17448

14115

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

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) 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**

(i) What are the different sources of cellulose.

(ii) Enlist two properties and applications of high density polyethylene.

(iii) What is the function of plasticizers in compounding ?

(iv) Represent the structure of polycarbonate.

(v) Define thermosetting plastics.

(vi) Write down the structure of cellulose.

(vii) Enlist any two antioxidants.

(viii) What is the function of heat stabilizer in compounding ?

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

(i) Give the classification of polymer with suitable examples.

(ii) State properties and applications of high impact polystyrene.

(iii) Explain the principle of manufacturing of polypropylene. Write its two properties and applications.

(iv) Draw & label neat sketch of Ban bury mixer. Write principle of working of banbury mixer. Name any one material for which it use ?

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

(a) Explain the principle of manufacturing of polystyrene using suspension polymerization technique.

(b) Compare nylon 6 and nylon 66 on the basis of properties and applications.

(c) Explain the principle of manufacturing of polyacrylonitrile. Give its two properties and applications.

(d) Write applications and properties of epoxy resin.

(e) Explain with neat figure the working of two roll mill.

(f) What do you mean by PMMA ? How it is manufactured ? Give its applications.

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

(a) Explain the principle of manufacturing of expanded polystyrene. Write its two properties and applications.

(b) Explain the need of additives and compounding in polymer processing.

(c) Compare HDPE and LDPE based on their properties and applications.

(d) Write down the properties and applications of polycarbonate.

(e) What do you mean by PEEK ? Give its properties and applications.

(f) Represent the structure of PET and PBT.

4. Attempt any FOUR of the following : 16

(a) Write four properties and applications of polyvinyl alcohol.

(b) Explain the manufacturing principle of acrylonitrile Butadiene styrene. Give its two properties.

(c) Write applications of :

(i) Phenol formaldehyde

(ii) Urea formaldehyde

(d) Explain the manufacturing principle of polyvinyl acetate. Give its two properties and applications.

(e) Write down the properties and applications of polyamide-imide.

(f) Explain the manufacturing principle of cellulose nitrate. Give its two applications.

5. Attempt any FOUR of the following : 16

(a) Write down the properties and applications of polyvinyl chloride.

(b) Explain the manufacturing principle of polytetrafluroethylene. Give its properties and applications.

(c) Write down properties of

(i) Polyurethane

(ii) Unsaturated polyester

(d) State the properties and applications of polyethylene terphthalate.

(e) Explain the manufacturing principles of cellulose acetate. Give its two properties and applications.

6. Attempt any FOUR of the following : 16

(a) What do you mean by cellulose Acetate Butyrale (CAB) ? How it is manufactured ? Give its two properties and applications.

(b) Write properties and applications of polyphenyleneoxide.

(c) Explain the manufacturing principle of phenol formaldehyde with reaction involved in it.

(d) Write down the properties and applications of polybutylene terphthalate.

(e) Explain with neat figure the working of tumbler mixer.

(f) Write properties and applications of ethylene vinyl acetate.

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