

# CBCS SCHEME

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18AU56

## Fifth Semester B.E. Degree Examination, Feb./Mar. 2022 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. Define hydraulic system. State advantages and limitations of hydraulic system. (10 Marks)  
b. Explain variable displacement axial piston pump (swash plate) with neat sketch. (10 Marks)

OR

- 2 a. Define and classify actuator. With a neat sketch, explain working of vane type motor. (10 Marks)  
b. What is the need of lever system? With neat sketch and example, explain three types of lever system. (10 Marks)

### Module-2

- 3 a. With a neat sketch, explain pilot operated direction control valve. (10 Marks)  
b. With a neat sketch, explain working of pressure sequence valve. (10 Marks)

OR

- 4 a. Explain any five properties of a good hydraulic fluid. (10 Marks)  
b. With a neat sketch, explain Reservoir System. State the functions. (10 Marks)

### Module-3

- 5 a. With a neat sketch, explain working of pump unloading circuit. (10 Marks)  
b. Explain the working of single and double acting cylinder with suitable circuit. (10 Marks)

OR

- 6 a. Discuss the speed control of hydraulic cylinder using meter out circuit. (10 Marks)  
b. Define accumulator. Explain the following with neat sketch:  
(i) Spring loaded accumulator (10 Marks)  
(ii) Piston type separator accumulator (10 Marks)

### Module-4

- 7 a. Explain the characteristics of compressed air. (10 Marks)  
b. With a neat sketch and graphical symbol, explain end position cushioning in cylinder. (10 Marks)

OR

- 8 a. Explain the working of 3/2 poppet valve with a neat sketch. (10 Marks)  
b. Explain the quick exhaust valve with neat sketch and circuit diagram. (10 Marks)

### Module-5

- 9 a. With circuit diagram, explain pilot assisted solenoid control DC valve. (08 Marks)  
b. Explain cascade method of pneumatic circuit design. (12 Marks)

OR

- 10 a. With neat sketch, write a note on: (i) Solenoid (ii) Limit switches (10 Marks)  
b. Explain the following with neat sketch: (i) Relay (ii) Motion diagram (10 Marks)

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