

16117

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.

Marks**1. Answer any FIVE :****20**

- Define and explain the need and importance of field testing.
- Draw stress-strain curve. Interpret the curve.
- Define 'refractive index'. Outline a method of its determination.
- Define arc-resistance. Write situations, where the property becomes important.
- State the long form of ESCR. Explain its importance.
- Explain spiral mould test for thermosets.
- Explain working principle of TGA.

2. Answer any TWO :**16**

- Define the specific gravity and bulk density properties.
 - What do the abbreviations, given below, stand for
 (1) I.S. (2) A.S.T.M. (3) I.S.O.
 - Explain functions of B.I.S.
- Explain a method to determine haze.
 - Describe a method, to determine luminous transparency.
- Describe a method to access ESCR of a plastic.
 - What is the effect of various organisms on the plastic material ?

3. Answer any TWO :**16**

- (a) (i) Describe the heat deflection temperature test with a diagram.
- (ii) Explain the importance of vicat softening point test.
- (b) (i) Define dielectric constant of a plastic.
- (ii) Describe a method to determine dielectric constant of a plastic.
- (c) Explain the flammability test for plastics ; for vertical and horizontal type of burning.

4. Answer any TWO :**16**

- (a) Write a stepwise procedure for the determination of (i) abrasion test and (ii) creep test.
- (b) (i) Define surface resistivity and volume resistivity.
- (ii) Describe stepwise method to determine surface resistivity of a plastic.
- (c) Explain the test procedure for exposure of plastics to :
 - (i) carbon arc lamp and
 - (ii) xenon arc lamp

5. Answer any TWO :**16**

- (a) (i) Describe an essential test conducted on a plastic pipe.
- (ii) Explain the acetone immersion test for plastic.
- (b) Describe test method to determine :
 - (i) hardness of a plastic and
 - (ii) flexural test
- (c) Describe :
 - (i) Oxygen index test and
 - (ii) cup test for thermosets.

6. Answer any FOUR :**16**

- (a) (i) State factors on which, brittleness temperature of a plastic depend.
 - (ii) What is the importance of thermal conductivity while designing a plastic product ?
 - (b) Describe calibration of a gloss-o-meter.
 - (c) How are plastic materials classified on the basis of stress-strain curve ?
 - (d) Describe a method to determine dielectric strength of a plastic material.
 - (e) (i) Define strain resistance.
 - (ii) Explain importance of strain resistance of a plastic material.
 - (f) Explain underwriter laboratory test for a plastic part.
-

