

22551

22232

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) 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.

Marks

1. **Attempt any FIVE :**

10

- (a) Define elastomers.
- (b) State any two limitations of product design.
- (c) Define degradation of plastics.
- (d) Define creep.
- (e) Name any four materials used in compression molding.
- (f) Draw structural formula for – polystyrene, – polyvinylchloride
- (g) Suggest the test method for
 - (i) pipe
 - (ii) sheet
 - (iii) bottle
 - (iv) film



- 2. Attempt any THREE :** **12**
- (a) State any four characteristics and applications of composite material.
 - (b) Define engineering plastics. State its specific characteristics.
 - (c) Justify with example. Location and type of gate is important parameter of product design.
 - (d) State the effect of following on impact strength of plastics :
 - (i) Notch sensitivity
 - (ii) Rate of loading
 - (iii) Thickness
 - (iv) Temperature
- 3. Attempt any THREE :** **12**
- (a) Justify selection of plastic for electrical application.
 - (b) State any four advantages and limitations of casting process.
 - (c) Explain phenomenon of creep by using generalized creep curve.
 - (d) Describe in detail internal plastic thread as product design feature.
- 4. Attempt any THREE :** **12**
- (a) Classify plastics material on basis of end use application.
 - (b) Differentiate between engineering and commodity plastics.
 - (c) Estimate cost of mobile cover.
 - (d) With neat sketch, describe steps of compression molding process.
 - (e) Explain viscoelastic behaviour of plastics material.
- 5. Attempt any TWO :** **12**
- (a) State importance of shrinkage & tolerances while designing the plastic product.
 - (b) Describe injection moulding with neat sketch. Name any four products. Produced by it.
 - (c) Explain the test procedure and factors affecting on it for flexural strength of PS with neat sketch.
- 6. Attempt any TWO :** **12**
- (a) Compare the plastics material on the basis of mechanical properties.
 - (b) With neat sketch, describe extrusion blow moulding process.
 - (c) Describe the test procedure for heat deflection temperature with neat sketch.
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