

22228

22223

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 of the following: 10
- a) Classify various types of keys.
 - b) Enlist atleast four operations performed on lathe machine.
 - c) Explain principle of solar PV cell.
 - d) Write two requirements of material handling equipments.
 - e) Enlist four safety precautions for material handling equipments.
 - f) State uses of cooling towers in plastic processing unit.
 - g) Define energy conservation and give different methods.
2. Attempt any THREE of the following: 12
- a) Classify various types of spanners and give their specific uses.
 - b) Explain flexible coupling with neat sketch and give its applications.
 - c) State various types of belt drives and explain their uses.
 - d) Explain causes and remedies of general failures in power transmission.

P.T.O.

- 3. Attempt any THREE of the following:** **12**
- a) Differentiate clearly between soldering and brazing
 - b) Explain the safety precautions taken during soldering and brazing in plastic joining processes.
 - c) State working principle of milling machine and give uses of milling machine.
 - d) Explain shearing process applicable to plastics.
- 4. Attempt any THREE of the following:** **12**
- a) Explain any one solar heating system.
 - b) State applications of plastic in solar PV technology.
 - c) Explain working principle of geared wind turbine.
 - d) State constructions of direct drive small wind turbine.
 - e) Describe various biomass power systems available.
- 5. Attempt any TWO of the following:** **12**
- a) Describe foundry processes and explain applications in plastic manufacturing.
 - b) Classify various types of conveyors and hoists. Explain their principle of working and applications.
 - c) Explain selection criteria for material handling equipments with example.
- 6. Attempt any TWO of the following:** **12**
- a) Classify various types of pipes and uses in plastic engineering. List various joints in pipe fittings.
 - b) Explain parallel flow shell and tube exchanger with neat sketch.
 - c) Describe heat transfer modes and their applications and effects in plastics processing.
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