

17548

11819

3 Hours / 100 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) Abbreviation used, convey usual meaning.
(6) Assume suitable data, if necessary.

Marks

1. a) **Answer any THREE of the following:** **12**
- (i) Explain the importance of specifications.
 - (ii) Explain stress-strain curve for different plastic materials based on their properties.
 - (iii) Describe haze meter with a labelled diagram.
 - (iv) Explain the terms:
 - (1) dielectric constant
 - (2) dissipation factor
- b) **Answer any ONE of the following:** **06**
- (i) Explain flextural test with standard test condition for plastic material.
 - (ii) (1) Define thermal conductivity
(2) Describe standard test method for measurement of it for plastic material.

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- 2. Answer any TWO of the following:** **16**
- a) Describe Izode test and Charpy test for a plastic material.
 - b) (i) How is dielectric strength of plastic material is measured?
(ii) State the factors which affects the test results.
 - c) (i) Describe ESCR test for a plastic material.
(ii) Explain significance of the test.
- 3. Answer any FOUR of the following:** **16**
- a) What do you mean by BIS? State its any six functions.
 - b) Describe compression test for a plastic material.
 - c) Explain the terms:
 - (i) Surface resistivity
 - (ii) Volume resistivity
 - d) Describe melt flow index test for a plastic material.
 - e) (i) Write the procedure for acetone immersion test for a plastic material.
(ii) Write significance of the test.
 - f) Explain spiral mold test for a plastic material with a diagram.
- 4. a) Answer any THREE of the following:** **12**
- (i) Explain density gradient technique for measurement of density of a plastic material.
 - (ii) Explain with a figure, the flammability test of a plastic in vertical position.
 - (iii) Describe stress optical sensitivity measurement for transparent plastic.
 - (iv) Derive stain resistance measurement method for a plastic material.

- b) **Answer any ONE of the following:** **06**
- (i) Explain standard test method for measurement of brittleness temperature of plastic material.
 - (ii) (1) Define:
 - (a) gloss
 - (b) haze
 - (2) Write the procedure of calibration of a gloss-o-meter.
5. **Answer any TWO of the following:** **16**
- a) (i) Define arc resistance of a plastic material.
 - (ii) Describe with a diagram of the arc resistance test for a plastic material.
 - b) (i) Describe the test for studying the resistance of plastic material to fungi and bacteria.
 - (ii) State their limitations.
 - c) (i) Explain oxygen index test with a diagram.
 - (ii) State the factors affecting the test results.
6. **Answer any FOUR of the following:** **16**
- a) Explain tensile creep curve for a plastic material.
 - b) Write stepwise procedure to determine R.I. of a plastic.
 - c) Explain the test procedure for exposure of plastic to xenon arc lamp.
 - d) Define cup flow test for thermosets.
 - e) Explain the principle involved in DSC. Draw a DSC thermogram.
 - f) Explain quick burst strength test for a rigid plastic pipe.
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