

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019
(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)

Identify the homoglycan.

- (i) inulin (ii) gum
(iii) glycogen (iv) chitin

Find out the food reserve Polysaccharide present in tagua palm seeds.

- (i) mannan (ii) xylan
(iii) galactan (iv) galacturonan

Name the bond that bridges two aminoacids.

- (i) glycosidic (ii) covalent
(iii) ester (iv) peptide

What is the range for dihedral angles?

- (i) -0° to $+0^\circ$ (ii) -1° to $+1^\circ$
(iii) -180° to $+180^\circ$ (iv) -90° to $+90^\circ$

Indicate the number of Polypeptide chains in myoglobin.

- (i) 1 (ii) 2
(iii) 3 (iv) 4

Where do the biosynthesis of Prostaglandins occur?

- (i) cytoplasm (ii) mitochondria
(iii) chloroplast (iv) endoplasmic reticulum

Indicate the energy content of H bonds in DNA.

- (i) 2-3Kcal/mol (ii) 10-15Kcal/mol
(iii) 40-50Kcal/mol (iv) 38Kcal/mol

Choose the model organism for bent DNA.

- (i) S.typhi (ii) E.coli
(iii) S.aureus (iv) C.fasciculata

Identify the DNA confirmation in which the polarity of 2 strands are same

- (i) Watson-Crick (ii) bent DNA
(iii) Parallel Stranded DNA (iv) Triplex DNA

10 Which genetic disease is associated with FMR-1 gene?

- (i) Fragile-x-syndrome (ii) myotonic dystrophy
(iii) Kennedy's disease (iv) Huntingtons disease

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

- 11 a Explain the procedure for isolation of starch and list out its properties and functions.
- OR
- b Write notes on : (i) Sialic acid (ii) Blood group substances (iii) Hepatis.
- 12 a Sketch the "Ramachandran plot" and mention its uses.
- OR
- b Organize the protein structure based on α - helix, β - sheets and β - turns.
- 13 a Illustrate the structure of Leukotrienes and list out its functions.
- OR
- b State the conformational properties of Elastin, keratin and collagen.
- 14 a Discuss the difference between "B" and 'Z' types of DNA.
- OR
- b Prepare a note on physical properties and biological significance of double stranded DNA.
- 15 a Illustrate on Anisomorphous DNA? Analyse the various human genetic diseases.
- OR
- b Discuss the formation and stability of "Triplex DNA".

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

- 16 Analyse about the polysaccharides with galactose and mannose backbone.
- 17 Compare the determination of amino acid sequences in proteins by Sanger's and Edman's method?
- 18 Elucidate in detail, about the structure and biological actions of 'Eicosanoids'.
- 19 Enumerate the different types of RNA and mention their biological role.
- 20 Predict the nature of different types of DNA bending motifs.

Z-Z-Z

END