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Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

**Enzyme Technology + Lab**

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.**2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1				M	L	C
Q.1	a.	Define enzyme. Enumerate in detail the classification of enzymes.		10	L1	CO1
	b.	Discuss any two strategies to determine the purity of enzymes.		10	L2	CO2
OR						
Q.2	a.	Distinguish between NAD and FAD, highlighting the mechanism and significance of both enzymes in catalysis.		10	L2	CO1
	b.	Compare acid-base catalysis, covalent catalysis and metal-ion catalysis. Add a note on substrate-strain hypothesis.		10	L2	CO1
Module – 2						
Q.3	a.	Explain in detail the fixed incubation method of enzyme measurement.		10	L1	CO1
	b.	Elucidate in detail the advantages of biocatalyst over chemical catalyst.		10	L2	CO1
OR						
Q.4	a.	Outline the various parameters considered for standardization and optimization of enzyme assays.		10	L2	CO2
	b.	Differentiate between isolated enzymes and whole cell systems. Add a note on applications of extremozymes.		10	L2	CO1
Module – 3						
Q.5	a.	Illustrate different methods of enzyme immobilization. Add a note on the advantages and disadvantages of each method.		12	L2	CO2
	b.	“Immobilized enzymes are economical compared to free enzymes”. Justify the statement upholding the economic argument for immobilization.		8	L4	CO2
OR						
Q.6	a.	Describe the design and configuration of different immobilized enzyme reactors.		12	L2	CO2
	b.	Infer on the effect of solute partition and diffusion on kinetics of immobilized enzymes.		8	L4	CO2

## Module – 4

Q.7	a.	Discuss in detail the design and construction of novel enzymes.	10	L2	CO2
	b.	Co-relate the role of enzymes in biotransformation of drugs by citing suitable examples.	10	L3	CO2

## OR

Q.8	a.	Explain in detail on host-guest complexation chemistry.	10	L1	CO2
	b.	Define synzymes. Can their performance be comparable to that of native enzymes? Justify your answer.	10	L4	CO2

## Module – 5

Q.9	a.	Highlight the role of different diagnostic enzymes in medicine industry.	10	L2	CO3
	b.	“The role of different enzymes in food and beverage industry is incomparable”. Substantiate the above statement.	10	L3	CO3

## OR

Q.10	a.	Outline the role of different enzymes (any 5) used in the detergent industry.	10	L2	CO3
	b.	With suitable examples (any 5) elucidate the significance of different therapeutic enzymes.	10	L2	CO3

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