

2071  
B.A./B.Sc. (General) Second Semester  
Industrial Microbiology  
IMB-202: Fundamentals of Microbial Biochemistry

Time allowed: 3 Hours

Max. Marks: 33

**NOTE:** Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

I. Attempt the following:-

- a) What are isoenzymes? Give suitable examples.
- b) Discuss the reducing property of carbohydrates.
- c) Comment on function of microbial lipids.
- d) Write the structure of an essential basic amino acid.
- e) Write the reaction catalysed by pyruvate dehydrogenase. (5x1)

**UNIT - I**

- II. a) What do you understand by competitive inhibition of enzyme activity? Explain with the help of Line-Weaver Burke plot. Give suitable examples.
- b) Compare the first order and second order reaction of enzyme kinetics. (4,3)
- III. a) Discuss various factors affecting enzyme activity.
- b) Write a short note on the classification of enzymes. Give suitable example of each class. (4,3)

**UNIT - II**

- IV. Discuss in detail the classification of carbohydrates. Give suitable example of each category with structure. (7)
- V. a) Describe in detail the, beta oxidation of lipids. Discuss its energetics.
- b) Write a short note on lipid peroxidation. (4,3)

P.T.O.

(2)

**UNIT - III**

- VI. Discuss in detail the aerobic and anaerobic glycolytic pathways. How do both differ in terms of energy and end product formation? (7)
- VII. a) Write the reaction catalysed by the following enzymes:-  
i) alpha ketoglutarate dehydrogenase  
ii) citrate synthase  
iii) succinate dehydrogenase  
iv) Pyruvate kinase  
b) Discuss the regulation of Kreb's cycle. (4,3)

**UNIT - IV**

- VIII. Discuss in detail the classification of amino acids. Give an example of each class with structure. (7)
- IX. Write short notes on the following:-  
a) Salvage pathway of purine nucleotides  
b) degradation of pyrimidine nucleotides (3+4)

x-x-x