

Total No. of Questions : 8]

SEAT No. :

PB3975

[6262]-317

[Total No. of Pages : 2

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 and Q.7 or Q.8.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagram must be drawn wherever necessary.*
- 4) *Assume suitable data, if necessary.*
- 5) *Use of Logarithmic Table, Slide rule is Electronic pocket calculator is allowed.*

Q1) a) With neat sketch, Explain Operation of Poppet check valve and state its advantages & Disadvantages. **[8]**

b) With neat sketch, Explain Operation of pressure and temperature of compensated FCV. **[9]**

OR

Q2) a) With Neat Sketch, explain construction and working of pilot operated pressure valve. **[8]**

b) Draw neat sketch and explain the following with their applications in circuit. **[9]**

i) Three Way, Two Position Direction Control Valve.

ii) Four Way, Three Position Direction Control Valve (Closed Centre)

Q3) a) Explain counter balance valve circuit with neat sketch. **[9]**

b) Explain speed control of a hydraulic motor circuit. **[9]**

OR

P.T.O.

- Q4)** a) Explain the pump unloading Circuit. [9]
b) With neat sketch explain the spring loaded accumulator. [9]

- Q5)** a) Write the advantages, disadvantages and applications of pneumatic system. [9]
b) With neat sketch explain the working of FRL unit. [9]

OR

- Q6)** a) Draw a typical circuit showing control of a double acting cylinder operated through use of an air pilot actuated direction control valve and explain working of the circuit. [9]
b) Explain with neat sketch working of AND valve and with the help of circuit diagram explain any one typical application. [9]

- Q7)** a) Explain one application each of Automation and Robotics using PLC.[8]
b) With neat sketch explain 5/2 - way single solenoid valve, spring return.[9]

OR

- Q8)** a) Draw and explain the direct control of single cylinders using electro pneumatics. [8]
b) What is a programmable logic controller? State the main function of each of the following elements of a PLC: [9]
i) CPU
ii) Programmer/monitor
iii) I/O module

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