Exam.Code:0907
Sub. Code: 33353

2125

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. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Answer the following short questions:-

a) Define biomolecules with examples.

b) What is the primary structure of protein?

c) Name the end product of glycolysis.

d) Define β-oxidation.

e) What is transamination?

f) Define oxidative phosphorylation.

g) What is glycogenolysis?

h) Name any two water-soluble vitamins.

i) What are aromatic amino acids?

j) Define nucleotides. (10x1)

## UNIT - I

II. a) Describe the structure and functions of carbohydrates.

b) Explain classification and biological significance of lipids. (5,5)

III. a) What are amino acids? Give their classification with examples.

b) What is a peptide bond? Differentiate between secondary and tertiary structure of proteins. (5,5)

IV. a) Describe various methods of amino acid sequence determination.

b) Discuss reactions involved in TCA cycle. (5,5)

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## UNIT - II

V. a) Describe the urea cycle.

b) Write a note on Omega oxidation of fatty acids.

c) Differentiate between transamination and deamination. (4,2,4)

VI. a) Explain the biological process of nitrogen fixation, including the role of nitrogenase enzyme and conditions required for the process.

b) Discuss the structure of mitochondria and its role in respiratory chain. (5,5)

VII. a) Describe the steps involved in *de novo* fatty acid synthesis.

b) Discuss the biosynthesis of pyrimidine nucleotides and its regulation. (5,5)

*x-x-x*