

B.E. Instrumentation Engineering (Model Curriculum) Semester-VI
IN604M - Control System Components

P. Pages : 2

Time : Three Hours



GUG/W/23/14031

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Diagrams and Chemical equation should be given wherever necessary.

1. a) Discuss the following term along with specifications. **8**
i) Toggle switch
ii) Selector switch.
- b) Write short note on following. **8**
a) Application of Contactors.
b) Hermetically sealed relay.

OR

2. a) Illustrate with neat sketch the working of reed relay and give its application. **8**
b) Compare contractor with relay. **8**
3. a) Discuss the construction and working principle of AC servo motor. **8**
b) Differentiate between following: **8**
i) DC servo motor, AC servo motor and stepper motor.

OR

4. a) Illustrate the different drive modes of stepper motor with proper waveforms. **8**
b) Discuss the types of stepper motor by its construction. **8**
5. a) Discuss the construction and working of the following with one application each: **8**
i) I to P converter
ii) P to I converter
- b) What is the need of circuit breaker? Discuss any one types of circuit breaker with application. **8**

OR

6. a) Write a short note on fail safe current alarm. **8**
- b) Define control valve. Discuss the types of control valve based on: **8**
a) Action
b) Number of plugs
c) Flow characteristics

7. a) Explain the construction and working of all components of FRL unit with neat diagram. 8
b) Describe with neat sketch the working of the bleed and non-bleed type of pneumatic relay. 8

OR

8. a) With the help of pneumatic circuit clarify sequencing of two double acting cylinders. 8
b) Clarify the pneumatic speed control circuit for the double acting cylinder. 8
9. a) Describe the qualities that are necessary for an oil to be used in hydraulic system. 8
b) State various components required for a hydraulic power supply. Explain with neat sketch any two components. 8

OR

10. a) Give the classification of hydraulic pumps. Discuss the working of any one type. 8
b) Describe the working of hydraulic circuit for meter in and meter out. 8
