

M.Sc.(Chem.) Semester - 2 (CBCS) Examination**April/May-2023 (NEW COURSE)****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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Q.1(A) Answer the following questions. (04)

1. Give the repeat unit structure and full form of PS, Nylon 66, PET.
2. Give a note on miscellaneous reaction.

Q.1(B) Answer the following question. (Any Two) (10)

1. Write a note on:
(I) Addition and substitution reactions
(II) Stereo regular polymers
2. Explain Cross linking reaction.
3. Describe Block and Graft polymers with examples.

Q.2(A) Answer the following question. (04)

Explain Factors affecting Free radical chain polymerization and properties of the resulting polymers.

Q.2(B) Answer the following question. (Any Two) (10)

1. Explain Chain transfer reactions and its kinetics.
2. Write a note on co-ordination polymerisation.
3. Explain evaluation of reactivity ratios.

Q.3(A) Answer the following questions. (04)

1. Factors affecting the rate of polycondensation and molecular weight of the polymer
2. Discuss the Reaction route of polyfunctional compounds

Q.3(B) Answer the following question. (Any Two) (10)

1. Explain the Kinetics of polycondensation reaction.
2. Write a note on
(I) Polycondensation equilibrium and molecular weight of polymer.
(II) Non linear polycondensation.
3. Discuss about Molecular weight control in polycondensation

Q.4(A) Answer the following questions. (04)

1. Define the term: Adsorption, Absorption and Sorption.
2. Discuss the influence of temperature and pressure on adsorption.

Q.4(B) Answer the following question. (Any Two)

(10)

1. Give the brief explanation about Zeta potential
2. Write a note on:
 - (I) Adsorption by solid from solution
 - (II) Micellisation
3. Give a brief explanation about types of adsorption.

Q.5(A) Answer the following questions.

(04)

1. Classification of electrochemical cell
2. Explain elimination of liquid junction potential.

Q.5(B) Answer the following question. (Any Two)

(10)

1. Write a note on:
 - (I) Decomposition potential
 - (II) Ni-Fe accumulator.
2. Explain about evaluation of Hydrogen over potential.
3. The E.M.F of the contraction cell with transference is 0.02802 V at 27°C .



The E.M.F of the corresponding cell without transference is 0.0170 volt,

Calculate the LJP, E_j and the transference no. of the Cl^- and H^+ ion.
