CBCS SCHEME

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BBT502

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
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.	Comprehend the features of enzymes making it as biocatalyst.	10	L1	CO1
	b.	Classify and name enzymes by taking recommendations of Enzyme Commission (EC) with example for each class.	10	L2	CO1
		OR			
Q.2	a.	Explain the unique way in which enzymes are able to enhance the rate of reaction under mild environmental conditions.	10	L2	CO1
	b.	Develop a strategies used to purify enzymes.	10	L2	CO1
		Module – 2			
Q.3	a.	Justify on how enzymes can serve as catalyst better than chemical catalyst.	10	L1	CO1
	b.	Analyze the advantages of using whole cell system as catalyst over isolated enzymes in bioprocessing.	10	L2	CO1
		OR			
Q.4	a.	How is enzyme assay is performed by fixed incubation and kinetic method.	10	L1	CO1
	b.	How to standardize and optimize rapid, reliable, and reproducible enzyme assays for research and industry?	10	L2	CO1
		Module – 3			
Q.5	a.	Describe the techniques used to immobilise enzyme in reactor for bioprocessing.	10	L2	CO2
	b.	Why kinetics of immobilized enzyme is important when the kinetics of that enzyme in its free form is known?	10	L3	CO2
		OR			
Q.6	a.	Explain the factors to be considered for designing/developing strategies of immobilized enzymes in a reactor.	10	L2	CO2
	b.	How immobilized enzymes are used in the industry? Explain with any 5 examples.	10	L3	CO2

		Module – 4			
Q.7	**a.**	Design a combination of chemical and biological strategies to biotransform progesterone to therapeutically superior adrenal harmone such as prednisolone using hydroxylation and dehydrogenation mechanism.	**10**	**L3**	**CO2**
	b.	Analyze design and construction of enzyme produced by molecular imprinting techniques using steroid templates incorporated with remote functionalisation mechanism.	**10**	**L3**	**CO2**
		OR			
Q.8	**a.**	Identify and solve Host-Guest complexion chemistry between enzyme and its substrate in order to rationally and confidently design synthetic enzyme that performs specific function and tasks.	**10**	**L3**	**CO2**
	b.	Analyze the process of Merrifield Protein Synthesis.	**10**	**L3**	**CO2**
		Module – 5			
Q.9	**a.**	How is myocardial infraction diagnosed with isoenzyme levels?	**10**	**L4**	**CO3**
	b.	Develop a strategy to use pattern of enzymes in the blood samples to trace disease such as liver recloses.	**10**	**L4**	**CO3**
		OR			
Q.10	**a.**	Formulate a manufacturing strategy to replace hazardous chemical ingredients of domestic detergents with enzymes that works efficiently under mild condition.	**10**	**L4**	**CO3**
	b.	How enzymes are used in leather processing industry?	**10**	**L4**	**CO3**

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