

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
March/April – 2025 (As Per Syllabus Year-2018)
Physical Chemistry(CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que-1(A) Answer the following. (04)**
(1) Differentiate: Atactic and Syndiotactic.
(2) Give an account of miscellaneous reaction.
- Que-1(B) Answer any two questions out of three. (10)**
(1) Describe addition and substitution reaction
(2) Explain Cross linking reaction.
(3) Describe the beif classification of polymers.
- Que-2(A) Answer the following (04)**
(1) Explain the methods of initiating free radical polymerization
- Que-2(B) Answer any two questions out of three. (10)**
(2) Discuss the co-ordination polymerisation.
(3) Write a note on Evaluation of reactivity ratios.
(4) Explain ionic polymerisation and its kinetics.
- Que-3(A) Answer the following (04)**
(1) Explain nonlinear polycondensation
(2) Discuss the Reaction route of polyfunctional compounds
- Que-3(B) Answer any two questions out of three. (10)**
(1) Write a note on kinetics of polycondensation reaction.
(2) Describe the Statistics of linear polycondensation.
(3) Discuss the factors affecting the rate of polycondensation and molecular weight of the polymer.
- Que-4(A) Answer the following. (04)**
(1) Define: Zeta potential and Critical Miceller Concentration.
(2) Define the term: Adsorptio, Absorption and Sorption
- Que-4(B) Answer any two questions out of three. (10)**
(1) Dicuss about the Langmuirs adsorption isotherm
(2) Explain surface active agent with example.
(3) Give a brief explanation about lyophobic and lyophilic sols.
- Que-5(A) Answer the following. (04)**
(1) Explain Hydrogen over potential.
(2) Explain elimination of liquid junction potential.
- Que-5(B) Answer any two questions out of three. (10)**
(1) Write a note on
i. Concentration cell without transference.
ii. Ni-Fe accumulator.
(2) Give a brief explanation about Decomposition potential.
(3) The EMF of the concentration cell is 0.0119 volt at 27°C Temp.
Pb / PbSO₄ / CuSO₄ (a_± = 0.022) : CuSO₄ (a_± = 0.006) / PbSO₄ / Pb
Calculate the transference number of Cu⁺².
