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Mar. 2022

M.Sc. (Chem.) - I SEMESTER

Chemistry of Life Processes (CH-104YB)

Time : 90 Minutes] [Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) Give reaction using NAD^+ as cofactor. (1)

(b) What do you understand by primer in DNA replication? (1)

(c) Explain catabolism with example. (1)

(d) Give the structure of prostaglandin PGE1. (1)

(e) Which type of bond is involved in joining successive nucleotides in nucleic acid? (1)

(f) Differentiate between light and dark reactions in photosynthesis. (1)

(g) Define the role of allosteric site in enzyme activity. (1)

(h) What is lactose intolerance? (1)

(i) What are the functions of hyaluronic acid and dermatan sulfate? (1)

(j) What type of glycosidic linkage is present in maltose? (1)

PART-B

2. (a) Explain the biochemical function of thiamine pyrophosphate with example. (3)

(b) Which is energy rich compound among glucose-6-phosphate and phosphoenol pyruvate and why? (2)

3. (a) What is the role of catalytic triad in the activity of chymotrypsin? (2)

(b) Describe the four stages of β-oxidation of saturated fatty acids. (3)

4. Why sucrose is a nonreducing sugar? Describe two structural polysaccharides with linkages. (5)

5. (a) Draw the secondary structure of t-RNA. What is a promoter in transcription? (2)

(b) Explain the functions of following enzymes:

(i) Ligase.

(ii) Peptidyl transferase.

(iii) Topoisomerase. (3)

6. (a) How translation is terminated in prokaryotes? (2)

(b) Give the structures of following :

(i) Phosphatidal choline.

(ii) Chenodexycholic acid.

(iii) Cholesterol. (3)