

22655

12223

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 answer with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(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) Draw I.S. symbol for :–
 - i) $\frac{4}{3}$ D.C.V.
 - ii) Sequence valve.
 - b) Define :–
 - i) Viscosity
 - ii) Specific weight
 - c) State applications of Linear and Rotary actuator.
 - d) List various factors considering while selection of pump.
 - e) State the different functions of valves.
 - f) State the different types of filters used in fluid system.
 - g) State the common faults that can be observed in Pneumatic circuit.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) State the advantages and limitations of hydraulic and pneumatic systems.
 - b) Explain the working of Tandem cylinder with neat sketch.
 - c) Explain the working of check valve with neat sketch.
 - d) Explain with neat sketch working of any one rotary compressor.
- 3. Attempt any THREE of the following:** **12**
- a) Compare gear pump and vane pump on the basis of :-
 - i) Construction
 - ii) Speed
 - iii) Application
 - iv) Pressure.
 - b) Explain the working of sequence valve with neat sketch.
 - c) Compare between meter in and meter out circuit.
 - d) A machine holds the steel sheet and then punches a hole. The sheet is released when the punch goes back. Suggest and draw the suitable circuit for this situation.
- 4. Attempt any THREE of the following:** **12**
- a) Explain with neat sketch working of $3/2$ DCV.
 - b) Give the classification of control valves.
 - c) Explain flexible hose. State its material and application.
 - d) Construct Pneumatic circuit using sequence valve to control two applications performed in a proper sequence and describe its working.
 - e) Draw the neat labelled hydraulic circuit of milling machine and explain its working.

5. Attempt any TWO of the following:**12**

- a) Draw and explain two pump unloading circuit.
- b) Mention any two faults detected in pneumatic circuit and give its causes and remedies.
- c) Discuss the situations in which following type of centre position of DC valves are preferred :-
 - i) All ports open
 - ii) Tandem centre.

6. Attempt any TWO of the following:**12**

- a) It is required to delay the controlling action by some time after the actuation of DC valve. Select the suitable valve for this application and explain its working with neat sketch.
 - b) One application needs a single acting cylinder capable of giving longer stroke strength. However, the space available to fit in that cylinder in retracted condition is comparatively less. Suggest the type of actuator to be used in such condition with justification. Explain its working with sketch.
 - c) Differentiate between Hydraulic and Pneumatic system. (Minimum six points.)
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