

Total No. of Questions : 8]

SEAT No. :

P7735

[6180]-264

[Total No. of Pages : 3

**T.E. (Robotics & Automation Engineering)
HYDRAULICS & PNEUMATICS
(2019 Pattern) (Semester - I) (311502 (A))**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.No.1 or Q.No. 2, Q.No.3 or Q.No.4, Q.No.5 or Q.No.6, Q.No.7 or Q.No.8.*
- 2) *Neat diagram must be drawn wherever necessary.*
- 3) *Use of calculator is allowed.*
- 4) *Figure to the right indicates full marks.*
- 5) *Assume suitable data, if necessary.*

- Q1) a)** Draw a simple sketch and ISO symbol of a pressure relief valve, and explain its working. State its importance in hydraulic systems. [8]
- b)** Classify different types of Pressure control valves used in the hydraulic circuits. Draw ISO symbol for each. [9]

OR

- Q2) a)** Draw neat sketch and explain the following with their applications in circuit. [8]
- i) Three Way, Two Position Direction Control Valve.
 - ii) Four Way, Three Position Direction Control Valve (Closed Centre).
- b)** Explain shuttle valve with a neat sketch. State its application with a typical circuit. [9]

- Q3) a)** Draw a regenerative circuit by using 4/3 DCV and explain its application. [9]
- b)** Explain counterbalance valve circuit with neat sketch. [9]

OR

P.T.O.

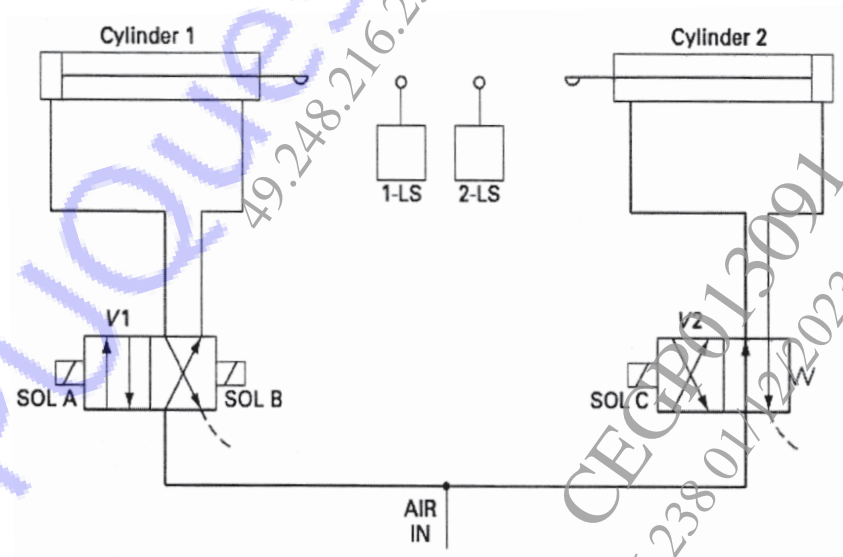
- Q4)** a) Differentiate between meter in circuit and meter out circuit. [9]
 b) Draw a neat sketch of Pump unloading circuit. State function of unloading valve. [9]

- Q5)** a) Explain with neat sketch working of “AND” valve and with the help of circuit diagram explain any one typical application of it. [9]
 b) Draw and explain the application of a pilot check valve for locking a double-acting cylinder. [9]

OR

- Q6)** a) Draw and Explain a typical sketch for sequencing of two double acting cylinders in respect of pneumatics. [9]
 b) Draw circuit for : [9]
 i) Controlling speed of pneumatic double acting cylinder.
 ii) Speed control of a pneumatic motor

- Q7)** a) Explain an Electro-hydraulic servo system with neat sketch? [8]
 b) Explain the complete operation of the system shown in fig. [9]



OR

Q8) a) What is a programmable logic controller? State the main function of each of the following elements of a PLC : [8]

- i) CPU
- ii) Programmer/monitor
- iii) I/O module

b) Explain the complete operation of the system shown in fig. [9]

