

B.Sc.- III (CBCS Pattern) Semester-VI
CHT16 - Chemistry-IV - Discipline Specific Elective - Chemistry-VIII
Polymer Chemistry

P. Pages : 2

Time : Three Hours



GUG/S/25/13344

Max. Marks : 50

- Notes :
1. All questions are compulsory.
 2. All questions carry equal marks.
 3. Structures, diagrams and chemical equations should be given wherever necessary.

1. a) Define Polymer. Explain in details the classification of polymers. 5
- b) Give the relationship between functionality and degree of polymerization. 5

OR

- c) Differentiate between addition and condensation polymerization. 2½
 - d) Discuss molecular forces and chemical bonding in polymers. 2½
 - e) What do you mean by bifunctional and polyfunctional system. 2½
 - f) What is polyfunctionality in polymers. 2½
2. a) Explain the concept Initiation propagation and termination steps in chain growth polymerization Reaction. 5
 - b) Write informative notes on the following terms: 5
 - i) Ultraviolet stabilizers.
 - ii) Curing Agent

OR

- c) What is fire retardant additives. 2½
 - d) What are antioxidant additives? 2½
 - e) Write a note on radical chain growth polymerization. 2½
 - f) Discuss polymerization techniques. 2½
3. a) How the molecular weight of polymer is determined by Light scattering method? 5
 - b) Explain thermodynamics of polymer solution. 5

OR

- c) Write a short note on molecular weight distribution. 2½
- d) What are the criteria that affect polymer solubility? 2½
- e) Explain free energy change of mixing of polymers solutions. 2½
- f) What is lower and upper critical solution temperature? 2½
- 4. a) Explain the physical, thermal and mechanical properties of polymers. 5
- b) Write the preparation, properties and applications of polyvinyl chloride. 5

OR

- c) Explain structure and uses of acrylic polymers. 2½
- d) Write method of preparation of Bakelite. 2½
- e) Write a short on conducting polymers. 2½
- f) Explain polystyrene polymer. 2½
- 5. Solve **any ten** questions of the following.
- i) Define the term “Monomer”. 10x1
- ii) What are natural polymers. =10
- iii) Explain co-ordination polymer.
- iv) What do you mean by copolymer. Give one example.
- v) What are plasticizers?
- vi) Define Acrylic polymers
- vii) What is end group analysis.
- viii) Define molecular weight distribution.
- ix) What is polymer solution?
- x) Write the structure of Novolac.
- xi) Give any two applications of polyurethanes.
- xii) Write one method of preparation of polyvinyl acetate.
