

22551

11920

3 Hours / 70 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE :

10

- (a) Define composites.
- (b) State the usual value of draft or Taper angle.
- (c) Give two examples of commodity plastics.
- (d) Define fatigue of plastic.
- (e) Suggest the process for encapsulation of electrical components.
- (f) State any two characteristics of structural foam.
- (g) List any two test methods for measuring thermal properties of plastics.

2. Attempt any THREE :

12

- (a) Explain the significance of polymer blends with example.
- (b) State selection criteria of plastic material for chemical application.
- (c) State the importance of material shrinkage & tolerances in designing.
- (d) Explain viscoelastic behaviour of plastic material.

- 3. Attempt any THREE :** **12**
- (a) Justify the selection of plastic material for abrasion resistance.
 - (b) Write working principle of rototational moulding. State any four products produced by it.
 - (c) Describe general creep curve in case of plastics.
 - (d) Explain with suitable example weldline as a product design feature.
- 4. Attempt any THREE :** **12**
- (a) State any four characteristics each of composites & elastomeric material.
 - (b) Elaborate with example.
 - (i) Commodity plastics
 - (ii) Engineering plastics
 - (c) State the factors to be considered for designing wall thickness of plastic product.
 - (d) State any four advantages & limitations of injection moulding process.
 - (e) Identify and explain the test method to measure impact strength of plastic container.
- 5. Attempt any TWO :** **12**
- (a) State the criteria for deciding gate size and location.
 - (b) Compare different plastics processing methods with respect to complexity of part, production rate & equipment & tooling cost.
 - (c) Describe the different types of snap fits with neat sketches.
- 6. Attempt any TWO :** **12**
- (a) Select and describe the moulding process for thermosetting material with neat diagram.
 - (b) Differentiate between thermoplastics and thermosetting plastics with respect to heat related characteristics, performance and cost.
 - (c) State the significance and procedure for tensile test.
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