

2124

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 Unit. Write reactions with molecular structures.*

x-x-x

- Q1
- a) Write the molecular structure of Histidine. (1)
  - b) Write the molecular structure and name of an aromatic amino acid. (1)
  - c) Write the molecular structure of cellulose. (2)
  - d) What is the biochemical role of folic acid? (2)
  - e) Write the structure of C-16 saturated fatty acid. (2)
  - f) Write the structure of sphingomyelin and phosphatidyl choline (2)

**UNIT - I**

- Q2) Describe in detail the metabolic pathway of TCA cycle with molecular structures. Also describe the names of enzymes and cofactors involved. (8,2)
- Q3) Describe the four levels of architecture present in a protein and their functions. Also explain the various molecular interactions and bonds involved. (8,2)
- Q4) Describe the molecular pathway of glycogenesis and glycogenolysis with molecular structures involved. (8,2)

**UNIT - II**

- Q5) a) Describe Urea cycle in detail and the molecular structures involved.  
b) Also write the molecular reactions for deamination and transamination (2x5)
- Q6) a) Describe the de-novo pathway for purine biosynthesis.  
b) Also discuss the salvage pathway and enzymes involved. (2x5)
- Q7) a) Describe the metabolic pathway of fatty acid oxidation.  
b) How many ATPs are formed? (7,3)

x-x-x