

CBCS SCHEME

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20MCM/MAR23

Second Semester M.Tech. Degree Examination, July/August 2022 Pneumatic and Hydraulic Controls

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. With a circuit diagram explain the working principle of hydraulic system. (10 Marks)
b. Differentiate between hydraulic and pneumatic system and mention its applications. (10 Marks)

OR

- 2 a. Explain open loop and closed loop control system for hydraulic applications. (10 Marks)
b. Explain the following : i) Position control system ii) Speed control system. (10 Marks)

Module-2

- 3 a. Explain the pressure-flow relationship based on the Bernoulli's principle. (10 Marks)
b. With an illustration explain ball valve and mention its advantages and limitations. (10 Marks)

OR

- 4 a. What is valve instability? Explain the parameters effects on the valve instability. (10 Marks)
b. Design and explain hydraulic circuit for regenerative center in drilling machine. (10 Marks)

Module-3

- 5 a. What is pneumatic valve? Explain three way direction control pneumatic valve with schematic representation. (10 Marks)
b. With a circuit diagram explain double acting cylinder drive with one NC and one NO valve. (10 Marks)

OR

- 6 a. What is hydraulic drive? With block diagram explain hydraulic drive for pumping system. (10 Marks)
b. Explain the applications of pneumatic drive systems. (10 Marks)

Module-4

- 7 a. What is fluidic? With an illustration explain sensors lumped fluid system. (10 Marks)
b. Differentiate between lumped and distributed elements in fluidic system. (10 Marks)

OR

- 8 a. With an illustration explain fluid mechanics of jet system. (10 Marks)
b. What is fluidic amplifier? Explain pure fluidic analog amplifiers for pressure or flow control in hydraulic system. (10 Marks)

Module-5

- 9 a. With circuit diagram explain electro hydraulic system. (10 Marks)
b. With a circuit diagram explain electro pneumatic system. (10 Marks)

OR

- 10 a. Explain electro-pneumatic components operations and applications. (10 Marks)
b. Write a note on PID controllers and applications. (10 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.