

**PSG COLLEGE OF ARTS & SCIENCE**  
(AUTONOMOUS)  
**BSc DEGREE EXAMINATION MAY 2024**  
(First Semester)  
Branch - **BIOTECHNOLOGY**

**CHEMISTRY OF BIOMOLECULES**

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	Choose how the molecules are held together in a crystal (a) hydrogen bond (b) electrostatic attraction (c) Van der Waal's attraction (d) dipole-dipole attraction	K1	CO1
	2	Select the pH of a solution containing an equal volume of 0.1 M NaOH and 0.01 M HCl. (a) 7.0 (b) 2.0 (c) 12.65 (d) 1.04	K1	CO1
2	3	Which of the following does not have sulphuric acid groups? (a) Heparin (b) Kerato sulfate (c) Hyaluronic acid (d) Chondroitin sulfate	K1	CO2
	4	Which of the following is also known as inverted sugar? (a) Sucrose (b) Fructose (c) Dextrose (d) Glucose	K1	CO2
3	5	Select an example of derived lipids (a) Terpenes (b) Steroids (c) Carotenoids (d) All of the above	K1	CO3
	6	Which of the following nucleotide contains only ribose sugar and not deoxyribose? (a) Thymine – pentose sugar-phosphate (b) Uracil – pentose sugar-phosphate (c) Thymine – pentose sugar-phosphate (d) Cytosine – pentose sugar-phosphate	K1	CO3
4	7	What is the average molecular weight of an amino acid residue in a protein? (a) 120 (b) 110 (c) 130 (d) 140	K1	CO4
	8	Which part of the amino acid gives it uniqueness? (a) Amino group (b) Carboxyl group (c) Side chain (d) None of the mentioned	K2	CO4
5	9	Which of the following vitamin helps in blood clotting? (a) Vitamin A (b) Vitamin C (c) Vitamin D (d) Vitamin K	K1	CO5
	10	Which of the following vitamins are called fat-soluble vitamins? (a) vitamin B (b) vitamin E (c) vitamin C (d) vitamin B2	K1	CO5

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**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 chemical bonding in biochemistry	K1	CO1
	(OR)			
	11.b.	Explain the buffer system.		
2	12.a.	Demonstrate the structure of lactose.	K2	CO2
	(OR)			
	12.b.	Summarize the structure and uses of hyaluronic acid		
3	13.a.	Outline the structure and function of glycolipids	K2	CO3
	(OR)			
	13.b.	Illustrate the types of RNA.		
4	14.a.	Explain the tertiary structure of protein with myoglobin	K2	CO4
	(OR)			
	14.b.	Infer on glycoprotein.		
5	15.a.	Summarize the structure of GABA	K2	CO5
	(OR)			
	15.b.	Write short notes on chemistry and importance of alkaloids		

**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	Organize the properties and solubility of water.	K3	CO1
2	17	Extend the structure and functions of starch and glycogen.	K2	CO2
3	18	Interpret the structure of cholesterol .	K2	CO3
4	19	Construct the structure and functions of peptide bond.	K3	CO4
5	20	Illustrate water soluble vitamins.	K2	CO5