

# 313315

**12526**

**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) Define the term : Vapour pressure.
  - b) Specific gravity of an oil is 0.8. Find it's weight density.
  - c) State at least two device to measure fluid pressure.
  - d) State the various types of fluid flows.
  - e) List out the discharge measuring devices.
  - f) Draw a symbol of Time delay valve.
  - g) Draw a symbol of  $4 \times 3$  solenoid operated DCV with tandem center position.

P.T.O.

2. Attempt any THREE of the following: 12
- a) A circular plate 1.2 m diameter is placed vertically in water so that center of plate is 2 m below the free surface. Determine total pressure and depth of center of pressure.
  - b) State Bernoulli's theorem. Write meaning of each term in it.
  - c) Differentiate between Hydraulic and Pneumatic System.
  - d) Explain Meter-in hydraulic circuit for double acting cylinder.
3. Attempt any THREE of the following: 12
- a) Explain with neat sketch inverted U-tube manometer.
  - b) Sketch and label unbalanced vane pump. Explain its working.
  - c) Explain with neat sketch pressure compensated flow control valve.
  - d) Explain the sequencing circuit for drilling operation.
4. Attempt any THREE of the following: 12
- a) Find the losses of head when a pipe of diameter 200 mm is suddenly enlarged to a diameter of 400 mm. The flow rate of water through the pipe is  $0.250 \text{ m}^3/\text{sec}$ .
  - b) Explain the selection criteria for compressors in pneumatic system.
  - c) Differentiate between pressure relief valve and pressure reducing valve.
  - d) Explain with neat sketch hydraulic circuit for shaper machine.
  - e) Differentiate between Meter-in and Meter-out circuit.
5. Attempt any TWO of the following: 12
- a) Describe Chezy's equation for head loss due to friction.
  - b) Classify hydraulic seals. State the functions of seals.
  - c) Explain time delay valve with neat sketch.

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**Marks**

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

**12**

- a) Draw symbols for :-
- i) Pressure relief valve
  - ii) FRL unit
  - iii) Heat exchanger
  - iv) Bi-directional variable displacement pump.
  - v) Muffler
  - vi) Spring loaded accumulator.
- b) Explain with neat sketch working of quick exhaust valve used in pneumatic system.
- c) Explain sequencing circuit with neat sketch and state its application.
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