Exam.Code:0435
Sub. Code: 3466

1127

M.Sc. (Biotechnology)

First Semester

MBIO-102: Biomolecules

Time allowed: 3 Hours

Max. Marks: 80

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

1. (a). Explain briefly the following:
   (i) Aldoses (ii) Glycosidic bond (iii) molecular chaperons (iv) Holoenzyme & Apoenzymes (v) terpenes (vi) Acylglycerols (vii) nucleotide (viii) Z DNA

   (b). Draw the structures of: (8×1½)
   (i) Fructopyranose (ii) Ala-Glycine dipeptide (iii) oleic acid (iv) Guanine (1x4=4)

Unit-I

2. (a). Explain the process of glycolysis along with its regulation. (10)
   (b). Write a short note on historical and experimental details in derivation of metabolic pathways. (6)
3. (a.) Derive the reactions of HMP pathways in detail. Also, comment on its significance (12)
   (b.) Differentiate between glycogenesis and glycogenolysis. Discuss the factors involved in the regulation of glycogenesis. (4)

Unit-II

4. (a.) Explain the role of molecular chaperons in protein folding. (8)
   (b). Write in detail about the classification of proteins according to their biological functions. (8)
5. (a). Discuss the secondary structure of proteins. (8)
   (b). Elaborate in detail about Ramachandran plot. (8)

Unit-III

6. (a.) Delineate the process of β-oxidation for oxidation of palmitic acid. (10)
   (b.) Write a short note on ketone bodies . (6)
7. (a.) Describe the structure and composition of fatty acid synthetase complex. (7)
   (b). Explain the structure and function of steroids and prostagalndins (9)

Unit-IV

8. (a). Explain pathway for pyrimidine biosynthesis. (10)
   (b.) Give salient features of Watson and Crick model of DNA. (6)

9. (a). Give detailed account of Harshey-Chase experiment. (10)
   (b). What do you understand by melting temperature of DNA and its relationship with GC content. Explain. (6)