

# CBCS SCHEME

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15AU554

Fifth Semester B.E. Degree Examination, Jan./Feb. 2023

## 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. Explain with neat sketch of Double Acting Cylinder. (08 Marks)  
b. Explain with neat sketch of Piston motor. (08 Marks)

OR

- 2 a. Draw and explain the structure of Hydraulic Control System. (08 Marks)  
b. Explain the Construction and Working of Unbalanced Vane Pump. (08 Marks)

### Module-2

- 3 a. Illustrate with diagram, the construction and working of Simple needle valve with symbol. (08 Marks)  
b. Describe with diagram, the construction and working of pressure control valve used in hydraulic circuit. (08 Marks)

OR

- 4 a. What are the desirable properties of Hydraulic oil? Explain any 4 properties. (08 Marks)  
b. Explain briefly filters and strainers in hydraulic system. (08 Marks)

### Module-3

- 5 a. Explain with a neat circuit diagram, the counter balance valve application. (08 Marks)  
b. Sketch and explain the operation of a hydraulic circuit for the control of a spring return – single acting cylinder. (08 Marks)

OR

- 6 a. Explain with a neat circuit diagram, the working of double pump hydraulic system. (08 Marks)  
b. What is Regenerative Circuit? Sketch schematically regenerative circuit to increase the extension speed of a double acting cylinder. (08 Marks)

### Module-4

- 7 a. Draw and explain the structure of Pneumatic Power System. (08 Marks)  
b. Explain the choice of working medium and characteristics of compressed air. (08 Marks)

OR

- 8 a. Explain the working of poppet valve, with a neat sketch. (08 Marks)  
b. Explain the direct and indirect control of Pneumatic cylinders. (08 Marks)

### Module-5

- 9 a. Explain the working of motion control diagram for a 2 – cylinder pneumatic circuit. (08 Marks)  
b. Write a brief note on SPST – NO, SPST – NC, DPST – NO/NC, DPDT – NO/NC and LS – NO with symbol of these switches. (08 Marks)

OR

- 10 a. Explain with neat sketch of Piston type compressor. (08 Marks)  
b. Write short note on : i) Drier ii) Filter iii) Regulators. (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.