

Time allowed: 3 Hours

Max. Marks: 60

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting atleast one question from each Unit.

x-x-x

I. Answer the following:-

- a) Enlist various characteristics of metabolic pathways.
- b) Differentiate between lactic acid and alcoholic fermentation.
- c) Give the Transition State Theory.
- d) How is aspartate transcarbamylase regulated?
- e) Differentiate between holoenzyme and apoenzyme.
- f) Give full form of KEGG.
- g) What is the main difference between MetaCyc and EcoCyc.
- h) Briefly explain metabolic engineering.

(8x1½)

UNIT - I

II. a) Discuss various types of metabolic controls.

b) Explain regulation of glycogen metabolism.

(6+6)

III. a) Why is ATP a high energy compound?

b) Discuss bioenergetics of catabolism of one glucose molecule in prokaryotes.

(6+6)

UNIT - IIIV. a) Derive Michaelis Menten equation and define K_m and V_{max} .

b) Explain feedback inhibition giving suitable examples.

(8+4)

V. Write notes on the following:-

a) Allosteric enzymes and their regulation giving suitable examples.

b) Mixed and competitive inhibition giving suitable examples.

(6+6)

(2)

UNIT - III

- VI. a) How are metabolic fluxes experimentally determined?
b) Discuss any two enzyme databases. (8+4)
- VII. Write notes on the following:-
a) Metabolic control analysis
b) Application of metabolic flux analysis (6+6)

x-x-x