

**11113 : Elective - I : Polymer Science & Technology : 5 FEPP 05**

P. Pages : 2

Time : Three Hours

**AW - 3154**

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Diagrams and Chemical equations should be given wherever necessary.
  4. Discuss the reaction, mechanism wherever necessary.
  5. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION - A**

1. a) Define the terms: 4
- i) Monomer ii) Polymer
- iii) Elastomers iv) Fibres
- b) Explain in detail polydispersity and molecular weight distribution in polymers. 10

**OR**

2. a) What do you mean by copolymer. Explain Block and Graft copolymer. 6
- b) Explain in detail the mechanism of Free-radical polymerization. 8
3. a) Explain in brief the polymerization process, structure of polyvinyl chloride (PVC) material with flow diagram. 9
- b) Write properties and application of High density polyethylene. 4

**OR**

4. a) Explain the limitations of polystyrene. Explain the process of copolymerization to overcome the limitation along with examples. 5
- b) Explain with flow diagram the polymerization process of low density polyethylene. 8
5. a) With the help of neat sketch. Discuss various zones in Injection molding process & working process. 7
- b) Which molding process will you choose for making electrical switches? Discuss the compression molding process in detail with diagram. 6

**OR**

6. a) Explain with sequence process steps involved in transfer molding process. 8
- b) Explain with the help of neat sketch working of Injection molding process. 5

7. a) What is the principle of extrusion? Explain with neat sketch process of pipe manufacturing? 10
- b) Explain in detail blow molding cycle. 4

OR

8. a) What do you mean by Thermoforming. Explain the process of thermoforming by using straight vacuum forming technique. 10
- b) Explain with neat sketch nomenclature of extruder. 4
9. a) What do you mean by degradation. Explain the types of degradation. 7
- b) Explain in detail the factors affecting the thermal degradation of polymers. 6

OR

10. a) What do you mean by recycling? Explain the types of recycling. 6
- b) Explain the process of pyrolysis for polymer recycling with neat sketch. 7
11. Explain in details the application of polymers in: 13
- i) Green Houses
  - ii) Mulches
  - iii) Seed coating

OR

12. a) Discuss various polymers used in composite manufacturing industry. 7
- b) Enlist with properties the polymer materials used in communication application. 6

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