

# 17552

**14115**

**3 Hours / 100 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 answers with neat sketches wherever necessary.  
(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:** **20**
- a) Define viscosity and write any four seal materials.
  - b) State Pascal law and energy conservation.
  - c) Classify the fluids on the basis of viscosity. Also define fluids.
  - d) What are the functions of seals and reservoir?
  - e) Write the function of flow control valve.
  - f) Compare fixed-displacement pump and variable displacement pump.
  - g) Classify air compressor and actuators.

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- 2. Attempt any FIVE of the following:** **16**
- a) State the Bernoulli's theorem and give its two applications.
  - b) Distinguish with example laminar and turbulent flow.
  - c) Write any four advantages of hydraulics.
  - d) Draw neat labelled sketch of four way direction control valve with symbol.
  - e) List the type of seals used in hydraulic system. Draw a sketch of any one.
  - f) Write the working of Double Acting Cylinder.
- 3. Attempt any FOUR of the following:** **16**
- a) Draw neat sketch of globe valve and write its function.
  - b) With neat sketch explain intensifier.
  - c) Write the purpose of filter and its positions.
  - d) Classify hydraulic motor. Distinguish between pump and motor. (any 2 points)
  - e) With symbol explain FRL unit.
  - f) How power is transmitted through hydraulics?
- 4. Attempt any FOUR of the following:** **16**
- a) What is hydraulic leverage? Write advantages of hydraulic drive.
  - b) List hydraulic circuit elements.
  - c) What are the characteristics of fixed displacement pump?
  - d) Explain the use of counter balance valve.
  - e) With neat sketch write the working of poppet valve.
  - f) What is sequence valve? Explain with sketch.

- 5. Attempt any FOUR of the following:** **16**
- a) What are the advantages of positive displacement pump?  
Draw a labelled sketch of lobe pump.
  - b) With neat sketch write working of external gear pump.
  - c) Write the maintenance process of pipe fitting.
  - d) Give constructional details of axial-piston pump.
  - e) What is functional and working difference between limit and proximity switch?
  - f) What are safety requirements in pneumatic system?
- 6. Attempt any FOUR of the following:** **16**
- a) List the pneumatic circuit elements and draw any two symbols.
  - b) Draw simple pneumatic circuits using linear and rotary actuator.
  - c) Write the working of piston type motor with sketch.
  - d) Write any four characteristics of balance and unbalanced vane pump.
  - e) Draw the circuit diagram used in blow moulding machine.
  - f) How centrifugal pump works? Explain with diagram.
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