

17608

15162

3 Hours / 100 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (7) Use of Steam tables, logarithmic, Mollier's chart is permitted.

Marks

- 1. a) Attempt any THREE of the following** **12**
- (i) State the functions of:
 - 1) Actuator
 - 2) Filter
 - (ii) Draw neat sketch of 4/2 valve. Explain its working.
 - (iii) Enlist any four sources of heat generation in hydraulic system.
 - (iv) Why accumulators are used in hydraulic circuits? Explain any one of them with sketch.

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- b) **Attempt any ONE of the following:** **6**
- (i) Explain with neat sketch the construction and working of gear pump.
 - (ii) Draw symbols of:
 - 1) 4/3 direction control valve
 - 2) Pilot operated pressure relief valve
 - 3) Sequence valve
2. **Attempt any TWO of the following:** **16**
- a) Explain with neat sketch the working of hydraulic circuit for shaping machine.
 - b) State the functions of pressure relief valve for pneumatic system. Explain its working with neat sketch.
 - c) What is hose? Enlist factors affecting on selection of hose in hydraulic system. State different layers of hose.
3. **Attempt any FOUR of the following:** **16**
- a) State advantages and disadvantages of poppet type directional control valve.
 - b) What are the various materials used for pipes in hydraulic circuit?
 - c) Explain with neat sketch the working and applications of meter-in hydraulic circuit.
 - d) Enlist any four applications of oil hydraulic system.
 - e) What is FRL? State its importance.
4. a) **Attempt any THREE of the following:** **12**
- (i) State any four advantages and disadvantages of pneumatic system.
 - (ii) What are the features of air? List any four features.
 - (iii) Sketch and explain speed control of bi-directional air motor in pneumatics.
 - (iv) Explain time delay pneumatic circuit with neat sketch.

- b) **Attempt any ONE of the following:** **6**
- (i) Explain with neat sketch the construction of gerotor pump.
 - (ii) Enlist the factors to be considered for selection of seal. What are the main causes of seal failure?
5. **Attempt any TWO of the following:** **16**
- a) What are the different types of pressure regulator? Explain any one of them with neat sketch.
 - b) Explain with sketch the working of double acting cylinder.
 - c) What is meant by impulse circuit? Draw its circuit diagram.
6. **Attempt any FOUR of the following:** **16**
- a) Classify flow control valves with their application.
 - b) Draw general layout of pneumatic system.
 - c) Enlist the desirable properties of oil used in hydraulic system.
 - d) Draw the symbol:
 - (i) unloading valve
 - (ii) simple check valve
 - e) Explain actuated position of control of single acting cylinder with neat circuit.
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