

# 22350

**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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Answer any FIVE of the following:** **10**
- Why is testing of plastic important?
  - Enlist various standard organisations for quality of plastic.
  - State the significance of abrasion resistance test.
  - Draw a labelled diagram of tensile strength test specimen.
  - Enlist various factors affecting test results of DSC.
  - State the standard test methods for HDT and TGA.
  - Enlist four electrical test methods for plastic product.

P.T.O.

- 2. Answer any THREE of the following: 12**
- a) Explain the concept of following:
    - (i) Reliability
    - (ii) Cost
    - (iii) Quantity
    - (iv) Assurance
  - b) Draw a generalised creep curve and explain various stages.
  - c) Explain principle of working of DSC. Show the ideal plot generated by DSC.
  - d) (i) Define dielectric strength of on insulating materials. 1
  - (ii) Write the procedures to determine the same. 3
- 3. Answer any THREE of the following: 12**
- a) Explain the test variables affecting Izod and Dart impact test.
  - b) Define heat deflection temperature. Explain the test variables that affects HDT.
  - c) Explain the terms:
    - (i) Specular gloss,
    - (ii) Transmittance
  - d) Describe the test method to determine fungi resistance to plastics.
- 4. Answer any THREE of the following: 12**
- a) Differentiate hard, soft, ductile, tough plastic material on the basis of stress - strain curve.
  - b) Explain the principle and draw a labelled diagram of viscosity Brookfield viscometer.
  - c) With the help of a diagram explain dissipation factor determination. Write significance of the test.
  - d) List the method used to conduct chemical resistance tests in plastic. Describe any one.
  - e) Define refractive Index. Describe method of its determination measurement.

	<b>Marks</b>
<b>5. Answer any <u>TWO</u> of the following:</b>	<b>12</b>
a) (i) Explain the term flexural strength.	2
(ii) Write stepwise standard procedure to measure flexural strength of plastics.	4
b) Explain four significance of following test methods.	
(i) Tensile strength	
(ii) Rockwell hardness (Shore A, Shore D)	
c) State the standard test code for following test.	
(i) Virat softening point determination.	
(ii) TGA	
(iii) Spiral mold test	
(iv) Cup flow method	
(v) Thermal conductivity determination	
(vi) Oxygen Index determination	
<b>6. Answer any <u>TWO</u> of the following:</b>	<b>12</b>
a) (i) Describe MFI measurement of plastic with a labelled diagram.	5
(ii) Write significance of MFI.	1
b) Explain the terms: State the factors which affect the property.	
c) (i) List the major environment factors affecting the properties of plastic.	1
(ii) Explain the test procedure followed to understand the effect of UV light on plastics.	4
(iii) Name in particular plastics, susceptible to UV radiation.	1

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