

17448

15162

3 Hours / 100 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) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. a) **Answer any SIX of the following:** **12**
- (i) Classify the polymers. State their origin.
  - (ii) Enlist the products made by suspension polymerisation techniques.
  - (iii) List advantages of nylon 6 over nylon 66.
  - (iv) What do you mean by high impact polystyrene? State its uses.
  - (v) Define thermoset materials. List any two thermosets.
  - (vi) Give the classification of fillers.
  - (vii) Enlist properties of LDPE.
  - (viii) State the functions of colorants in compounding. Give any two examples of colorants.

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- b) **Answer any TWO of the following:** **8**
- (i) Enumerate the properties and applications of PEEK.
  - (ii) Compare HDPE and LDPE.
  - (iii) Explain with a diagram high speed mixer used in compounding.
2. **Answer any FOUR of the following:** **16**
- a) Write properties and applications of polypropylene.
  - b) How is polycarbonate prepared? Give the reaction involved in it. Write its any two properties.
  - c)
    - (i) Represent the structure of polymethyl methacrylate. 1
    - (ii) State its principle of manufacturing. 2
    - (iii) Write its any two applications. 1
  - d) Enumerate the properties and applications of styrene acrylonitrile copolymer.
  - e) What is cracking? Explain the principle of manufacturing of PVC by cracking process.
  - f)
    - (i) State selection criteria of extenders.
    - (ii) State their functions and give examples.
3. **Answer any FOUR of the following:** **16**
- a) Explain the principle of manufacturing of polystyrene by bulk polymerisation technique.
  - b) Enumerate the properties and applications of ABS.
  - c) What are the raw materials used for PET manufacturing? Write reaction involved in the process.
  - d) Define epoxy resin. Write its structural formula. Indicate functional groups, present.
  - e)
    - (i) Explain principle of manufacturing of cellulose nitrate.
    - (ii) Give its applications.
  - f) Explain with a diagram the internal mixer used for compounding.

- 4. Answer any FOUR of the following:** **16**
- a) Write properties and applications of expanded polystyrene.
  - b) What is the trade name of PTFE? How is PTFE manufactured? Give its two properties.
  - c) (i) Represent the structure of polyvinyl acetate. 1  
(ii) Explain principle of manufacturing it. 3
  - d) Enumerate the properties and applications of UF resin.
  - e) (i) Explain the principle of manufacturing of CAB. 3  
(ii) Write its two applications. 1
  - f) Define flame retardants. Write their functions and examples.
- 5. Answer any FOUR of the following:** **16**
- a) Compare suspension and bulk polymerisation techniques.
  - b) Enumerate applications of polycarbonate and PTFE.
  - c) Write the properties and applications of PAN.
  - d) Represent the structure of melamine formaldehyde resin. How is it prepared?
  - e) Write the properties and applications of PET.
  - f) Explain with a diagram, continuous mixer used for compounding.
- 6. Answer any FOUR of the following:** **16**
- a) Write the properties and applications of polyvinyl alcohol.
  - b) Explain the manufacturing process of nylon 6. Represent its structure.
  - c) Write the properties and applications of PBT.
  - d) Write only the reactions involved in preparation of acid catalysed phenol formaldehyde resin. Name the resin.
  - e) Represent the structure of cellulose. Give its natural sources.
  - f) (i) Explain manufacturing principle of polyamide. 3  
(ii) Give its two applications. 1
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