

19. (a) Give short note on osmotic pressure.

Or

- (b) Discuss the role protein involved in muscle contraction.

20. (a) Explain about membrane thermodynamics.

Or

- (b) Comment on ion transporters.

PART C — ($3 \times 10 = 30$)

Answer any THREE out of Five questions.

21. Explain the structure and functions of protein.
22. Write in detail about configuration of macromolecules.
23. Discuss the various types of binding processes in biological system.
24. Write in detail about the thermodynamics of biopolymer solutions.
25. Outline the structure and functions of cell membrane.

S.No. 6241

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(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Chemistry — Core Choice Course

BIO-PHYSICAL CHEMISTRY

Time : Three hours

Maximum : 75 marks

PART A — (20 marks)

Answer ALL questions.

- I. (A) Multiple choice questions ($5 \times 1 = 5$)
1. Which of the following act as a storage form of high energy phosphate?
- (a) Glucose-6-phosphate
 - (b) Phosphoenolpyruvate
 - (c) Phosphagens
 - (d) Glycerol phosphate
2. There are several levels of protein structure, which is the most complex protein?
- (a) Primary
 - (b) Secondary
 - (c) Tertiary
 - (d) Quaternary

3. According to Lewis theory, an acid reacts with a base to form:

- (a) A coordinate bond
- (b) An ionic bond
- (c) Another pair of acid and base
- (d) Salt and water

4. The length of this is reduced while the muscle contracts

- (a) Sarcomere
- (b) I-Band
- (c) A-Band
- (d) H-Zone

5. The primary intracellular cation is

- (a) Na^+
- (b) Ca^+
- (c) K^+
- (d) Cl^-

(B) Fill in the blanks (5 × 1 = 5)

6. _____ types of nucleic acids are present in the living systems.

7. Peptide bond is a _____.

8. _____ is used as an indicator in the titration of a strong acid and a weak base.

9. _____ is the contractile protein of muscle.

10. Ion carriers are located in _____.

II. Answer ALL the questions (5 × 2 = 10)

11. What is endoplasmic reticulum?

12. Define polypeptide

13. How is hydrophobic force formed?

14. Draw the structure of myosin.

15. What do you mean Sedimentation equilibrium?

PART B — (5 × 5 = 25)

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

16. (a) Draw and explain the structure of RNA.

Or

(b) Give a short note on hydrolysis of ATP.

17. (a) Write the significance of kinetic chain length.

Or

(b) Comment on protein folding.

18. (a) Discuss the four forces of biopolymers.

Or

(b) Explain about Dispersion force interaction.