

# 22350

**21819**

**3 Hours / 70 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
- (6) Abbreviations used convey usual meaning.

**Marks**

- 1. Answer any FIVE of the following: **10****
- a) State the need of plastic testing.
- b) Define:
- (i) Specific gravity
- (ii) Bulk density
- c) State the importance of abrasion resistance test for plastics.
- d) Suggest the plastic product for performing hydrostatic tests.
- e) Define vicat softening point.
- f) List out the test to be performed for plastic films.
- g) Enlist various chemical tests to be performed for a plastic.

P.T.O.

- 2. Answer any THREE of the following: 12**
- a) State the role and importance of American standard of testing materials.
  - b) (i) State importance of impact test. 1  
(ii) State factors affecting dart impact strength of plastic. 3
  - c) (i) State importance of tensile strength. 1  
(ii) Draw a labelled diagram of the test specimen used in the test (showing the dimensions). 3
  - d) Describe procedure to determine abrasion resistance of plastics.
- 3. Answer any THREE of the following: 12**
- a) Explain with examples importance of TGA.
  - b) (i) Define thermal conductivity.  
(ii) Explain procedure to determine thermal conductivity of plastic.
  - c) (i) Plastics show softening point (range) rather than sharp melting point. Explain.  
(ii) Explain the factors, affecting softening point of plastic.
  - d) Describe the test method for DSC.
- 4. Answer any THREE of the following: 12**
- a) Explain dielectric strength and dielectric constant. Write their units.
  - b) Explain the test procedure for determining the refractive index of plastic.
  - c) (i) Explain the importance of stain resistance for a plastic.  
(ii) Name plastics which are relatively stain resistance.
  - d) Describe the test method to determine the effect of bacteria on plastics.
  - e) (i) Define an environment.  
(ii) Explain different factors which affect on the test result of ESCR.

- 5. Answer any TWO of the following:** **12**
- a) Differentiate in between polythelene and poly styrene on the basis of strain stress curve.
  - b) Describe the test procedure to measure hydrostatic pressure. State factors affecting on test result.
  - c) (i) Explain significance of MFI and its influence on processing. 5  
(ii) Write typical MFI of any two plastics. 1
- 6. Answer any TWO of the following:** **12**
- a) (i) Define heat distortion temperature. 1  
(ii) Explain importance of the test. 2  
(iii) Describe the test procedure to measure HDT with an example. 3
  - b) (i) Distinguish between volume resistivity and surface resistivity.  
(ii) Describe a method to determine any one.
  - c) Define R.I. Explain the factors which affect the property.
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