

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch – BIOTECHNOLOGY

ENZYMOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	What are enzymes primarily made of? a) Lipids b) Carbohydrates c) Proteins d) Nucleic acids	K1	CO1
	2	What is the region of an enzyme where the substrate binds called? a) Active site b) Binding pocket c) Reaction zone d) Allosteric site	K2	CO1
2	3	Which of the following best describes the main function of an enzyme? a) To add energy to a reaction b) To increase the activation energy of a reaction c) To decrease the activation energy of a reaction d) To act as an energy source for the cell	K1	CO2
	4	Enzymes function as biological catalysts by a) Increasing the activation energy of a reaction b) Being consumed in the reaction c) Lowering the activation energy of a reaction d) Decreasing the rate of the reaction	K2	CO2
3	5	Which factor does NOT typically affect enzyme activity? a) Temperature b) pH c) Substrate concentration d) Gravity	K1	CO3
	6	Which of the following describes a correct step in the enzyme catalytic cycle? a) The substrate is released before the enzyme is regenerated b) The enzyme changes shape to fit the product, not the substrate c) The substrate binds to the active site, forming an enzyme-substrate complex d) The enzyme is consumed during the reaction and the product is released	K2	CO3
4	7	Which of the following is an example of a factor that can inhibit enzyme activity? a) An activator molecule b) Extreme temperatures or pH c) A cofactor d) A high substrate concentration	K1	CO4
	8	Substances that reduce the rate of enzyme-catalyzed reactions are called: a) substrates b) enzymes c) products d) inhibitors	K2	CO4

Cont...

5	9	The enzyme used to make cheese by coagulating milk is: a) Trypsin b) Lipase c) Rennet d) Lysozyme	K1	CO5
	10	Which enzyme's increased concentration in serum can indicate liver diseases? a) Creatine Kinase (CK) b) Amylase c) Aspartate Transaminase (AST) d) Urokinase	K2	CO5

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Illustrate the lock and key mechanism and induced fit theory to explain the structure of active site.	K2	CO1
		(OR)		
	11.b.	Classify enzyme specificity and explain them in short.		
2	12.a.	Relate the definition of activation energy with reference to enzyme catalysis.	K2	CO2
		(OR)		
	12.b.	Deduce the mechanism of action of serine proteases.		
3	13.a.	Identify the environmental factors which influence the enzyme activity in canned food.	K3	CO3
		(OR)		
	13.b.	Develop a protocol to analyze the optimum temperature of an enzyme through Arrhenius equation.		
4	14.a.	Describe how allosteric enzymes change conformation upon substrate binding.	K3	CO4
		(OR)		
	14.b.	Comment on the types of irreversible enzyme inhibition.		
5	15.a.	Analyze the importance of enzyme in clinical diagnosis with reference to LDH.	K4	CO5
		(OR)		
	15.b.	Compare the use of artificial enzymes and catalytic antibodies.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Outline enzyme nomenclature and classification.	K2	CO1
2	17	Explain about various mechanism of enzyme catalysis.	K2	CO2
3	18	Apply MM equation to determine the enzyme substrate specificity.	K3	CO3
4	19	Compare competitive, non-competitive and un-competitive type of enzyme inhibition.	K4	CO4
5	20	Apply various enzyme immobilization method for industrial applications.	K3	CO5

Z-Z-Z

END