

(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) Linear, Branch, Cross linked Polymer
- b) Short note Natural Polymer -Proteins
- c) Engineering Properties of Polymer
- d) Blow Moulding
- e) Properties and Application of Polyesters

Que.2

- a) What is copolymerization and derive the rate equation for addition copolymerization. **[10]**
- b) Explain Interfacial Polymerisation with Advantages and disadvantages **[10]**

Que.3

- a) Explain the need of incorporating additives in polymers. Identify important additives and explain their uses with examples. **[10]**
- b) Short Note i) Lubricants ii) Antioxidants **[10]**

Que.4

- a) Derive an expression to find weight average molecular weight of the polymer **[10]**
- b) Explain Addition and condensation polymerization with two examples each category **[10]**

Que.5

- a) Explain manufacturing of polypropylene with Process Flow Sheet **[10]**
- b) Explain in detail classification of polymers with examples **[10]**

Que.6

- a) Discuss injection molding process incorporating screw plasticization technique **[10]**
- b) Short note i) Natural Polymer Shellac ii) Polymerization reactor types **[10]**