

22349

11819

**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) List any four fluids.
- b) List any four essential properties of hydraulic oil for use in hydraulic circuits.
- c) Draw symbol of 4/3 DCV.
- d) Draw symbol of telescopic cylinder.
- e) State applications of hydropneumatics.
- f) State one application of bleed off and one application of regenerative circuit.
- g) List two speed control hydraulic circuit for plastic processing machine.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) List any eight applications of hydraulic system in plastic process.
  - b) Compare gear pump and vane pump on the basis of :
    - (i) Discharge pressure
    - (ii) Speed
    - (iii) Overall efficiency
    - (iv) Application
  - c) State any two faults and its causes commonly observed in hydraulic system.
  - d) Explain with sketch general layout of pneumatic system.
- 3. Attempt any THREE of the following:** **12**
- a) Explain with sketch working of 3/2 DCV.
  - b) (i) List any four types of air compressors.  
(ii) List any four application of compressed air.
  - c) Explain speed control of bidirectional air motors.
  - d) Explain with sketch construction of power pack.
- 4. Attempt any THREE of the following:** **12**
- a) Select suitable pneumatic circuit for sequencing of two air cylinders based on position. Justify your answer with sketch.
  - b) Design hydropneumatic circuit for automation of plastic processing industry.
  - c) Select suitable control valve for controlled forward stroke and rapid retraction stroke of double acting cylinder to save cycle time. Justify your answer with sketch.
  - d) Select suitable pneumatic circuit for blow moulding machine. Justify your answer with sketch.
  - e) Compare meter in and meter out circuits.

- 5. Attempt any TWO of the following:** **12**
- a) Explain construction and working of regenerative circuit.
  - b) Explain with neat sketch the working of solenoid operated 4/3 DCV used in pneumatic circuit.
  - c) Explain construction and working of hydraulic circuit for injection moulding machine.
- 6. Attempt any TWO of the following:** **12**
- a) Select appropriate pump for plastic processing machine. Justify your answer with sketch.
  - b) Select sequence valve for pneumatic circuit for performing task in sequential order. Justify your answer with sketch.
  - c) Select suitable hydraulic circuit for compression moulding machine. Justify your answer with sketch.
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