Exam.Code:0440
Sub. Code: 3501

1058

M.Sc. (Bio-Informatics) Second Semester
MBIN-8011: Metabolic Pathway Analysis

Time allowed: 3 Hours Max. Marks: 60

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

x-x-x

I. Answer the following:-

a) What is a holoenzyme?

b) Why is oxidative phosphorylation so called?

c) Name three important regulatory enzymes of glycolysis?

d) What is non-competitive inhibition?

e) Give full form of KEGG and NCBI?

f) What is the importance of the EcoCyc Database?

g) Give any three characteristics of metabolic pathways?

h) What is Lineweaver Burk plot? (8x1½)

UNIT – I

II. a) Distinguish between lactic acid and ethanol fermentation.

b) What are the various factors that are responsible for high en nature of ATP? (2x6)

III. a) Enumerate the various steps of glycogen breakdown.

b) Give the well defined steps to indicate the bioenergetics of catabolism of 1 molecule of Glucose in eukaryotes. (2x6)

UNIT – II

IV. a) Derive Michaelis-Menten equation and define Km.

b) Differentiate between allosteric control and feedback inhibition of enzymes. (8,4)

V. a) What is the Transition state theory and its importance in enzyme kinetics?

b) Discuss the regulation of Apartate transcarbamylase. (2x6)

P.T.O.

UNIT – III

VI. a) What are the applications of metabolic flux analysis?

b) Discuss isotope labeling method for experimental determination of metabolic fluxes. (6,6)

VII. a) What are the applications of various bioinformatics databases on enzymes? Give suitable examples.

b) Write a note on metabolic control analysis. What is the need to study it? (2x6)

x-x-x