

22386

23124

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) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. Attempt any FIVE of the following :

5 × 2 = 10

- (a) List out components of pneumatic system.
- (b) State any four applications of hydraulic system.
- (c) Give properties of oil used in hydraulic system.
- (d) State functions of Actuators.
- (e) Enlist D.C. valves used in hydraulic & pneumatics.
- (f) State the types of pressure control valve.
- (g) Draw the detailed symbol of FRL unit.

2. Attempt any FOUR of the following :

4 × 3 = 12

- (a) Draw general layout of hydraulic system used in polymer industry and label the components.
- (b) Give detailed classification of hydraulic pumps.
- (c) Explain construction and working of rotary Actuators.
- (d) Describe working of flow control valve with neat sketches.
- (e) With neat sketch, explain the functioning of any one pressure control valve.



- 3. Attempt any FOUR of the following :** **4 × 3 = 12**
- (a) Classify hydraulic Actuators.
 - (b) Explain routine maintenance procedure for pump.
 - (c) Describe working of directly operated check valve with neat sketch.
 - (d) Draw a neat sketch of 4 × 2 D.C. valve. Explain its working.
 - (e) State the main three types of control valve. Give functions of each of them.
- 4. Attempt any THREE of the following :** **3 × 4 = 12**
- (a) List various accessories used in pneumatic system along with their functions.
 - (b) Describe construction and working principle of Reciprocating compressor.
 - (c) Elaborate – speed control meter in circuit.
 - (d) State and discuss the faults observed in pneumatics circuits with their remedies.
 - (e) Draw speed control circuit of bidirectional air motor using 4 × 2 D.C.V.
- 5. Attempt any THREE of the following :** **3 × 4 = 12**
- (a) Draw sketches of
 - (1) Twin pressure valve
 - (2) Shuttle valve
 - (b) Describe construction and working of quick exhaust valve.
 - (c) State the remedies and faults occurred in hydraulic circuits (Any four).
 - (d) Draw the sequencing of SAC & DAC using 3 × 2 & 4 × 2 D.C.V.
 - (e) Explain the working of pressure compensated FCV with neat sketch.
- 6. Attempt any TWO of the following :** **2 × 6 = 12**
- (a) Draw and explain the hydraulic circuit for Injection Moulding machine.
 - (b) Explain with neat sketch sequencing of single acting cylinder and double acting cylinder using roller operated direction control valve.
 - (c) Draw time delay valve circuit and explain in brief. State the application of this circuit.
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