

22387

24225

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.

Marks

1. Attempt any FIVE :

10

- (a) Define density and specific gravity.
- (b) State any four quality characteristics.
- (c) Define creep and stress relaxation.
- (d) Define Rheology.
- (e) Enlist any four electrical test methods of polymers.
- (f) Define surface resistivity.
- (g) State four test which measures the chemical properties of polymer material.

2. Attempt any THREE :

12

- (a) Describe bulk density measurement test with neat figure.
- (b) Explain with neat figure the general stress-strain curve.
- (c) Write applications of differential scanning calorimeter.
- (d) Explain with neat figure the measurement of dielectric strength of polymer material.



- 3. Attempt any THREE :** **12**
- (a) Explain with neat figure the procedure for dart impact test.
 - (b) Describe spiral mold test method for thermoset with neat figure.
 - (c) Explain with neat figure the arc resistance test for polymer material.
 - (d) Describe the procedure for stain resistance test.
- 4. Attempt any THREE :** **12**
- (a) Compare Shore A & Shore D hardness tests.
 - (b) Explain with neat figure the thermogram of TGA for Polypropylene.
 - (c) Describe test procedure for Brookfield viscometer.
 - (d) Explain the accelerated outdoor test for exposure of polymer to carbon arc lamp.
 - (e) Describe environmental stress cracking resistance test with neat figure.
- 5. Attempt any TWO :** **12**
- (a) Explain with neat figure the test procedure for flexural strength test.
 - (b) Describe test procedure for oxygen index test method with neat figure.
 - (c) Explain with neat figure the measurement of haze of polymer material.
- 6. Attempt any TWO :** **12**
- (a) Explain with neat figure the test procedure for compressive strength test.
 - (b) Describe the test procedure for measurement of vicat softening point of polymer material with neat figure.
 - (c) Explain with neat figure the measurement of dissipation factor of polymer material.
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