

Roll No.

Total Pages : 3

7299/N

J-19/2110

PRINCIPLES OF BIOCHEMISTRY

Paper-I

Semester-I

Time allowed : 3 Hours] [Maximum Marks : 75

Note : The candidates are required to attempt **two** questions each from Section A and Section B carrying **15** marks each and entire section C is compulsory consisting of **10** short answer type questions of **1½** marks each.

SECTION-A

1. (a) What are mucopolysaccharides? Discuss with suitable examples. 10
(b) Define ion-product of water. Give its applications. 5
2. Define lipids. Give their classification. Discuss the structure and functions of various lipids. 15

3. Define vitamins. Enlist various water and fat soluble vitamins. Discuss water soluble vitamins including their biochemical functions. 15
4. (a) Define hormones. Discuss the structure and functions of various steroid hormones. 10
(b) Write a note on membrane transport. 5

SECTION-B

5. Define gluconeogenesis. Discuss this pathway along with its regulation. 15
6. What is β -oxidation? Discuss the oxidation of stearic acid. Give the stoichiometry of this pathway. 15
7. (a) Name the amino acids which are synthesized from α -ketoglutarate. Discuss their biosynthesis. 10
(b) Write a note on photorespiration. 5
8. What are purines and pyrimidines? Discuss various pathways for the biosynthesis of purines. Give its regulation also. 15

SECTION-C

9. (i) pK 1½×10=15
- (ii) Mutarotation
- (iii) Gangliosides
- (iv) Km
- (v) NAD⁺
- (vi) Tautomerism
- (vii) Vmax
- (viii) PFK-1
- (ix) Isoprenes
- (x) Deamination.