17652

21415

3 Hours / 100 Marks **Seat No.**

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) Assume suitable data, if necessary.

(5) Abbreviations used convey usual meaning.

Marks

1. Answer any FIVE : **$5 \times 4 = 20$**

(a) (i) Explain the term : Composite.

(ii) Explain the meaning of resin matrix.

(b) Explain giving an example, role of :

(i) Accelerator

(ii) Inhibitor

(c) Compare : carbon and graphite fibres.

(d) Describe manufacture of hybrid composite.

(e) Classify polymer blends, giving an example of each.

(f) Describe properties of a commercial blend based on ABS.

(g) Write applications of a commercial blend, based on EVA.

2. Answer any TWO : **$2 \times 8 = 16$**

(a) (i) Describe preparation of SMC.

(ii) Name curing agents for unsaturated polyesters. Explain use of any one.

(b) (i) What are 'aramid' fibres ? Write their characteristics.

(ii) Describe 'Honey – comb structure'.

(c) (i) Describe a method of preparation of polymer blends.

(ii) How is 'economy' of blending achieved ?

3. Answer any TWO : 2 × 8 = 16

(a) (i) Outline preparation of polyester fibres. State their properties.

(ii) Name types of glass fibres.

(b) (i) Name common 'faults' observable in FRP.

(ii) Explain causes and remedial measures for any one fault.

(c) Describe criteria for determination of polymer miscibility.

4. Answer any TWO : 2 × 8 = 16

(a) Describe following resin system as used in composites :

(i) Phenolics

(ii) Polyamides

(b) (i) Compare :

Open – and close – moulds

(ii) Draw a labelled diagram of 'filament winding' process.

(c) (i) Distinguish between :

Polymer blends and alloys

(ii) Describe a method to determine performance of electrically conductive blend.

5. Answer any TWO : 2 × 8 = 16

(a) (i) Name types of flame retardants.

(ii) Explain mechanisms of functioning of flame retardants.

(b) (i) Define :

(1) Reinforcement

(2) Orientation

(ii) Describe effect of reinforcement / orientation on strength of products.

(c) (i) Explain need of compatibility in polymer blends.

(ii) Write selection criteria of compatibilisers for polymers.

6. Answer any FOUR : 4 × 4 = 16

(a) Write the elements of composites. State their function.

(b) Compare properties of PE and PP.

(c) Name natural fibres. Write characteristics of any one natural fibre.

(d) Explain 'match-die' moulding.

(e) Explain with examples, elastomeric impact modifiers.

(f) Write typical composition of a blend based on PPO or PVC. State its applications.
