

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2023
(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	Protein that have been discovered that employ alternative approaches to peptide – bond hydrolysis is a) Cysteine protease b) Metallo protease c) aspartyl protease d) All of the above	K1	CO1
2	Two important classes of compounds that are synthesized by fatty acid synthase complexes are _____ and _____ a) L-Amino acid and Acyl CoA Phosphate b) Polyketides and non ribosomal peptides c) Non ribosomal peptides and dipeptides d) Polyketides and Acy CoA Phosphate	K1	CO1
3	Isoenzymes are a) Chemically, immunologically and electrophoretically different form of enzyme b) Different form of an enzyme similar in all properties c) Catalyzing different reactions d) Having the same quaternary structure like enzyme	K1	CO2
4	A coenzyme containing aromatic ring in its structure is a) Folic acid b) Lipoic acid c) TPP d) Coenzyme Q	K1	CO2
5	Methotrexate is an analog for tetrahydrofolate, a coenzyme for enzyme dihydrofolate reductase binds _____ replacing substrate. a) competitively b) irreversibly c) Non-Competitively d) uncompetitively	K1	CO3
6	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
7	Histidine proton shuttle , abstracts a proton from the zinc bound water molecule, generating nucleophilic hydroxide ion and a protonated histidine is catalysis of ----- a) Lysozyme b) Nucleoside monophosphate kinase c) Aspartate transcarbamylase d) Carbonic anhydrase	K1	CO4
8	An example of allosteric feedback inhibition is a) Allosteric inhibition of hexokinase by glucose-6-phosphate b) Cyanide action on cytochrome c) Sulpha drug action on folic acid synthesizer bacteria d) Reaction between succinic acid and succinate dehydrogenase	K1	CO4

Cont...

9	Immobilisation of amino acylase will support in production of _____ a) Formic acid b) Urocanic acid c) L-aminoacid d) glucose	K1	CO5
10	_____ is an electrode coupled with glucose oxidase in an glucose electrode. a) Ferrocene derivatives b) Urease c) Polyacrylamide d) Biochips	K1	CO5

SECTION - B (35 Marks)

Answer ALL questions

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

11 a.	Define active site. Explain any one method with neat diagram, how an active site structure identified?	K2	CO1
	OR		
11b.	Write a brief note on multienzyme complex action with Pyruvate Dehydrogenase.	K2	CO2
12 a	Write about structure and mechanism of action in pyridine nucleotide and tetrahydrofolic acid.		
	OR	K2	CO3
12 b.	Differentiate metallo-enzymes and metal –dependent enzymes.		
13 a.	Write short note on the following: i) Linweaver Burk Plot ii) Eadieofftsee plot	K2	CO4
	OR		
13b.	Differentiate reversible inhibition and Competitive inhibition.	K2	CO5
14a.	Illustrate allosteric co-operativity (R&T, KV series of enzymes.		
	OR	K2	CO1
14b.	Write about the mechanism of action of lysozyme.		
15a.	Write a detail note on role of enzymes in diagnostics with two examples.	K2	CO2
	OR		
15 b	Define biosensors. Explain with a diagram potentiometric Biosensor.	K2	CO5

SECTION -C (30 Marks)

Answer ANY THREE questions

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

16	Discuss about multienzymes complex and elucidate multifunctional action.	K2	CO1
17	What is free radical? How are these free radicals neutralized by enzyme system?	K2	CO2
18	Explicit M M equation that approves first order enzyme reaction with a substrate.	K2	CO3
19	Signify catalytic action of Aspartate transcarbamyase. Explain feedback regulation.	K2	CO4
20	Narrate the role of enzymes in therapy and analytical Reagents preparation.	K2	CO5

Z-Z-Z END