

22474

12425

03 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
- (6) Preferably, write the answer in sequential order.

Marks

- 1. Attempt any FIVE of the following :** **10**
- a) State Bernoulli's Theorem.
 - b) Draw symbol of the FRL unit.
 - c) Draw layout of oil hydraulic system and label it.
 - d) Draw hydraulic circuit to actuate single acting cylinder.
 - e) Draw flow control valve with check valve.
 - f) Draw symbol of 4/2 DCV and 5/2 DCV.
 - g) Draw 5/2 Solenoid operated DCV.

P.T.O.

- 2. Attempt any THREE of the following :** **12**
- a) Explain different types of fluids with suitable examples of fluid.
 - b) Explain construction and working of simple pressure relief valve with sketch of symbol.
 - c) Draw and explain impulse pneumatic circuit.
 - d) Explain general layout of pneumatic system.
- 3. Attempt any THREE of the following :** **12**
- a) Explain Internal Gear type pump with neat sketch.
 - b) Explain pneumatic circuit for speed control of a double acting cylinder.
 - c) Explain the circuit to operate uni-directional oil hydraulic motor using 3/2 DCV.
 - d) Explain with neat sketch the Twin Pressure valve.
 - e) Differentiate between seat type and spool type direction control valve. (Any four points)
- 4. Attempt any THREE of the following :** **12**
- a) Draw and explain meter-in Hydraulic circuit.
 - b) Classify pneumatic actuators and explain with neat sketch the double acting cylinder.
 - c) Explain the causes and remedies for pump and cylinder trouble in Hydraulic system.
 - d) Construct electro-pneumatic circuit with an electric time delay valve.
 - e) Construct a sequencing circuit to operate two single acting cylinder in sequence by using sequence valve in hydraulic system.

- 5. Attempt any TWO of the following :** **12**
- a) Explain Time Delay valve with circuit diagram for pneumatic system.
 - b) Construct Electro-Hydraulic circuit of a double acting cylinder with a 4/2 solenoid operated spring return valve.
 - c) Draw and explain speed control of Bi-directional air motor.
- 6. Attempt any TWO of the following :** **12**
- a) Compare following systems – Hydraulic, Pneumatic and electric.
 - b) State the function of Accumulator in circuit. State different types of hydraulic accumulators and explain any one with neat sketch.
 - c) Construct pneumatic circuits –
 - i) To operate SAC using 3/2 DCV.
 - ii) To operate DAC using 4/2 DCV.
 - iii) To operate Bi-directional Air motor by using 4/3 DCV.
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