B. Tech.

(SEM. VI) EXAMINATION, 2006-07

PNEUMATICS & CONTROL

Time : 3 Hours] [Total Marks : 100

Note : (1) Answer all questions. There may be choices within.
(2) Marks are indicated therein.

1 Answer any two of the following : 10×2=20
(a) Draw a suitable diagram of linear hydraulic actuator and describe its construction.
(b) (i) Briefly describe cushioning of air cylinders.
      (ii) What is suction head and delivery head applied to pump.
(c) (i) What are the advantages of a centrifugal pump over a reciprocating pump.
      (ii) Describe compression type pipe fitting in brief.

2 Answer any two of the following : 10×2 = 20
(a) Describe the operating principle of a 4/2 seat type directional control valve.
(b) Name any two mechanical elements used for controlling pneumatic valves. Discuss how are they performed their functions.
(c) Distinguish between quick exhaust valve and flow control valve. Give the suitable sketches of both.

3 Answer any two of the following: $10 \times 2 = 20$

(a) (i) How does a pneumatic circuit differ from a hydraulic circuit.
(ii) What is sequencing circuit? Discuss.
(b) Sketch speed control circuit for a double acting cylinder. Describe the functions of each components of the system involved in the speed control.
(c) Write short note on design of Hydraulic Circuit.

4 Answer any two of the following: $10 \times 2 = 20$

(a) (i) Distinguish between Hydro pneumatic to Hydraulic system.
(ii) Briefly describe the working principle of intensifier.
(b) Discuss air-oil cylinder type of Hydro pneumatic system with suitable sketches. Mention its drawbacks.
(c) Classify air cylinders on the basis of their construction. Briefly describe any two of them.

5 Answer any two of the following: $10 \times 2 = 20$

(a) (i) Describe fluidic, NOR – Gate and AND – Gate.
(ii) Explain the working of turbulence amplifier.
(b) Write short note on fluid sensor.
(c) How is PLC applied in the control of fluid? Discuss.