

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2019
(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 x 1 = 10)

- 1 Which among the following is not a property of ionic bond?
(i) Losing of electrons (ii) Gain of electrons
(iii) Sharing of electrons (iv) Transfer of electrons
- 2 First law of thermodynamics deals with
(i) Conservation of mass (ii) Conservation of momentum
(iii) Conservation of energy (iv) Conservation of pressure
- 3 Carbohydrates are also known as _____
(i) Hydrates of carbon (ii) Carbonates
(iii) Glycolipids (iv) Polysaccharides
- 4 The reagent used for distinguishing a reducing monosaccharide and reducing disaccharide is
(i) Fehling's reagent (ii) Seliwanoffs reagent
(iii) Barfoed's reagent (iv) Benedict's reagent
- 5 What is the solubility of lipids in water?
(i) Soluble (ii) Partially soluble
(iii) Insoluble (iv) Partially insoluble
- 6 Which of the following phospholipids is considered as a major constituent of nervous tissue?
(i) Glycerophospholipid (ii) Plasmalogen
(iii) Inositol (iv) Sphingomyelin
- 7 Which among the following is a non-essential amino acid?
(i) Serine (ii) Threonine
(iii) Lysine (iv) Histidine
- 8 The average molecular weight of an amino acid residue in a protein is about
(i) 128 (ii) 118
(iii) 110 (iv) 120
- 9 Which of the following vitamin serves as a hormone precursor?
(i) Vitamin C (ii) Vitamin A
(iii) Vitamin K (iv) Vitamin D
- 10 What is one of the functions of Dopamine?
(i) Excitatory neurotransmitter (ii) Arousal
(iii) Sleeping (iv) Motor behavior

SECTION - B (25 Marks!)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

1 1 a Give a note on covalent bond and ionic bond.

OR

- 12 a Explain the chemical properties of monosaccharides.
OR
b Describe the structure and properties of cellulose.
- 13 a What are phospholipids? Explain with its types and functions.
OR
b Explain Watson and Crick model of DNA structure.
- 14 a How do you classify the amino acids? Write its structure.
OR
b What are glycoproteins? Describe.
- 15 a Write a note on the structure and functions of insulin.
OR
b Write the structure and functions of dopamine and GABA .

SECTION -C (40 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 8 = 40)

- 16 a Elaborate on the buffer systems of biological fluid.
OR
b Illustrate the laws of thermodynamics.
- 17 a Explain the structure and properties of sucrose and lactose.
OR
b Write a detailed note on the structure, properties and functions of starch.
- 18 a Discuss the classification of lipids.
i OR
b What are Eicosanoids? Illustrate with its properties and functions.
- 19 a Give an account on secondary structure of proteins.
OR
b Describe the chemical reactions of amino acids.
- 20 a Demonstrate the structure, biological functions and deficiency diseases of vitamin C.
OR
b Explain the structure, properties and biological functions of alkaloids.