

17652

15162

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) Figures to the right indicate full marks.

(4) Abbreviations used, convey usual meanings.

Marks

1. Answer any FIVE :

(5 × 4) = 20

- (a) Explain meaning of the terms :
 - (i) Thermoplastic
 - (ii) Composite
- (b) Differentiate : PE and PP, on the basis of properties and applications.
- (c) Name types of 'flame retardants'. Explain mechanism of any one.
- (d) Name natural fibres. Explain characteristics of any one.
- (e) Define polymer blends. Name two miscible and two immiscible polymers.
Why are polymers blended ?
- (f) How is economy of polymer blending, achieved ?
- (g) What does 'EVA' represent ? State characteristics of EVA blends.

2. Answer any TWO :

(2 × 8) = 16

- (a) Explain properties and applications of 'phenolic' composites. Which type of phenolic resin, is used ?
- (b) (i) Name types of reinforcement orientation.
 - (ii) Explain their effects on strength of products.
- (c) (i) Classify polymer blends.
 - (ii) Write Gibb's free energy equation. Explain its use.

3. Answer any TWO :

(2 × 8) = 16

- (a) (i) Describe preparation of 'BMC'.
 - (ii) Name types of glass fibres. Describe preparation of any one.

- (b) Describe technique of :
 - (i) Open moulding
 - (ii) Hand lay-up
- (c) Describe methods to determine performance of electrically conductive polymer blend.

4. Answer any TWO : (2 × 8) = 16

- (a) (i) Define curing agent. Name curing agents for unsaturated polyesters.
Indicate with reaction, curing of unsaturated polyester.
- (ii) Explain with examples :
 - (1) Inhibitor
 - (2) Release agent
- (b) (i) Explain 'sandwich' composite with neat figure. (6)
- (ii) State applications of sandwich composites. (2)
- (c) Define an 'elastomer'. Explain how impact modification of elastomers is done.

5. Answer any TWO : (2 × 8) = 16

- (a) List any four properties of :
 - (i) Carbon fibres
 - (ii) Graphite fibres
- (b) (i) State common faults observable in FRP.
- (ii) Explain causes and remedies measures for any two.
- (c) (i) Describe a method to prepare polymer blend.
- (ii) Write typical composition of polystyrene blend. State its applications.

6. Answer any FOUR : (4 × 4) = 16

- (a) Explain limitation of PVC composites.
 - (b) Explain meaning of abbreviations : 'BMC' and 'SMC'
 - (c) Write characteristics and applications of boron fibres.
 - (d) Explain principle of resin transfer moulding.
 - (e) Explain with examples, role of compatibiliser.
 - (f) (i) Write typical composition of ABS. (1)
 - (ii) State applications of ABS blends. (3)
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