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Fifth Semester B.E. Degree Examination, Dec.2024/Jan.2025
Hydraulics and Pneumatics

Time: 3 hrs. 　　　　　　　　　　　　　　　　　　　Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1　a. Explain the Pascal's law with example. State its applications. (08 Marks)
　　b. With a neat sketch, explain unbalanced vane pump. (08 Marks)
　　c. Write the advantages of Hydraulics system. (04 Marks)

OR

2　a. With a neat sketch, explain external gear motor. (08 Marks)
　　b. With a neat sketches, and examples, explain First, second and third class lever system. (12 Marks)

Module-2

3　a. Classify the direction control valve. Write the graphical symbol for the following :
　　　　i) Variable Displacement pump
　　　　ii) 3/2 DC valve
　　　　iii) Pressure relief valve
　　　　iv) Variable displacement Bi-directional motor
　　　　v) Check valve
　　　　vi) Variable restriction flow control valve
　　　　vii) Heater (10 Marks)
　　b. With a neat sketch, explain pressure sequence valve. (10 Marks)

OR

4　a. With a neat sketch, explain Reservoir system. State the functions. (10 Marks)
　　b. State the causes and remedies for the following in Hydraulic system.
　　　i) No-flow　　ii) Rise in temperature. (10 Marks)

Module-3

5　a. Explain the following with circuit diagram
　　　　i) Double acting cylinder with 4/2 dc valve
　　　　ii) Regenerative circuit (12 Marks)
　　b. Explain the counter balancing valve circuit in hydraulic system. (08 Marks)

OR

6　a. Explain the speed control and reversing of direction of hydraulic motor. (10 Marks)
　　b. Define and classify Accumulator. Explain Accumulator as an emergency power source. (10 Marks)

Module-4

7　a. Explain the pneumatic system with block diagram. (10 Marks)
　　b. Explain the following type Rodless cylinder
　　　　i) C-shaped Housing R.C
　　　　ii) Magnetic type R.C (10 Marks)

OR

8 a. Explain the 3/2 poppet valve with graphical symbol. (10 Marks)
   b. Explain the Quick exhaust valve and circuit. (10 Marks)

Module-5

9 a. Explain displacement step diagram and displacement time diagram. (08 Marks)
   b. Explain the cascade method pneumatic system. (12 Marks)

OR

10 a. With a neat sketch, explain Relay and Solenoid. (12 Marks)
   b. Explain the Pilot Assisted solenoid control DC valve in pneumatic system. (08 Marks)

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