

312331

12425

03 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: 10
- a) State oligomer with an example.
 - b) Define co-ordination polymerization.
 - c) Define homochain polymer with an example.
 - d) Write any four analytical technique used to determine molecular weight of polymer.
 - e) Write any four factors affecting polymer degradation.
 - f) State relation between molecular weight and degree of polymerization.
 - g) Write the name of any four types of polymer degradation.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Write the classification of polymers based on their origin with examples.
 - b) Write the difference between homopolymer and copolymer.
(Any four points)
 - c) Explain the relation between glass transition temperature and melting temperature.
 - d) Write merits and demerits of bulk and solution polymerization technique.
- 3. Attempt any THREE of the following:** **12**
- a) Distinguish between thermoplastics and thermosetting plastics.
 - b) State and explain types of molecular weight of polymer.
 - c) State the underlying principle of light scattering techniques used in polymer?
 - d) Explain the viscometer method used to determine the molecular weight of polymer.
- 4. Attempt any THREE of the following:** **12**
- a) Explain antioxidants function as preventive measures for polymer degradation.
 - b) Explain the mechanism of thermal degradation of polymer with an example.
 - c) Write the classification of polymers based on their stereo regularity.
 - d) Explain in detail role of plasticizers and molecular weight on the glass transition temperature of polymer.
 - e) Write the methods used to determine the molecular weight of polymer?

- 5. Attempt any TWO of the following:** **12**
- a) State the different polymerization technique. Compare any two of these polymerization technique in detail.
 - b) Explain the mechanism of chain polymerization with an example.
 - c) Explain the mechanism of Ring opening polymerization.
- 6. Attempt any TWO of the following:** **12**
- a) Define copolymer and write the types of copolymers and also give one example for each.
 - b) Explain factors affecting glass transition temperature.
 - c) Define ionic polymerization and write different types of ionic polymerization. State and explain each type.
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