

Fifth Semester B.E. Degree Examination, July/August 2022 Hydraulics and Pneumatics

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Define hydraulic system. Explain the structure of hydraulic control system. (08 Marks)
b. With neat sketch, explain external gear type of pump. (08 Marks)

OR

- 2 a. With neat sketch, explain double acting cylinder. (04 Marks)
b. With neat sketch, explain construction and working of vane type motor. (08 Marks)
c. Explain class I and class II lever system with example. (04 Marks)

Module-2

- 3 a. With neat sketch, explain pilot operated pressure relief valve. (08 Marks)
b. Explain non-compensated and compensated flow control valve. (08 Marks)

OR

- 4 a. With neat sketch, explain constructional features of a hydraulic reservoir. (08 Marks)
b. Explain the properties of fluid. (08 Marks)

Module-3

- 5 a. With neat sketch, explain sequence valve circuit. (08 Marks)
b. Explain regenerative circuit. Derive the equation for regenerative speed of a cylinder. (08 Marks)

OR

- 6 a. Explain speed control of hydraulic cylinder using meter in circuit. State the advantages. (08 Marks)
b. Explain the following with suitable diagram:
i) Dead weight accumulator
ii) Piston type accumulator. (08 Marks)

Module-4

- 7 a. State advantages, limitations and applications of pneumatic system. (08 Marks)
b. With neat sketch, explain decelerating device (cushioning) of cylinder. (08 Marks)

OR

- 8 a. Explain speed control of cylinder of pneumatic system. Discuss meter-in, meter-out pneumatic circuit for speed control. (08 Marks)
b. With neat sketch, explain 3/2 poppet valve. (08 Marks)

Module-5

- 9 a. Explain cascade method of pneumatic circuit design. (10 Marks)
b. With suitable line diagram, explain motion and control diagram. (06 Marks)

OR

- 10 a. With suitable block diagram, explain the stages of preparation of compressed air. (08 Marks)
b. With circuit diagram, explain pilot assisted solenoid control of DC valves. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.