

M.Sc. (Chemistry) (NEP Pattern) Semester-III
STPG03CHE04 / PSCHT12.4- Paper-IV : Polymer Chemistry-I

P. Pages : 2

Time : Three Hours



GUG/S/25/15963

Max. Marks : 40

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1. a) Write short note on cross linked polymerization. 4
b) Explain thermosetting and thermoplastic. 4

OR

- c) Explain condensation polymerization. 2
d) What are fibres and elastomer. 2
e) Give the classification of polymers. 2
f) Describe branched polymers. 2
2. a) Explain end group analysis method for molecular mass determination of polymer. 4
b) What is gel permeation chromatography for molecular mass determination. 4

OR

- c) Define and explain partial molar free energy. 2
d) Explain how to calculate number average molecular mass of polymer. 2
e) Describe the molecular mass distribution. 2
f) What is sedimentation. Explain. 2
3. a) What is degree of crystallinity. Give methods of purification of polymer. 4
b) Give relationship between glass transition temperature and molecular weight. 4

OR

- c) Explain in detail morphology of polymer. 2
d) Explain the term glass transition temperature. 2
e) What is Chian topology. 2
f) Explain the relation between Tg & Tt. 2
4. a) What is organic polymer give the synthesis, properties and applications of polyethylene. 4
b) Write short note on fire retarding polymer. 4

OR

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| c) | Describe and detail conducting polymer. | 2 |
| d) | Give the properties and application of nylon 66. | 2 |
| e) | What are phenolic resins. | 2 |
| f) | Explain properties and application of polyvinyl chloride. | 2 |
| 5. Solve any eight of the following. | | |
| a) | Natural polymer also known by which name? | 1 |
| b) | What is addition polymerization? | 1 |
| c) | What is ultracentrifuge. | 1 |
| d) | Write down any two methods of molecular weight determination of polymer. | 1 |
| e) | Give any two factors affecting crystallinity of polymer. | 1 |
| f) | Define glass state. | 1 |
| g) | Write down the commercial name of polyacrylonitrile? | 1 |
| h) | Ziegler-Natta catalyst is used in the making of which polymer. | 1 |
| i) | Which polymer requires Caprolactam of preparation. | 1 |
| j) | Give an example of elastomer. | 1 |
