

# 22655

**23124**

**3 Hours / 70 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 answer with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) 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) Compare Hydraulic and Pneumatic system.
  - b) Draw. IS. symbols of –
    - i) Dead weight accumulator.
    - ii) Unloading valve.
  - c) Which pump is suitable for low pressure and high pressure hydraulic pump.
  - d) State application for double acting Cylinder and motor.
  - e) State the difference between counter balance valve and unloading valve.
  - f) State the use of FRL unit and time delay valve.
  - g) State the common faults that can be observed in Hydraulic circuits.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) List different safety precautions required for handling Industrial Hydraulics and Pneumatics system.
  - b) Explain the construction and working of Gear type motor with neat sketch.
  - c) Explain two application of pressure control valve with suitable sketch.
  - d) Explain with neat sketch double acting reciprocating compressor.
- 3. Attempt any THREE of the following:** **12**
- a) Enlist four faults and remedies for Hydraulic pump.
  - b) Explain with neat sketch pressure compensated flow control valve, give it's application.
  - c) Draw Hydraulic circuit for Grinding machine and explain its working.
  - d) A mild steel block holds the machine and then drill the hole the block is released when drill goes back. Suggest and draw the suitable circuit for this situation.
- 4. Attempt any THREE of the following:** **12**
- a) Enlist different center positions with sketch.
  - b) Explain with neat sketch sequence valves.
  - c) Explain any four accessories used in pneumatic system.
  - d) For CNC machine select a suitable circuit for door opening and closing at same speed. Explain with circuit diagram.
  - e) Draw and explain Meter-In circuit in Pneumatic system.

**5. Attempt any TWO of the following:****12**

- a) In a dumping truck needs cylinder of giving longer stroke strength suggest the type of actuator to be used with justification. Explain its working with sketch.
- b) Discuss the situation in work-shop shifting CNC machine one place over another place by using hydraulic lifter suggest type of D.C.V., P.C.V. and F.C.V. with justification.
- c) It is required to delay the controlling action by sometime after the actuation of DC valve. Select the suitable valve for this application and explain its working with neat sketch.

**6. Attempt any TWO of the following:****12**

- a) Draw and explain time delay circuit for Broaching operation.
  - b) There are two hydraulic cylinder which operate in sequence. Forward stroke of first cylinder, take place followed by automatic forward stroke of second cylinder. However retraction takes place first in second cylinder followed by the same in first cylinder. Draw suitable circuit and name all components.
  - c) A Hydraulic bending machine can be operated from both the side. Draw pneumatic circuit which ensures both hands safety of the worker while operating the machine from any side.
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