(6 pages)

Reg. No. : .....

Code No. : 30370 E **Sub. Code : AMBO 53**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

Botany – Core

BIOCHEMISTRY AND BIOINFORMATICS

(For those who joined in July 2020 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which among the following is the strongest bond?
   (a) Covalent bond
   (b) Coordinate bond
   (c) Hydrogen bond
   (d) Ionic bond

2. Most commonly used material in TLC plate is
   (a) Agar-agar (b) EDTA
   (c) Silica gel (d) Mercaptoethanol

3. Which of the following is an example of Epimers?
   (a) Glucose and Ribose
   (b) Glucose and Galactose
   (c) Galactose, Mannose and Glucose
   (d) Glucose, Ribose and Mannose

4. Structural polysaccharides include
   (a) Cellulose, hemicellulose, chitin
   (b) Cellulose, starch, chitin
   (c) Cellulose, starch, glycogen
   (d) Cellulose glycogen, chitin

5. What is a bond between amino acids called?
   (a) Ionic bond (b) Acidic bond
   (c) Peptide bond (d) Hydrogen bond

6. The degree of unsaturation of lipids can be measured as
   (a) Iodine number
   (b) Saponification number
   (c) Reichert Meissel number
   (d) Polenske number

7. The enzyme that was first isolated and purified in the form of crystals
   (a) Urease (b) Pepsin
   (c) Amylase (d) Ribonuclease

8. Lock and Key model of Enzyme function was proposed by
   (a) Emil Fischer (b) Linus Pauling
   (c) Erwin Chargaff (d) Rosalind Franklin

9. Which among the following is a protein database?
   (a) PDP (b) DDBJ
   (c) Genbank (d) EMBL

10. Which among the following is an enzyme database?
    (a) Expazy (b) PIR
    (c) EMBL (d) Genbank

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the ionic and covalent bonds.

Or

(b) Describe the principle and applications of Centrifuge.

12. (a) What is mean by mutarotation? Explain with example.

Or

(b) Decipher the physical properties of cellulose.

13. (a) Classify the proteins based on structural shape.

Or

(b) Comment on the terms iodine number and saponification number.

14. (a) Derive the nomenclature of enzymes.

Or

(b) Critically review the role of enzymes in industry.

[P.T.O]

15. (a) What is bioinformatics? How it is useful to biological research?

Or

(b) Give an account of nucleic acid databases.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Analyse the arrangement of atoms.

Or

(b) Describe the principle and applications of Colorimeter.

17. (a) Describe the structure and properties of disaccharides.

Or

(b) "Starch is a polysaccharide" - Justify the statement.

18. (a) Examine any four physical and any two chemical properties of proteins.

Or

(b) Classify the lipids.

19. (a) Classify the enzymes.

Or

(b) Explain the mechanism of enzymes through Lock and Key Model.

20. (a) Discuss, in detail, the features and applications of Internet.

Or

(b) Analyse the features of Enzyme databases.

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