

2071

M.Sc. (Applied Chemistry/Pharmaceutical) Second Semester

Paper – 204: Biophysical Chemistry

Time allowed: 3 Hours

Max. Marks: 60

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

I. Answer the following:-

- a) What do you know about protein folding problem?
- b) What is nerve conduction?
- c) What is electrophoresis?
- d) What are reverse micelles? (4x3)

UNIT – I

- II. a) Explain synthesis of ATP from ADP.
- b) What are exergonic and endergonic biochemical reactions? Explain with example. (6,6)
- III. a) How can you calculate average dimensions for various chain structures of biopolymers?
- b) Explain polypeptides and protein structure in detail. (6,6)

UNIT – II

- IV. a) Explain thermodynamics of biopolymer solution.
- b) Describe osmotic pressure and membrane equilibrium. (6,6)
- V. a) Explain ion transport through cell membrane.
- b) Describe irreversible thermodynamics treatment of membrane transport. (6,6)

UNIT – III

- VI. a) How can you measure viscosity of biopolymers experimentally? How it is related to geometry?
- b) Explain Fick's Law of diffusion and diffusion coefficient. (6,6)

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VII. Explain the following:-

- a) Isoelectric focusing
- b) Second virial coefficient
- c) Drug absorption

(3x4)

UNIT – IV

VIII. a) Explain Rayleigh scattering.

b) How can you describe solubility of biomolecules as solution of polyelectrolytes?

(6,6)

IX. a) How Debye Huckel theory be applied for protein purification?

b) What is denaturation of biomolecules? How can they be stabilized? Explain with example.

(6,6)

x-x-x