(i) **Printed Pages: 3** **Roll No. .....**

(ii) **Questions : 9** **Sub. Code : 0161**

Exam. Code : 0002

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

1059

BIO-CHEMISTRY

Paper—B : Enzymes and Bioenergetics

Time Allowed : Three Hours] **[Maximum Marks : 45**

Note :— Attempt ***five*** questions in total including question **1**, which is compulsory. Attempt ***one*** question from each of the Unit I to Unit IV.

1. Compulsory question. Answer in **3-4** lines.

   (i) What is a halozyme ? Give a suitable example.

   (ii) What is the function of lyase ?

   (iii) What is V_{max} ?

   (iv) What is turnover number of an enzyme ?

   (v) What is enthalpy ?

   (vi) Write chemical structure of pyruvic acid.

   (vii) What are hydrolases ? Give suitable examples.

   (viii) What is end-product inhibitions ?

   (ix) What is specific activity of an enzyme ? $1 \times 9 = 9$

UNIT—I

2. (a) What are oxidoreductases ? Describe their properties and important biological functions.

   (b) What are zymogens ? Explain their importance in clinical diagnostics.

   (c) What is an apoenzyme ? Explain with suitable example. 4,3,2

3. (a) Describe IUB system of classification of enzymes by referring major biological functions of each class.

   (b) What are coenzymes ? Write chemical structure of NAD and FAD, and their biological functions.

   (c) What is an alkaline protease ? How its activity can be assayed ? 4,3,2

UNIT—II

4. (a) What are major differences between chemical and enzymatic catalysis ? Which catalysis is advantageous and why ?

   (b) What are oligomeric enzymes ? Explain their properties and functions citing suitable examples.

   (c) What is oxidative decarboxylation ? Explain with a suitable example. 4,3,2

5. (a) What are multimeric enzymes ? Describe their important properties and biological functions. 3

   (b) Write short notes on any ***two*** of the following :

   (i) Metallo-enzymes

   (ii) Acid-base catalysis

   (iii) Dehydrogenases. 3×2=6

UNIT—III

6. (a) What is Michaelis-Menten equation and its significance ?

   (b) What are reversible enzyme inhibitors ? Explain with suitable examples.

   (c) What is feedback inhibition ? 4,3,2

7. (a) What are allosteric enzymes ? Describe their important features in detail.

   (b) What are enzyme inhibitors ? Explain their biological and clinical importance with suitable examples.

   (c) What is a suicidal inhibitor ? Explain with an example. 4,3,2

UNIT—IV

8. (a) What are high-energy compounds ? Enlist any five of these and describe their functions. 5

   (b) What are major functions of NADH and FADH molecules in thermodynamic reactions ? 4

9. (a) What is bioenergetics ? Describe the role of phosphate rich compounds in biological systems. 3

   (b) Write short notes on any ***two*** of the following :

   (i) Electron transport chain

   (ii) Oxidative phosphorylation

   (iii) Substrate level phosphorylation. 3×2=6