

17652

16172

3 Hours / 100 Marks

Seat No.

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- 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. Attempt any FIVE of the following: **20****
- a) State the role of different components in composites.
- b) With neat diagram explain RTM.
- c) Write selection criteria of compatibilizer in polymer blend.
- d) Explain production of carbon fiber by PAN route.
- e) Enlist any four properties and application of blend based on EVA.
- f) Explain with example. Elastomeric impact modifier.
- g) State any four faults, their causes, remedies in composite article.

P.T.O.

- 2. Attempt any TWO of the following:** **16**
- a) (i) Write preparation of glass fiber by direct melt process.
(ii) Explain different forms of glass fibers.
 - b) Describe following resin systems used in composites:
 - (i) Polyamide
 - (ii) Vinyl Ester
 - c) (i) Define curing, Name curing agent for unsaturated polyester.
(ii) Explain mechanism of functioning flame retardant.
- 3. Attempt any TWO of the following:** **16**
- a) (i) Write preparation and application of SMC.
(ii) State the role and example of :
 - 1) Inhibitor
 - 2) Acclearator
 - b) (i) Describe manufacturing of hybrid composite.
(ii) State effect of fibre orientation on load bearing ability of composites.
 - c) (i) Describe method to determine performance of electrically conductive blend.
(ii) Distinguish between polymer blend and alloys.
- 4. Attempt any TWO of the following:** **16**
- a) (i) Explain the technique for making composite pipe.
(ii) State any four applications and limitations of hand lay up process.
 - b) (i) Write down synthesis reaction:
 - 1) Urea formaldehyde
 - 2) Epoxy resin
(ii) State important characteristics of PE and PP.
 - c) (i) Explain thermodynamic criteria for miscibility of polymer blend.
(ii) State the need and advantages of polymer blend.

- 5. Attempt any TWO of the following:** **16**
- a) (i) Explain reactive blending with suitable example.
 - (ii) Explain transition behaviour of blend.
 - b) (i) Write preparation of prepages.
 - (ii) Explain coupling agent in detail.
 - c) (i) Write preparation of polyester fiber. State their properties.
 - (ii) Elaborate:
 - 1) Graphitization
 - 2) Natural fiber
- 6. Attempt any FOUR of the following:** **16**
- a) Write applications and important properties of blend based on PVC.
 - b) Explain need of compability in polymer blend.
 - c) Describe method to determine mechanical properties of polymer blend.
 - d) With neat diagram explain matched die moulding process.
 - e) State limitations of PPO. State important properties of modified PPO.
 - f) Classify polymer blend giving an example of each class.
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