

17652

21718

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) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Abbreviations used convey usual meaning.

Marks

- 1. Attempt any TEN of the following:** **20**
- a) Classify composites.
 - b) What are prepregs? Name prepegs.
 - c) Which type of glass is used for chemical storage tanks? Why?
 - d) State significance of core materials in composites?
 - e) Whether matched die moulding is open moulding or closed moulding technique? Why?
 - f) Name the FRP processing technique used for
 - i) pressure vessel
 - ii) profiles

P.T.O.

- g) State the causes and remedies for sticking of a part.
- h) Justify the need of polymer blend.
- i) State the role of compatibiliser. Give an example.
- j) Distinguish between polymer alloy and blend.
- k) State the adverse changes in properties that occur when PS is blended with rubber.
- l) How does unsaturated polyester differ from saturated one?
- m) State in general limitations of natural fibre.
- n) Why are release agents, needed? Give two example.

2. Attempt any TWO of the following: 16

- a) Write preparation, properties and applications of epoxy resins.
- b) Explain preparation and applications of SMC and BMC.
- c) i) What does curing system mean? How does it work with resin? Give an example.
ii) What are 'coupling' agents? Give two examples.

3. Attempt any FOUR of the following: 16

- a) Describe preparation of glass fibre.
- b) Distinguish between carbon and graphite fibres.
- c) State any four forms of glass fibres with their suitability.
- d) Write manufacture and utility of hybrid composites.
- e) Explain the effect of reinforcement orientation on strength of product.
- f) Describe honeycomb structure as core material.

- 4. Attempt any TWO of the following:** **16**
- a) i) Explain the processing technique used for FRP swimming tank with a diagram.
 - ii) State its merits and demerits.
 - b) i) Explain resin transfer moulding with a diagram.
 - ii) Write causes and remedies for any two faults in FRP excluding part sticking.
 - c) i) Define blend. 2
 - ii) Explain criteria for determination of miscibility. 6
- 5. Attempt any FOUR of the following:** **16**
- a) Explain the need of compatibility in a polymer blend.
 - b) Explain how can impact strength of plastic, be improved by elastomers.
 - c) Explain solution blending method with an example.
 - d) Justify the economy of blending over new material development.
 - e) Explain blend performance with respect to mechanical properties.
 - f) Write properties and applications of PE based blend.
- 6. Attempt any FOUR of the following:** **16**
- a) What does sandwich composite mean? State its applications.
 - b) Explain later blending method.
 - c) State properties and application of PS based blend.
 - d) What are the limitations of PPO? How can it be overcome by blending?
 - e) State the role of resins and reinforcements in composites.
 - f) Write properties and applications of vinyl ester resins.
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