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25-CH-23

**M.Sc. II SEMESTER [MAIN/ATKT] EXAMINATION
MAY - JUNE 2025**

CHEMISTRY

Paper - III

[Physical Chemistry - II]

[Max. Marks : 75]

[Time : 3:00 Hrs.]

[Min. Marks : 26]

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt all five questions. Each question carries an internal choice.
Each question carries **15 marks**.

- Q. 1** Discuss Activated Complex Theory (Transition State Theory) in terms of statistical and thermodynamical formulation of reaction rates.

OR

What is Chain Reaction ? Describe the mechanism and kinetics of Hydrogen Bromine reaction.

- Q. 2** What do you understand by Critical Micelle Concentration (CMC). How CMC of a surfactant be determined ? Explain the factors affecting the CMC of surfactants.

OR

State and explain the B.E.T. equation for multi layer adsorption. Explain how the surface area of an adsorbent be determined with the help of this equation.

- Q. 3** Define Polymer. What is number average and mass average molecular mass of polymers ? Give any one method for the determination of molecular mass of the polymers.

OR

Write notes on -

- i) Electrically conducting and fire resistant polymers.
- ii) Chain configuration of Macro molecules.

- Q. 4** Define entropy balance equation. Discuss it for irreversible processes as heat flow and one chemical reaction.

P.T.O.

OR

Discuss forces and fluxes. Give phenomenological equations and how it explain the transport process.

Q. 5 Describe Debye - Huckel - Onsagar treatment for strong electrolytes.

OR

Discuss Lippmann equation for surface excess.

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