

Time: Three Hours

Maximum Marks: 80

“Please check whether you have got the right question paper.”

i) Solve any three questions from each section.

ii) Assume suitable data wherever necessary.

SECTION-A

- Q.1 a) What are the different laws of fluids that govern the hydraulic & premature system? State the laws. 06
 b) Draw a basic premature circuit and explain the different components & their use in the circuit. 07
- Q.2 a) What are the difference in the premature & hydraulic symbols? 03
 b) Draw the following symbols. 10
 1) Variable discharge premature motor.
 2) Double activity, double ended cylinder.
 3) And function valve actuator using solenoid and manual control.
 4) Heat exchanger coil cooler.
 5) Air pilot operated three way directional control value.
- Q.3 a) With neat sketch explain the construction and working of internal gear pump. 08
 b) What are the different types of piston pumps? How do they differ in working? 05
- Q.4 a) With neat sketch explain the construction and working of an air filter, regulator and lubricator unit used in pneumatics. 06
 b) With neat sketch explain the construction & working of a balanced vane pump. 07
- Q.5 Write short note on (any three) 14
 1) Hydraulic oil additives.
 2) Uses & general rules of hydraulic & pneumatic symbols.
 3) Axial piston pump
 4) Double acting piston and cylinder with air cushions on both ends.
 5) Telescopic cylinder actuator.

SECTION-B

- Q.6 a) What are the different types of direction control valves? State their application by using symbolic representation. 07
 b) What are the different types of pipes used in hydraulic & pneumatic circuit? List the different accessories used in the piping. 06
- Q.7 Draw the sequencing circuit for operating two double acting cylinders in a sequence in both strokes. Use appropriate component for the circuit & explain its working for a hydraulic system. 13
- Q.8 Draw a premature circuit for a double acting cylinder with auto reverse repeated strokes using air pilot operated 2 position 4 way direction control value. showing the pilot circuit using two three way direction control valves operated by cam on piston rod with mechanical actuator. Use standard consonants required for the circuit. 13

- Q.9 a) What are the different valve actuators that can be used in the electro premature & electro hydraulic circuit? How they will be controlled? 07
- b) What are the different types of sensors used in the electro hydraulic & electro premature circuit? State the function & application in brief. 06
- Q.10 Write short notes on (any three) 14
- 1) Air driers
 - 2) Valve actuators
 - 3) Meter in & meter out circuits.
 - 4) P.L.C.
 - 5) Use of counter balance valve.