

PC-1740/M

L-7/2050

POLYMERS AND SURFACE CHEMISTRY-433
(Semester-I)

Time : Two Hours]

[Maximum Marks : 55

Note : Attempt any *four* questions. All questions carry equal marks.

- Discuss the kinetics of radical chain polymerization.
 - What are the redox initiators?
- What is the need of average molecular weight of polymer?
How molecular weight of polymers can be determined by viscosity average method.
- What is the significance of light scattering method for the determination of molecular weight of polymers?
 - Differentiate between average and end-to-end distance in polymers.
- How do you classify emulsions? What are the different quantitative theories of emulsion?

5. What are the postulates of BET adsorption isotherm? How surface area of adsorption can be estimated on the basis of this theorem?
6. (a) Define catalytic activity. How is it determined?
(b) What is the significance of primary and secondary salt effects?
7. (a) Discuss the principle of LEED. How is spectroscopic method LEED significant in determining the surface structures?
(b) Give the statement of Langmuir adsorption isotherm.
8. (a) What are the different absolute rate theories of heterogeneous reactions?
(b) What are the different methods of retardation of reaction products?
9. (i) Define Polydispersity index. Can it be one?
(ii) What is the monomeric unit of Nylon-6? Why Nylon is called so?
(iii) What are the addition co-polymers? Give suitable examples.

- (iv) What do you understand by average radius of gyration?
 - (v) Differentiate between number average and weight average molecular weight.
 - (vi) Define the terms adsorption and occlusion in surface chemistry.
 - (vii) What is positive and negative adsorption? Give suitable examples.
 - (viii) What is Critical Micelle Concentration? Also define Kraft temperature.
 - (ix) What is the effect of temperature and pressure on chemical adsorption?
 - (x) What is the principle of PES?
 - (xi) Which out of physical and chemical adsorption is reversible in number? Give suitable reason.
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