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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: VI**
Branch: Biotechnology **Duration: 3 hrs.**
Course Code: 19BT6DCETK **Max Marks: 100**
Course: Enzyme Technology & Kinetics **Date: 15.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1	a)	Identify the enzyme involved in catalyzing the reaction given below. Provide the four-digit EC number and justify. Glutamate + Oxaloacetate ↔ α-Ketoglutarate + Aspartate	**05**
	b)	How is the molecular mass of an enzyme determined? Elucidate the principle of the analytical technique used.	**07**
	c)	State the preliminary purification procedures applied for enzymes.	**08**

UNIT - II

2	a)	Derive the kinetics of a single substrate enzyme-catalyzed reaction. With a suitable plot highlight the significant parameters of enzyme kinetics.	**08**
	b)	Classify enzyme inhibition. Portray the Lineweaver Burk plot for the different types of inhibitors.	**06**
	c)	What factors affect enzyme activity?	**06**

UNIT - III

3	a)	Which catalytic mechanism does RNAse enzyme follow? Depict the mechanism of catalysis.	**08**
	b)	With a suitable example discuss on metal ion catalysis.	**06**
	c)	Portray the mechanism of action for the coenzyme PLP.	**06**

OR

4	a)	Highlight the characteristics of lock & key model and induced fit hypothesis proposed for enzyme substrate interaction.	**08**
	b)	With a suitable example state the characteristics of covalent catalysis.	**06**
	c)	Explain the mechanism of the reaction which involves biotin as a coenzyme.	**06**

UNIT - IV

5	a)	What are the various methods to immobilize an enzyme?	**05**
	b)	State the properties of immobilized enzymes.	**07**
	c)	Justify the utilization of immobilized enzymes in industries.	**08**

UNIT - V

6	a)	What is a non-conventional media? Write on the effect of biocatalysis in this medium.	**08**
	b)	Discuss on the applications of extremozymes.	**06**
	c)	State the characteristics of an antibody catalyzed reaction.	**06**

OR

7	a)	Elucidate the methods for designing new enzyme activities.	**08**
	b)	Enlist the parameters to be taken in to consideration in order to tune a biocatalytic reactions in a monophasic organic solvent system.	**06**
	c)	Justify on how RNA molecules act as catalysts.	**06**

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