

**Time: 3 Hours****Total Marks: 80****N.B.**

1. Question No. 1 is Compulsory.
2. Attempt any **Three** Questions from remaining **Five** Questions
3. Assume Suitable Data if needed and Justify the Same
4. Figures to the right indicate full marks.

- Que.1** Explain any four [20]
- a) Difference between addition polymerization and condensation polymerisation
  - b) Short note Natural polymer -Cellulose
  - c) Technical significance of Co-Polymerisation
  - d) Explain film blowing with neat sketch
  - e) Properties and application of polyethylene
- Que.2**
- a) Explain in detail types of polymerization reactor and its mode of operation. [10]
  - b) Explain in details interfacial polymerization with their advantages and disadvantages [10]
- Que.3**
- a) Explain in details the phenomena of polymer degradation with regards to the types ,causes ,effects and remedies [10]
  - b) Explain the term “ Glass Transition Temperature”( Tg) Discuss the significance of Tg in polymer processing [10]
- Que.4**
- a) What is copolymerization? Derive the rate equation for addition Co-Polymerisation. [10]
  - b) Explain in detail polydispersity and molecular weight distribution in polymers. [10]
- Que.5**
- a) Explain mechanism and kinetic s of step growth polymerisation [10]
  - b) Describe the manufacturing of polystyrene with Process Flow Sheet. [10]
- Que.6**
- a) Discuss injection molding process incorporating screw plasticization technique [10]
  - b) Explain polymerization technique – Emulsion Polymerisation [05]
  - c) Short note on Plasticizers and Fire Retardants [05]

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