+8]
7. Discuss the process of plant photosynthesis in detail. How is it different from the bacterial photosynthesis? [8+8]
8. Describe the role of enzymes in the process of photosynthesis. [16]
