

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
May/June-2021 (NEW COURSE)
Physical Chemistry (CORE)

Time: 1:30 Hours

Marks: 42

Instructions:

1. Figure to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

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- Que-1(a) Answer the following:** (04)
(1) Differentiate: Atactic, Syndiotactic and Heterotactic.
(2) Give an account of cyclization reaction..
- Que-1(b) Answer any two questions out of three.** (10)
(1) Describe the beif classification of polymers.
(2) Explain polymer miscellaneous reactions and curing of epoxy resins.
(3) Describe Block and Graft polymers.
- Que-2(a) Answer the following:** (04)
Explain the mechanism of initiated polymerization.
- Que-2(b) Answer any two questions out of three.** (10)
(1) Discuss co-polymerisation and its kinetics.
(2) Write a note on co-ordination polymerisation.
(3) Explain cationic polymerisation and its kinetics.
- Que-3(a) Answer the following:** (04)
(1) Explain Molecular weight control in polycondensation
(2) Discuss the reaction route of polyfunctional compounds
- Que-3(b) Answer any two questions out of three.** (10)
(1) Explain the effect of monomer concentration and temperature on direction of polycondensation reaction.
(2) Write a note on
(i) Kinetics of poly condensation reaction.
(ii) Non linear polycondensation
(3) Discuss the factors affecting the rate of polycondensation and molecular wight of the polymer.
- Que-4(a) Answer the following:** (04)
(1) Define: Zeta potential and CMC.
(2) Explain surface active agent.
- Que-4(b) Answer any two questions out of three.** (14)
(1) Discuss about lyophobic and lyophilic sols.
(2) Derive langmuirs adsorption isotherm.
(3) Define the term: Adsorptio, Absorption and Sorption Give a brief explanation about types of adsorption.
- Que-5(a) Answer the following:** (04)
Explain Decomposition voltage.
- Que-5(b) Answer any two questions out of three.** (14)
(1) Write a note on
(i) Zink-Silver accumulator.
(ii) Lead accumulator.
(2) Explain the term overvoltage. What are the application of this phenomenon? Explain how hydrogen over potential experimentally?
(3) (i) Explain elimination of liquid junction potential.
(4) (ii) The EMF of the concentration cell is 0.0118 volt at 25°C Temp.
Pb/PbSO₄/CuSO₄ (a_±=0.02205) : CuSO₄ (a_±=0.00639)/PbSO₄/Pb.
Calculate the transference number of Cu⁺ion
