22BCP103N/ 22BCP103

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(First Semester)

Branch - **BIOCHEMISTRY**

ENZYMES AND ENZYME TECHNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks **(10 × 1 = 10)**

Question no.	Question	K Level	CO
1	The enzyme using some other substance, not oxygen as hydrogen acceptor is a) Tyrosinase b) succinate dehydrogenase c) uricase d) cytochrome oxidase	K1	CO1
2	_____is the example of extracellular enzyme. a) Fumarase b) Lysozyme c) Hexokinase d) Glycogenin	K1	CO1
3	A coenzyme containing aromatic hetero ring structure is a) TPP b) Lipoic acid c) Coenzyme Q d) Biotin	K1	CO2
4	One of the following enzyme is not a radical neutralizer. a) Glyceraldehyde dehyrogenase b) Glutathione reductase c) Glutathione peroxidase d) Catalase	K1	CO2
5	In enzyme kinetics Vmax reflects a) The amount of an active enzyme b) Substrate concentration c) Half the substrate concentration d) Enzyme substrate complex	K1	CO3
6	When the velocity of an enzymatic reaction equals Vmax substrate concentration is a) Half of Km b) Equal to Km c) Twice the Km d) Above the Km	K1	CO3
7	Which of the following is not involved in covalent catalysis? a) Bases which catalyse the reaction by accepting proton b) Electron rich nucleophillic function group of amino acid c) Electron deficient electrophillic portion of substrate d) Acylated, Phosporylated enzymes nucleophile as covalent intermediate	K1	CO4
8	An example for feedback inhibition is a) allosteric inhibition of hexokinase by glucose-6-phosphate b) cyanide action on cytochrome c) sulpha drug on folic acid synthesizing bacteria d) succinate inhibiting succinate dehydrogenase	K1	CO4
9	Which of the following enzymes is not used in making detergent? a) amylases b) lipase c) peptidase d) cellulase	K1	CO5
10	Cocoa butter substitutes is produced by using immobilized. a) Lipase b) amino acylase c) penicillin amidase d) invertase	K1	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

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

Question no.	Question	K Level	CO
11 a.	Signify photo oxidation in biological system.	K2	CO1
	OR		
11b.	Define catalytic action of protease. Explain its role.		
12 a	Discuss about flavin nucleotide and thiamine pyrophosphate.	K2	CO2
	OR		
12 b.	Explain about non-vitamin derived co-enzymes.		
13 a.	Define activation energy. Explain theory of activation energy with relevance to first and second order reaction.	K2	CO3
	OR		
13b.	Classify different types of inhibitions with suitable inhibitors.		
14a.	Define allosterism. Compare concerted and sequential model of allosterism with relevant examples.	K2	CO4
	OR		
14b.	Illustrate the suicide inhibitors mechanism with two examples and present kinetic variation.		
15a.	Define biosensor. Explain potentiometric and immune-biosensors.	K2	CO5
	OR		
15 b	How is enzyme engineering performed? Explain with an application.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

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

Question no.	Question	K Level	CO
16	Narrate how TPCK and proteases acts as an affinity label probes to arrive active site of an enzyme.	K2	CO1
17	Describe the catalytic action and biological significance of antioxidant enzymes: SOD, GPx and GR.	K2	CO2
18	Exemplify therapeutic and industrial applications of enzymes.	K2	CO3
19	Narrate mechanism of action of lysozyme with a neat diagram.	K2	CO4
20	How are enzymes clinically useful? Narrate with examples.	K2	CO5

Z-Z-Z END