Seat No. : _____

NE-130

November -2021

B.Sc., Sem.-V

304 : Biotechnology

(Enzyme Technology)

(Old)

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

Instructions : (1) Draw figures wherever necessary.

(2) Write question number against each answer.

(3) Answer any **three** out of initial **eight** main questions. Question – **9** is compulsory.

1. (A) Write the Michael's Menten equation and Km importance. **7**

   (B) Write about nomenclature and classification of enzymes with examples. **7**

2. (A) Give a brief account of competitive inhibition with an example. **7**

   (B) Explain in brief about enzyme substrate binding theories. **7**

3. (A) Describe the role of inhibitors and allosteric regulators in enzyme mechanism. **7**

   (B) Discuss characteristics of isoenzymes and write its applications in diagnostics. **7**

4. (A) Discuss in brief about multienzyme complexes with an example. **7**

   (B) Write about coenzyme mechanism of NAD, NADP. **7**

5. (A) Discuss assay of proteins. **7**

   (B) Write about protein separation methods based on size. **7**

6. (A) Explain in brief about process & recovery of Taq polymerase. **7**

   (B) Write about applications of insulin, HGH and somatostatin. **7**

7. (A) Write about applications of immobilized enzymes. **7**

(B) Discuss techniques of cell immobilization. **7**

8. (A) Explain principle and applications of biosensor. **7**

(B) Define protein engineering. Discuss modification of proteins. **7**

9. Answer any **eight** of the following : **8**

(1) What is Lineweaver-burk plot ?

(2) What is Edman degradation ?

(3) Define cooperativity.

(4) What is activation energy ?

(5) What is ping-pong reaction ?

(6) Write the role of FAD in metabolism.

(7) What is active site ?

(8) What is allosteric enzyme ? Give example.

(9) Write the principle of affinity chromatography.

(10) Give two examples of abzymes.

(11) What is TPP ?

(12) What is ribozyme ?

(13) Give two examples of matrix used in adsorption method of immobilization.

(14) Write principle of SDS-PAGE.

(15) What is bioreceptor ?

(16) What is supercritical fluid ?

(17) What is holoenzyme? Give example.

(18) Write function of fungal amylase.

(19) Write the use of calcium alginate.

(20) What is homogenization ?

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(3) Answer any **three** out of initial **eight** main questions. Question – **9** is compulsory.

1.	(A)	Explain the factors influencing enzyme activity.	**7**
	(B)	Write about nomenclature and classification of enzymes with examples.	**7**
2.	(A)	Give a brief account of competitive inhibition with an example.	**7**
	(B)	Explain in brief about enzyme catalysis.	**7**
3.	(A)	Discuss the mechanism of allosteric enzymes.	**7**
	(B)	Describe isoenzymes with examples.	**7**
4.	(A)	Discuss abzymes and ribozymes with examples.	**7**
	(B)	Write about coenzyme mechanism of NAD, NADP.	**7**
5.	(A)	Discuss different types of homogenization technique used on laboratory scale.	**7**
	(B)	Write about protein separation methods based on size.	**7**
6.	(A)	Explain in brief about culture,medium,process & recovery of fungal amylase.	**7**
	(B)	Write about industrial uses of enzymes.	**7**

7. (A) Write about applications of immobilized enzymes. **7**

(B) Discuss techniques of cell immobilization. **7**

8. (A) Write about cell based biosensors. **7**

(B) Define protein engineering. Discuss different applications of protein engineering. **7**

9. Answer any **eight** of the following : **8**

(1) What is another name of double reciprocal plot ?

(2) Define group specificity.

(3) Who coined the term "enzyme" ?

(4) What is activation energy ?

(5) Simple Sequential Model was given by _____.

(6) Write Michaeli's menten equation.

(7) What is active site ?

(8) What is allosteric enzyme ? Give example.

(9) Formula mg/mL = 1.55 A280 – 0.76 A260, is used in _____ protein assay method ?

(10) Give two examples of multi-enzyme complex.

(11) What is TPP ?

(12) In T4 DNA ligase, T4 is _____.

(13) Give two examples of matrix used in entrapment.

(14) Write principle of SDS-PAGE.

(15) What is bioreceptor ?

(16) What is supercritical fluid ?

(17) What is holoenzyme ? Give example.

(18) Write function of Taq polymerase.

(19) Name two commercially used enzyme biosensors.

(20) What is site directed mutagenesis ?

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