

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)**

Branch- BIOCHEMISTRY

CHEMISTRY OF BIOPOLYMERS

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	Which of the following is a type of homoglycan? A) Cellulose B) Chitin C) Glycogen D) Both A and C	K1	CO1
	2	Where can heteroglycans be found? A) Only in plants B) Only in animals C) In both plants and animals D) In neither plants nor animals	K2	CO1
2	3	What type of bond holds amino acids together in a protein? A) Hydrogen bonds B) Ionic bonds C) Peptide bonds D) Disulfide bonds	K1	CO2
	4	Which of the following best describes the function of enzymes? A) They provide energy B) They store genetic information C) They speed up chemical reactions D) They protect against pathogens	K2	CO2
3	5	Which of the following is a characteristic of lipids? A) They are soluble in water B) They store energy C) They are made of amino acids D) They form long chains of nucleotides	K1	CO3
	6	Which of the following lipids is an example of an amphipathic lipid? A) Triglycerides B) Cholesterol C) Phospholipids D) Saturated fats	K2	CO3
4	7	What is the basic unit of DNA? A) Amino acid B) Nucleotide C) Carbohydrate D) Lipid	K1	CO4
	8	What is the primary function of messenger RNA (mRNA)? A) To transport amino acids B) To catalyze biochemical reactions C) To carry genetic information from DNA to the ribosome D) To form the structure of ribosomes	K2	CO4

Cont...

5	9	What is triplex DNA? A) DNA with a single strand B) DNA with two strands C) DNA with three strands D) DNA in a circular form	K1	CO5
	10	Which of the following best describes the role of transcription factors? A) They stabilize the DNA double helix. B) They catalyze DNA replication. C) They regulate gene expression by binding to specific DNA sequences. D) They repair DNA damage.	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.	Explain the biological functions of Chitins and fructans.	K5	CO1
		(OR)		
	11.b.	Evaluate the properties and biological functions of heparin.		
2	12.a.	Analyze the hydrophobic interactions of Proteins.	K4	CO2
		(OR)		
	12.b.	List the functions of glycoproteins.		
3	13.a.	Brief on any two lipid soluble vitamins.	K4	CO3
		(OR)		
	13.b.	List the biological actions of lipoxins.		
4	14.a.	Justify the Wedge model for DNA bending.	K5	CO4
		(OR)		
	14.b.	Explain the DNA knots.		
5	15.a.	Elaborate the mispaired DNA.	K6	CO5
		(OR)		
	15.b.	Discuss the helix-turn-helix motif.		

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	Analyze the structure, isolation and purification of glucans.	K4	CO1
2	17	Compare the secondary and tertiary structure of protein.	K4	CO2
3	18	Explain the biological importance of steroids.	K4	CO3
4	19	Explain the structure of double stranded DNA.	K5	CO4
5	20	Elaborate the Human Genetic Diseases.	K6	CO5