

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018
(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 x 1 = 10)

- 1 What is Glycosidic linkage found in the chitin?
(i) β 1 \rightarrow 2 (ii) α 1 \rightarrow 2
(iii) β 1 \rightarrow 4 (iv) α 1 \rightarrow 6
- 2 Heparin is composed of what?
(i) D-Glucuronic acid + N-acetyl glucose amine
(ii) Glucose + N - acetyl glucosamine
(iii) D-Glucuronic acid + N-acetyl galactoseamine
(iv) Glucose + chondroitin sulphate
- 3 What is pitch of the α -helix?
(i) 5.4 \AA (ii) 5.6 \AA
(iii) 5.2 \AA (iv) 6.0 \AA
- 4 Which of the following is an example for Quaternary structure?
(i) Collagen (ii) Silk fibroin
(iii) myoglobin (iv) Hemoglobin
- 5 What is predominant amino acid sequence of collagen?
(i) Gly - Ala - pro (ii) Gly - Pro - Hyp
(iii) GLy - Pro - Pro (iv) Gly - Hyp - Ala
- 6 Which of the following enzyme is involved in the synthesis of leucotrienes?
(i) Cyclo oxygenase (ii) Peroxidase
(iii) Lipo oxygenase (iv) PGS synthase
- 7 Diterpenes consist of how many isoprene units.
(i) 2 (ii) 4
(iii) 6 (iv) 3
- 8 How many numbers of Basepair / turn in B - DNA?
(i) 10.4 (ii) 12.2
(iii) 11.1 (iv) 14.3
- 9 What is mathematical description for positive super coiling?
(i) $L_k = T_w + w_r$ (ii) $L_k = T_w / T_r$
(iii) $L_k = T_w - T_r$ (iv) $L_{K0} = bp / 10.4$
- 10 In leucine zipper periodic repetition of leucine at which position?
(i) 7th (ii) 6th
(iii) S* (iv) 8th

SECTION - B (35 Marks)Answer **ALL** Questions**ALL** Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a Explain the following :
(i) Xylans (ii) Agar (iii) Galactans
OR
b Discuss the occurrence, structure, properties and functions of heteroglycans.
- 12 a Explain the 'Super secondary structure of proteins'.
OR
b How is the primary structure of protein determined? Explain the function of FDNB as one of the agents in primary structure determination.
- 13 a Explain the following :
(i) Liposomes (ii) Emulsions (iii) Miscelles
OR
b Write in brief on 'Mechanism of Lysozyme action'.
- 14 a What is DNA bending? Explain in brief on various models of DNA bending.
OR
b Illustrate the structure and energetics of 'Supercoiled DNA'.
- 15 a Discuss the nature of different types of 'DNA binding motifs'.
OR
b Explain the process of 'DNA - Protein interaction with an example'.

SECTION - C (30 Marks)Answer any **THREE** Questions**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Explain the occurrence, structure, properties and functions of Homoglycans.
- 17 Discuss on different levels of protein structure.
- 18 Describe the various classification of Eicosanoids and list out the functions of Leucotrienes.
- 19 Explain the Watson and Crick model of DNA and explain how it is differing from other forms of DNA.
- 20 Discuss in detail about the alternative conformations of DNA.

Z-Z-Z

END