

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
March/April– 2019 (New Course)
Physical Chemistry (CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

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

Q.1 (a) Answer the following	4
(1) Explain Stereo regular polymers.	2
(2) Give an account of miscellaneous reaction.	2
 Q.1 (b) Answer any two questions out of three.	10
(1) Describe the beif classification of polymers.	5
(2) Explain Cross linking reaction.	5
(3) Describe Block and Graft polymers.	5
 Q.2 (a) Answer the following	4
Write a note on co-ordination polymerisation.	4
 Q.2 (b) Answer any two questions out of three.	10
(1) Explain the methods of initiating free radical polymerization.	5
(2) Discuss co-polymerisation and its kinetics.	5
(3) Explain cationic and anionic polymerisation.	5
 Q.3 (a) Answer the following	4
(1) Explain Molecular weight control in polycondensation	2
(2) Discuss the Reaction route of polyfunctional compounds	2
 Q.3 (b) Answer any two questions out of three.	10
(1) Explain the effect of monomer concentration and temperature on direction of polycondensation reaction.	5
(2) Write a note on	5
i. Kinetics of poly condensation reaction.	
ii. Non linear polycondensation.	
(3) Discuss the factors affecting the rate of polycondensation and molecular weight of the polymer.	5

Q.4 (a) Answer the following	4
(1) Define: Zeta potential and Critical Miceller Concentration.	2
(2) Explain surface active agent.	2
Q.4 (b) Answer any two questions out of three.	10
(1) Discuss about lyophobic and lyophilic sols.	5
(2) Define the term: Adsorption, Absorption and Sorption. Discuss the influence of temperature and pressure on adsorption.	5
(3) Give a brief explanation about types of adsorption.	5
Q.5 (a) Answer the following	4
Explain Hydrogen over potential.	4
Q.5 (b) Answer any two questions out of three.	10
(1) Write a note on	5
i. Concentration cell without transference.	
ii. Ni-Fe accumulator.	
(2) Give a brief explanation about Decomposition potential.	5
(3) i. Explain elimination of liquid junction potential.	5
ii. The EMF of the concentration cell is 0.0118 volt at 25°C Temp. Pb / PbSO ₄ / CuSO ₄ (a _± = 0.02205) : CuSO ₄ (a _± = 0.00639) / PbSO ₄ / Pb Calculate the transference number of Cu ⁺² .	
