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18PC56

Fifth Semester B.E. Degree Examination, Feb./Mar. 2022

Polymer Science and Technology

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain type of Polymers and Polymerization. (06 Marks)
- b. Explain about Linear , Branched and Cross linked polymers, with example. (14 Marks)

OR

- 2 a. Explain the application of polymers in Petrochemical Industries. (06 Marks)
- b. Explain Ionic and Co-ordination Polymerization. (07 Marks)
- c. Explain about Ring Opening Polymerization. (07 Marks)

Module-2

- 3 a. Explain Secondary and Tertiary structure of polymer with examples. (10 Marks)
- b. Explain about Crystallinity and Polymer properties. (10 Marks)

OR

- 4 a. With neat sketch, explain the principle and working of NMR. (10 Marks)
- b. Explain the Electron Paramagnetic resonance in finding polymer properties. (10 Marks)

Module-3

- 5 Explain the following Polymerization reactions : (20 Marks)
- a) Bulk b) Solution c) Emulsion d) Precipitation Polymerization.

OR

- 6 Explain the Basic Material Balance , Performance equation , advantages and disadvantages of batch , mixed and plug flow reactors used in Polymerization process. (20 Marks)

Module-4

- 7 a. With neat sketch, explain Dry and Wet Spinning. (12 Marks)
- b. Write a note on Melt Spinning. (08 Marks)

OR

- 8 a. Explain the production of Elastomers. (10 Marks)
- b. Write a note on : i) Polymeric foams ii) Reinforced plastics. (10 Marks)

Module-5

- 9 a. With neat sketch, explain the working of Twin Screw Extruders. (10 Marks)
- b. Explain about Gas Assisted Injection Moulding. (10 Marks)

OR

- 10 Write a note on : (20 Marks)
- a. Compression molding b. Extrusion Blow Molding
- c. Injection Blow Molding d. Thermoforming.