

22474

23242

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 answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (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.

Marks

1. **Attempt any FIVE of the following:** **10**
 - a) State Pascal's law.
 - b) Draw symbol of FRL unit.
 - c) State function of Non return valve.
 - d) Draw symbol of Sequence valve.
 - e) State function of Time delay valve.
 - f) State need of Impulse circuit.
 - g) List components of Electro-Hydraulic system.

2. **Attempt any THREE of the following:** **12**
 - a) Explain working of external gear pump with neat sketch.
 - b) Draw and explain general layout of hydraulic system.
 - c) Draw and explain working of DA cylinder.
 - d) Draw meter out circuit to control both strokes of pneumatic DA cylinder.

P.T.O.

- 3. Attempt any THREE of the following:** **12**
- a) Explain working of Gas charged accumulator with suitable sketch.
 - b) Draw Vane type rotory compressor and explain it's working.
 - c) Draw travel dependant hydraulic circuit to sequence two DA cylinders.
 - d) Differentiate in between direct operated and pilot operated pressure relief valve.
 - e) State general faults and their remedies occuring in pneumatic system.
- 4. Attempt any THREE of the following:** **12**
- a) Compare meter in and meter out circuits.
 - b) List any two common faults in Hydraulic circuit, suggest remedies to avoid.
 - c) Justify need of receiver in pneumatic system.
 - d) Draw and explain impulse circuit used in Hydraulic system.
 - e) List components and write their function used in Electro Hydraulic System. (Any four)
- 5. Attempt any TWO of the following:** **12**
- a) Construct Electro pneumatic circuit to operate single acting cylinder using 3/2 solenoid operated spring return valve.
 - b) Construct AND logic pneumatic circuit to operate Air motor to safeguard both hands of operator.
 - c) Explain working of time delay valve with suitable diagram.
- 6. Attempt any TWO of the following:** **12**
- a) Explain the speed control circuit used to operate pneumatic rock drill.
 - b) Compare hydraulic system with pneumatic system.
 - c) Explain working of oil filter with suitable diagram. List functions of oil filter in hydraulic circuit.
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