

17652

21819

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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
- (6) Abbreviations used convey usual meaning.

Marks

- 1. Answer any FIVE of the following: **20****
- a) Explain meaning of terms:
- (i) Prepreg
- (ii) Inhibitor.
- b) Explain the classification of composites.
- c) Name types of glass fibres. Explain characteristics of any one type of glass fibre.
- d) Explain the impact modification of blends using elastomers.
- e) How is miscibility of polymer blend determined?
- f) State any four applications of hybrid composites.
- g) Explain the performance of blend on the basis of their mechanical properties.

P.T.O.

- 2. Answer any TWO of the following:** **16**
- a) Explain any four important properties and applications of epoxy resins.
 - b) Explain preparation, properties and applications of boron fibres.
 - c) Explain hand lay-up and spray lay-up process for manufacturing composites.
- 3. Answer any TWO of the following:** **16**
- a) (i) Describe preparation of SMC.
(ii) State properties and applications of SMC.
 - b) (i) Explain preparation of polyester fibres.
(ii) State properties and applications of any natural fibre.
 - c) (i) Describe the electrically conductive polymer blends.
(ii) Compare polymer blends and alloys.
- 4. Answer any TWO of the following:** **16**
- a) (i) Define curing agent. Name curing agents for phenolic resins. Indicate with reaction curing of phenolic resins.
(ii) Explain with examples:
 - 1) Accelerators
 - 2) Flame retardants
 - b) (i) Explain the core materials used in composites.
(ii) Describe the honey-comb structure with a diagram
 - c) (i) Classify the polymer blend and explain the need of blending.
(ii) Explain the criteria for the determination of miscibility of blends.

- 5. Answer any TWO of the following:** **16**
- a) Name types of reinforcement orientation and explain their effects on strength of products.
 - b) (i) State any four faults observed in FRP composites. 2
(ii) Explain their cause and suggest remedies. 6
 - c) (i) Compare properties of PE and PP.
(ii) Explain with reaction degradation of PVC.
- 6. Answer any FOUR of the following:** **16**
- a) Explain the properties of PPO blends.
 - b) Explain the principles of matched die molding with a labeled diagram.
 - c) Explain need of compatibility.
 - d) (i) Name two immiscible polymers.
(ii) Explain with example role of compatibiliser.
 - e) (i) Write typical composition of EVA.
(ii) State application of EVA blend.
 - f) Describe in general preparation of polymers blends.
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