Seat No. : _____

NF-123

November-2025

B.Sc., Sem.-V

DSC-C-BT-351 T (Major) : Biotechnology

(Enzyme Technology)

Time : 2:00 Hours] **[Max. Marks : 50**

1. Derive Michaelis-Menten Equation for enzyme kinetics and explain its importance. **10**

OR

1. (A) Explain the various factors affecting the enzyme activity. **5**

1. (B) Explain enzyme classification and give an example for each class. **5**

2. Describe in detail types of Enzyme inhibition with suitable examples and its effect on enzyme properties. **10**

OR

2. (A) What are Isoenzymes ? Give importance of the isoenzyme forms of Lactate dehydrogenase. **5**

2. (B) What are Co-enzymes ? Explain the structure and regulatory functions of NAD and FAD. **5**

3. Describe the culture medium, process and recovery of Taq DNA polymerase and fungal amylase. **10**

OR

3. (A) Explain separation of proteins on the basis of Size and Specificity. **5**

3. (B) Write a short note on tissue homogenization methods. **5**

4. Explain in detail the methods of protein engineering and its applications with examples. **10**

OR

4. (A) Describe the construction, principle and importance of a biosensor. **5**

4. (B) Describe any two methods used for enzyme immobilization in detail. **5**

5. Attempt any **ten** out of **12** : **10**

(a) Define enzyme and specific activity of an enzyme.

(b) Draw the diagram of the two forms of beta-pleated sheets.

(c) Give two units of enzyme activity.

(d) Draw a labelled diagram of lock and key model of catalysis.

(e) What is feedback inhibition ? Give an example.

(f) Define Abzymes and ribozymes

(g) Write two uses of enzymes in the food industry.

(h) Which salt is commonly used for precipitation of proteins in industry ?

(i) Name any two techniques used for purification of enzymes on the basis of polarity or solubility.

(j) Enzyme engineering can be used to increase affinity of enzymes. (True or False)

(k) Name two enzymes used in biosensors.

(1) Mention two advantages of enzyme immobilization.