

M.Sc Semester-4 Examination

508

Polymer Science

April-2024

Time : 2-30 Hours]

[Max. Marks : 70

QUESTION – 1 Write the following

(i) Explain the preparation and structural properties of Fluoropolymers , used as a fire resistant material? **7 MARKS**

(ii) Write short notes on (i)electronic and ionic behaviors(ii) Properties and major application of Polyetheretherketones (PEEK) **7 MARKS**

OR

(i) Describe different types of aromatic polymers used in high temperature applications? **7 MARKS**

(ii) What are the different types of Polyamides? Describe its properties for used in high temperature applications. **7 MARKS**

QUESTION – 2 Write the following

(i) Explain the Photo conducting polymers with examples? **7 MARKS**

(ii) Explain the preparation, structure & properties of Polyacetylenes? **7 MARKS**

OR

(i) State the differences between n- doping & p-doping of a conducting Polymer? Explain the conducting mechanism of polymers? **7 MARKS**

(ii) What is meant by Liquid Crystalline behavior (LCPs)? What are the different types of LCPs. **7 MARKS**

QUESTION – 3 Write the following

(i) Give classification of ionomers. Describe the ionomers based on polystyrene. **7 MARKS**

(ii) Explain the Ion Exchange Membrane system for desalination of water with help of a sketch? **7 MARKS**

OR

(i) What are the Elastomeric ionomers? Give its properties,example and applications? **7MARKS**

(ii) Discuss on the physical properties and industrial applications of Ionic Polymers **7 MARKS**

QUESTION – 4 Write the following

(i) What are the characteristic properties of polymer concrete? Explain it with examples. **7 MARKS**

(ii) Discuss the Polymeric Binders used for Rocket propellants with suitable examples **7MARKS**

OR

(i) Write the polymers used for Biomedical applications with examples. **7 MARKS**

(ii)Write the method of synthesis, characterization and application of Polymer Gels. **7 MARKS**

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QUESTION – 5 Attempt any seven out of twelve. (MCQ, True/False and Short answer type Questions) **14 MARKS**

1. Give applications of piezoelectric polymers
2. Give name of two inorganic additives which increase flame Retardancy of polymeric materials
3. PVC is heat sensitive polymer; still it is used in medical field. Why?
4. Give applications of Pyroelectrical polymers.
- 5 Give the name and structure of two Conducting Polymers.
6. Write the full form of PIC and their application
7. Write the four Uses of Polymer Supported Reagents
8. Polymeric binders are not suitable for rocket propellants, (True/False)
9. EAP's are Elctrorheological fluid and ion-metal composite (True/False)
10. Polyelectrolyte complexes are the association complexes formed between oppositely charged particles. (True/False)
11. Write an example of Heterocyclic polymers with their chemical structure
12. Give four example of polyelectrolyte complexes.
