

22230

23124

3 Hours / 70 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following :** **10**
- State name of any two commodity and engg. plastic.
 - Define critical micell concentration (CMC)
 - Write advantage of bulk polymerisation.
 - State the types of molecular weight distribution in polymer.
 - Define glass transition temperature.
 - Name the methods used to prevent polymer degradation.
 - Name the degradation techniques in which plastic product loose its colour due to constant with sunlight. Suggest any one method to prevent it.

P.T.O.

- 2. Attempt any THREE of the following :** **12**
- a) Differentiate between copolymer and polymer. List different type of copolymer.
 - b) Describe polyaddition reaction with reaction.
 - c) Explain viscometry method to measure molecular weight of polymer.
 - d) State and explain the relationship between molecular weight and glass transition of polymer.
- 3. Attempt any THREE of the following :** **12**
- a) Differentiate between monomer and polymer.
 - b) Suggest suitable technique to manufacture commercial adhesive “Fevicol” trade name of pidilite ind. and explain techniques of polymerisation used for it.
 - c) Define expression of find number average and weight average molecular weight of polymer.
 - d) List factor affecting glass transition temperature of polymer and discuss any two with example.
- 4. Attempt any THREE of the following :** **12**
- a) Differentiate between suspension and Emulsion polymerisation.
 - b) Explain molecular weight measurement method “Cryoscopy” to measure molecular weight of polymer.
 - c) Describe mechanical degradation with example.
 - d) Describe thermal degradation with example.

5. Attempt any TWO of the following : **12**

- a) Define free radical polymerisation and explain all stages of free radical polymerisation with example.
- b) List the different step polymerisation Discuss polycondensation reaction with example.
- c) Classify the polymer on basis of -
 - i) Origin
 - ii) Structure
 - iii) Neat behaviour
 - iv) backbonechain
 - v) Used / application and give one example of each.

6. Attempt any TWO of the following : **12**

- a) Describe molecular weight distribution in polymer with neat sketch.
 - b) Define Ionic polymerisation. State type of ionic polymerisation. Differentiate between any two ionic polymerisation.
 - c) List the different techniques of polymerisation. Explain enulsion polymerisation with advantage and disadvantage.
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