

**2023/TDC(CBCS)/ODD/SEM/  
BTCSEC-301T/278**

**TDC (CBCS) Odd Semester Exam., 2023**

**BIOTECHNOLOGY**

**( 3rd Semester )**

**Course No. : BTCSEC-301T**

**( Enzymology )**

Full Marks : 50

Pass Marks : 20

**Time : 3 hours**

*The figures in the margin indicate full marks  
for the questions*

**SECTION—A**

**Answer fifteen questions, selecting three from each**

**Unit :**

**1×15=15**

**UNIT—I**

- 1. What is crystallization of enzymes?**
- 2. What are zymogens?**
- 3. What is apoenzyme?**
- 4. Write about prothrombin.**

( 2 )

UNIT—II

5. Discuss the concept of E-S complex.
6. What is activation energy?
7. What is active site?
8. What is  $K_m$ ?

UNIT—III

9. What is aldolase?
10. What is RNase?
11. Write about ping-pong mechanism.
12. What is enzyme inhibition?

UNIT—IV

13. What are isoenzymes?
14. What is cooperativity?
15. What is a ligand?
16. Write a note on lactate dehydrogenase.

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( Continued )

( 3 )

UNIT—V

17. What are soluble enzymes?
18. What is enzyme immobilization?
19. Name two enzymes used in industry.
20. What is enzyme evolution?

SECTION—B

Answer *five* questions, selecting *one* from each  
Unit : 2×5=10

UNIT—I

21. What are the six classes of enzymes?
22. Write a note on proteases.

UNIT—II

23. How does pH affect the rate of enzymatic reaction?
24. Write a note on  $V_{max}$ .

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( Turn Over )

( 4 )

UNIT—III

25. What is lysozyme?  
26. Write a note on chymotrypsin.

UNIT—IV

27. Write a note on allosteric enzymes.  
28. Write the advantages of multifunctional enzymes.

UNIT—V

29. What is enzyme engineering?  
30. Write down the steps of protein sequencing.

SECTION—C

Answer *five* questions, selecting *one* from each  
Unit :  $5 \times 5 = 25$

UNIT—I

31. Write a note on isolation and purification of enzymes.  
32. Write a note on test of homogeneity of enzyme preparation.

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( Continued )

( 5 )

UNIT—II

33. Give a detailed account of Michaelis-Menten equation.  
34. What is collision theory? Add a note on transition state theory.  $2\frac{1}{2} + 2\frac{1}{2} = 5$

UNIT—III

35. Define covalent modification. Write a short note on enzyme regulation.  $2\frac{1}{2} + 2\frac{1}{2} = 5$   
36. Briefly discuss the mechanism of enzyme action.

UNIT—IV

37. What is protein-ligand binding? Write a note on fatty acid synthase.  $3 + 2 = 5$   
38. Derive the equation for Scatchard plot. Add a note on phosphofructokinase.

UNIT—V

39. Write down the application of immobilized enzymes in health and industry.  
40. What is site directed mutagenesis? Describe the steps of site directed mutagenesis.

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