

ANSWER ALL QUESTIONS

PART-A (10*2=20 MARKS)

1. Define viscosity and bulk modulus of a hydraulic fluid.
2. Give the hydraulic symbol for a 3-position,4-way,closed centre solenoid operated DCV.
3. What is a time delay valve?
4. Draw the symbols for the following pneumatic components:
 - (i) 5/2 pilot operated DCV.
 - (ii) FRL unit.
5. What is the function of quick return valve?
6. What is "meter-in" circuit? What are its limitations?
7. Mention the difference between hydraulics and pneumatics.
8. What is the function of counter balance valve in a hydraulic press?
9. What is fluidics?
10. Draw the simple pneumatic circuit with an application of "AND" valve.

PART-B (5*10=50 MARKS)

11.a. Explain the factors which affect the selection of pumps and discuss in detail the classification and performance features of different types of hydraulic pumps.

(OR)

b. Describe any one of the electro hydraulic circuits used in robotic systems.

12. a. Sketch a hydro-pneumatic circuit for a typical application and explain its operation.

(OR)

b. i. Explain the application of pneumatic system for low cost automation with suitable examples.

ii. With neat diagrams explain any two types of pneumatic actuators.

13. a. Describe any two applications of accumulator with neat circuits.

(OR)

b. What is cascade control? Explain giving suitable example circuit.

14. a. with suitable example, explain the hydraulic automatic reciprocating system.

(OR)

b. Develop a pneumatic circuit with three cylinders A,B,C for the process of conveying boxes between two floors.

15. a. i. Explain the working principle of PLC with a neat block diagram.

ii. How does a PLC differ from microprocessor?

(OR)

b. Design a pneumatic system and explain in which cylinder 'A' is used to clamp the work piece. Cylinder 'B' is used for punching and cylinder 'C' removes the work piece from the station. (Use cascade method).

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