

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
- a) State name of any two commodity and engg. plastic.
 - b) Define critical micell concentration (CMC)
 - c) Write advantage of bulk polymerisation.
 - d) State the types of molecular weight distribution in polymer.
 - e) Define glass transition temperature.
 - f) Name the methods used to prevent polymer degradation.
 - g) Name the degradation techniques in which plastic product lose 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 emulsion polymerisation with advantage and disadvantage.
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