Exam. Code: 0002
Sub. Code: 0161

1058

B.A./B.Sc.(General)-2nd Semester

Bio-Chemistry

Paper-B: Enzymes and Bioenergetics

Time allowed: 3 Hours | Max. Marks: 45

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

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I. Attempt the following: -

(a) Define enzymes. Give units (International).

(b) What do you understand by 'Km'? Explain with a graph.

(c) Explain the term entropy.

(d) What is a prosthetic group? Give example.

(e) What are allosteric enzymes? Give example.

(f) Discuss first law of thermodynamics. (6×1½)

UNIT – I

II. (a) Discuss nomenclature and classification of enzymes. Give suitable examples of each class.

(b) Discuss the coenzymes forms of ribo-flavin with biochemical reactions catalyzed. (6+3)

III. (a) What do you understand by active site and regulatory site of an enzyme?

(b) What are isozymes? Give an example to explain its diagnostic importance.

(c) Write the coenzyme forms of folate. (3+4+2)

UNIT – II

IV. (a) Explain the different theories of enzymes catalysis. Explain acid-base catalysis in detail.

(b) Differentiate between monomeric enzymes and oligomeric enzymes and their properties. (6+3)

V. (a) Discuss the mechanism of action of pyrunate-dehydrogenase. How many sub-units are present in it?

(b) What are proximity and orientation effets? (7+2)

UNIT – III

VI. (a) List the various factors that can affect the rate of an enzymatic reaction. Explain with figure.

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(b) Derive the equation of "Michaelis-Menten". Explain its significance. (4+5)

VII. (a) Describe the various types of enzyme inhibitions studied by you. Discuss with relevant graphs and give example of each type of inhibitor.

(b) What is 'Ki' value? (7+2)

UNIT – IV

VIII. (a) What is free energy?

(b) Elaborate on the components of electron transport chain and organization of ETC.

(c) Also discuss generation of high energy phosphate bonds through oxidative phosphorylation. (2+5+2)

IX. (a) Differentiate between oxidation-phosphorylation andsubstrate-level phosphorylation.

(b) Briefly explain the principles of thermodynamics. (4+5)

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