

2122  
B.E. (Bio-Technology) Third Semester  
BIO-313: Biochemistry

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

I. Attempt the following:-

- i. What are non-reducing sugars?
  - ii. Name two aromatic amino acids.
  - iii. What is decarboxylation reaction in amino acids? Give one example.
  - iv. What is alpha oxidation?
  - v. What are epimers?
  - vi. Name two biologically important nucleotides.
  - vii. Differentiate between glycogenesis and glycogenolysis
  - viii. Define specific activity of enzyme
  - ix. Deficiency diseases of two water soluble vitamins
  - x. Regulation of purine biosynthesis
- [10×1 = 10]

Section - A

Q2. a) Define glycolysis. What is pyruvate converted to under aerobic conditions? Give all reactions with enzymes and coenzymes.

b) Discuss different methods of purification of enzymes. [6,4]

Q3.a) Differentiate between secondary and tertiary structure of a protein.

b) What is biological role of carbohydrates?

c) Name two methods to determine amino acid sequence of a protein. [5,3,2]

Q4. a) Differentiate between DNA and RNA.

b) Write short note on essential fatty acids giving suitable examples. Why are they called essential?

[5,5]

P.T.O.

(2)

**Section - B**

Q 5 a) Discuss biosynthesis of palmitic acid from acetic acid.

b) Write about regulation of fatty acid synthesis.

c) What is omega oxidation of fatty acids?

[6,2,2]

Q 6 a) Write a note on transamination reaction giving suitable examples.

b) Describe *de novo* pathway of purine biosynthesis.

c) Write about degradation of pyrimidines.

[2,6,2]

Q 7 a) Discuss various stages of Calvin cycle.

b) Explain structure of mitochondria with a well labelled diagram.

c) Write a short note on Nitrogen fixation.

[5,3,2]

x-x-x