

M.Sc. F.Y. (Bio-Chemistry) (NEP Pattern) - Sem-I  
**01MSCBIC02 - Advanced Enzymology**

P. Pages : 2

Time : Three Hours



**GUG/W/24/16132**

Max. Marks : 80

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- Notes : 1. All the questions are compulsory and carry equal marks.  
2. Draw well labelled diagrams wherever necessary.

1. Derive the Michaelis-Menten equation. Add a note on significance of  $K_m$  and  $V_{max}$ . **16**

**OR**

a) Write a note on kinetics of enzyme inhibition. **8**

b) Describe the methods used for investigating the kinetics of enzyme catalysed reaction. **8**

2. Describe in detail the active site determination and mechanism of ribonuclease. **16**

**OR**

a) Write a note on mechanism of action of Serine protease. **8**

b) Write a note on acid-base catalysis. **8**

3. What are allosteric enzymes? Describe the kinetic analysis of allosteric enzymes. Add a note on covalent modification. **16**

**OR**

a) Describe the role of LDH as isoenzyme and marker enzyme. **8**

b) With suitable example explain the multi enzyme complex and mechanism. **8**

4. Write a detailed note on protein : ligand binding studies. **16**

**OR**

a) Describe the industrial applications of enzymes. **8**

b) Write a note on immobilized enzymes. **8**

5. Attempt **any eight**.

a) What is entropy and free energy? **2**

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| b) What are Bi-bi reactions?                        | 2 |
| c) What is the significance of transition state?    | 2 |
| d) What is proximity and orientation effect?        | 2 |
| e) What is metal ion catalysis?                     | 2 |
| f) What is the substrate of lysozyme?               | 2 |
| g) What is feed-back inhibition?                    | 2 |
| h) Give the example of inducible enzyme.            | 2 |
| i) Give any two examples of membrane bound enzymes. | 2 |
| j) What are enzyme biosensors?                      | 2 |
| k) What is the market need of glucose biosensor?    | 2 |
| l) What is protein engineering?                     | 2 |

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