17448

21415

3 Hours / 100 Marks **Seat No.** | | | | | | | | |

Instructions : (1) All Questions are *compulsory*.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any SIX of the following : **12**

(a) State any four characteristics of plastics.

(b) Define engineering plastics. Name the two engineering plastics.

(c) State two uses of high impact polystyrene.

(d) State two properties of poly(vinyl chloride).

(e) Why PVC is compounded before processing ?

(f) What is cellulose ? Name its source.

(g) State any four applications of ethylene vinyl acetate.

(h) What are polyamides ? State any two examples of polyamides.

(B) Attempt any TWO of the following : **8**

(a) Explain the construction and working of high speed mixer.

(b) How styrene is polymerised by bulk polymerisation technique ?

(c) Explain in detail preparation of poly(methyl methacrylate). State its four important applications

P.T.O.

2. Attempt any FOUR of the following : **16**

(a) Write any four properties and uses of polypropylene.

(b) In relation to poly(ethylene terephthalate)

(i) Name raw materials required in its manufacturing.

(ii) Mention temperature conditions set in its manufacturing process.

(iii) Name byproduct if liberated.

(c) Explain in detail construction and working of tumbler mixer.

(d) What is polyethylene ? Compare HDPE versus LDPE.

(e) Write any four properties and applications of phenol formaldehyde resin.

(f) Enumerate typical properties and applications of styrene acrylonitrile.

3. Attempt any FOUR of the following : **16**

(a) State any four properties and uses of cellulose nitrate.

(b) State functions of fillers and colorants. Write their names.

(c) Explain the working of two roll mill with sketch.

(d) Draw a structure of poly(vinyl alcohol) and write its properties and uses.

(e) Compare polypropylene and polystyrene.

(f) State the principle of manufacturing of polyacetals. List the important properties and applications.

4. Attempt any FOUR of the following : **16**

(a) State any four different properties and applications of polyphenyleneoxide.

(b) Write down the synthesis reaction for urea formaldehyde. State its four applications.

(c) State important properties and applications of polyphenylene sulfide.

(d) What are thermosetting plastics ? Write properties and applications of melamine formaldehyde resin.

(e) How cellulose acetate butyrate is mass polymerised industrially ? State its two applications & properties.

(f) How poly(vinyl acetate) is manufactured ? State its applications.

5. Attempt any FOUR of the following : **16**

(a) How ethylene-vinyl acetate copolymer manufactured ? State its important properties.

(b) How expanded polystyrene is manufactured ? State its important four properties.

(c) Write principle of manufacturing of epoxy resin. State their four important properties.

(d) Enumerate typical properties and applications of polyacrylonitrile.

(e) Write any two important properties and applications of Nylon 6.

(f) Explain in detail the construction and working of Banbury mixer.

6. Attempt any FOUR of the following : **16**

(a) Write the principle of manufacturing, two properties and uses of polycarbonate.

(b) Write selection criteria and examples of

(i) Plasticizers

(ii) Lubricants

(c) What is a Ziegler-Natta catalyst ? How polypropylene is manufactured using this catalyst ?

(d) State two properties and applications of polystyrene.

(e) Write the role and examples of

(i) Impact modifiers

(ii) Heat stabilizers.

(f) What is a terpolymer ? State any two important properties and applications of acrylonitrile – butadiene – styrene.

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