

## MANUFACTURING ENGINEERING BRANCH

## FOURTH SEMESTER - (REGULATION 2004)

MN 375 – HYDRAULICS AND PNEUMATIC CONTROLS

Time : 3 hr

Max. Marks: 100

Answer ALL QuestionsPART – A (10 x 2 = 20 Marks)

1. List any four advantages of using fluid power system.
2. What is pressure override in pressure relief valve?
3. Draw the symbol for relief valve and pressure reducing valve.
4. Draw the ANSI symbol of solenoid operated 2/4 way valve
5. What are the functions of accumulator?
6. State the purposes of fail safe circuit.
7. What are the advantages of fluidic control?
8. What is bi stable flip- flop?
9. When PLC systems preferred for fluid power control?
10. What is ladder diagram?

PART – B(5 x 16 = 80 Marks)

11. Discuss the pressure compensated variable displacement piston pump with a diagram. (16)
12. a.i) Explain the construction and working of pilot operated sequence valve. (8)  
ii) With a neat sketch explain the working of Hydraulic shock absorbers. (8)  
(Or)
- b. i) Explain the working of counter balance valve with a neat sketch (8)  
ii) Discuss the various types of hydraulic actuators. (8)
13. a i) Discuss the fluid power circuit of drilling machine operation (8)  
ii) Discuss the regenerative circuit with a diagram. (8)  
(Or)
- b. i) Discuss the pressure intensifier circuit with a diagram. (8)  
ii) Explain the sequencing circuit with a sketch. (8)
14. a. Explain the commonly used electrical devices in fluid power circuits. (16)  
(Or)
- b. i) Discuss the safety circuits used in pneumatic systems (8)  
ii) Discuss the advantages of a Electro hydraulic circuits. (8)
15. a. Design and develop a circuit using cascade method for the following sequence  
A+ B+ A- B- where A and B stands for cylinders (16)  
(Or)
- b i) Discuss the advantages of PLC system in fluid power circuits. (8)  
ii) Discuss any four problem encountered in hydraulic system. (8)