



M.Sc. III Semester Degree Examination, April/May - 2024

CHEMISTRY

Polymer Science and Technology

(NEP)

Time : 3 Hours

Maximum Marks : 70

Note : Answer **any five** of the following questions with question No. 1 (Q.1) **Compulsory**. Each question carries **equal** marks.

1. (a) What is polymerization? Explain addition and condensation polymerization with examples. **5+4+5**
(b) Write a note on Vulcanization of Rubber.
(c) What are synthetic rubbers? Give synthesis and applications of Butyl rubber.
2. (a) Define number average and weight average molecular weight of polymers with mathematical expression. **4+5+5**
(b) Discuss End group method for determination of molecular weight of polymers.
(c) Write a note on :
(i) Molding of Polymers
(ii) Abrasion resistance of Polymers
3. (a) Discuss morphology of crystalline polymers. **4+5+5**
(b) What is glass transition temperature? Explain factors effect glass transition temperature of polymers.
(c) Write notes on :
(i) Melting point in crystalline polymers
(ii) Heat of fusion
4. (a) Explain creep and fatigue of polymers with examples. **4+5+5**
(b) Describe vicat softening point of polymers.
(c) Explain, Theta solvent and theta temperature.
5. (a) Give properties and applications of Polyester. **4+5+5**
(b) Give applications of biomedical polymers.
(c) Explain, Polymer molding by Injection molding method.



- 6.** (a) Discuss practical significance of molecular weight of polymers. **4+5+5**
(b) Describe physical properties of crystalline polymers.
(c) Write notes on :
(i) Tear Resistance of polymers
(ii) Polymer Utilization
- 7.** (a) Discuss the needs for testing of polymers. **4+5+5**
(b) Give properties and applications of Polyvinylchloride.
(c) Write a note on :
(i) Thermodynamics of mixing polymers
(ii) Conducting polymers
- 8.** (a) Discuss light scattering method for determination of molecular weight of polymers. **5+4+5**
(b) Describe the effect of molecular weight on chemical structure of polymers.
(c) Write notes on :
(i) Thermal conductivity of Polymer
(ii) Thermoforming of Polymer

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