

Total No. of Questions : 10]

SEAT No. :

**P1739**

**[5058]-373**

[Total No. of Pages : 2

**T.E. (Instrumentation & Control)**  
**CONTROL SYSTEM COMPONENTS**  
**(2012 Course) (Semester-I) (End Semester)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Draw neat sketches wherever necessary.*
- 2) *Answer 05 questions.*
- 3) *Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q. 7 or Q. 8, Q. 9 or Q. 10.*
- 4) *Assume suitable data, if necessary.*

- Q1)** a) Draw and explain the use of a level switch in level control application. **[6]**
- b) Compare pneumatic and hydraulic system. **[4]**

OR

- Q2)** a) State the selection criteria for electromechanical relay. Draw and explain one application of electromechanical relay. **[6]**
- b) Explain with diagram construction & working of a reed relay. **[4]**

- Q3)** a) Explain with diagram the short circuit protection and over load protection of motors. **[5]**
- b) Draw and explain working of a pneumatic relief valve. **[5]**

OR

- Q4)** a) Explain with wiring diagram the concept of sequencing of motors. **[5]**
- b) Draw and explain the pneumatic circuit for continuous to-and-fro motion of a double acting cylinder. **[5]**

**P.T.O.**

**Q5) a)** State the advantages of positive displacement pumps over non-positive displacement pumps. Draw and explain the construction & working of external gear pump. [10]

b) Draw and explain the hydraulic supply. Explain the function of each component of hydraulic supply. [8]

OR

**Q6) a)** Draw & explain the meter-in and meter-out circuit in hydraulics. [10]

b) Enlist the types of hydraulic cylinders. Draw & explain the working of a hydraulic pressure reducing valve. [8]

**Q7) a)** State the application areas of feeders. Draw and explain the volumetric shaker feeder. [8]

b) Write a short note on alarm annunciator. [8]

OR

**Q8) a)** Draw and explain the working and construction of a circuit breaker. [8]

b) State the desirable characteristics of a fuse. Draw and explain construction of a high rupturing capacity (HRC) fuse. [8]

**Q9) a)** Draw and explain the tesla's tube. State the advantages of fluidic devices. [8]

b) Define hazardous area. Explain the hazardous area classification in detail. [8]

OR

**Q10) a)** Draw and explain the ignition triangle and Explosion-Proof enclosure. [8]

b) Write a note on intrinsic safety and its types. [8]

