



# CBCS SCHEME

15AU554

## Fifth Semester B.E. Degree Examination, June/July 2024 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. Write the advantages and disadvantages of Hydraulic system. (04 Marks)
- b. With a neat sketch, explain hydraulic control system. (06 Marks)
- c. With a neat sketch, explain unbalanced vane pump. (06 Marks)

OR

- 2 a. With a neat sketch, explain External gear motor. (06 Marks)
- b. Explain with neat sketch of variable displacement type in – line axial piston motor. (10 Marks)

### Module-2

- 3 a. With a neat sketch, explain pilot – operated check valve. (06 Marks)
- b. With a neat sketch, explain pressure reducing valve. (06 Marks)
- c. Briefly, explain needle valve. (04 Marks)

OR

- 4 a. Explain with a simple neat sketch the working of a full flow filter. (06 Marks)
- b. With a neat sketch, explain air cooled Heat exchanger. (06 Marks)
- c. Write a note on seal material. (04 Marks)

### Module-3

- 5 a. Explain briefly the principle involved in a regenerative circuit. (06 Marks)
- b. Explain with suitable circuits how single acting and double acting cylinders are controlled. (10 Marks)

OR

- 6 a. What are Hydraulic Accumulators? Classify the different accumulators used in hydraulic systems. (04 Marks)
- b. With a hydraulic circuit diagram, explain meter – in and meter – out speed control of hydraulic actuators. (12 Marks)

### Module-4

- 7 a. With a neat sketch, explain the construction and working of Double acting cylinder. (08 Marks)
- b. Sketch and explain :
  - i) Vane type semi rotary type actuator
  - ii) Rack and pinion type actuator. (08 Marks)

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.

OR

- 8 a. With a neat sketch, explain :  
i) 2 way spool valve  
ii) 3 way spool valve. (08 Marks)
- b. With a neat circuit diagram, explain :  
i) Supply air throttling  
ii) Exhaust air throttling. (08 Marks)

**Module-5**

- 9 a. Explain the motion – step diagram for a two cylinder circuit. (08 Marks)
- b. With a neat sketch, explain the solenoid operated DCV. (08 Marks)

OR

- 10 a. Sketch and explain the working of an air lubricator. (08 Marks)
- b. Sketch and explain the working of electrical Relay. (08 Marks)

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