



CBCS SCHEME

21MT653

Sixth Semester B.E. Degree Examination, June/July 2024 Mechatronics Engineering

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain with block diagram elements of Mechatronics system. (10 Marks)
b. Explain with a neat sketch, working of antilock braking system. (10 Marks)

OR

- 2 a. Briefly explain various evolution stages of mechatronics. (10 Marks)
b. Explain with a neat block diagram, working of automatic washing machine. (10 Marks)

Module-2

- 3 a. Explain LVDT with a neat sketch. List the advantages of LVDT. (10 Marks)
b. How does the following work : i) Photo diode ii) Photo transistor. (10 Marks)

OR

- 4 a. Explain the working principle of hall effect sensor with neat sketch and its applications. (10 Marks)
b. Discuss with construction working principle of thermocouple. (10 Marks)

Module-3

- 5 a. Define signal conditioning. Explain any four methods adopted for signal conditioning. (10 Marks)
b. How are filters classified? Write brief note on types of filters. (10 Marks)

OR

- 6 a. Explain successive – approximation type ADC in detail. (10 Marks)
b. Explain in detail supervisory control and data acquisition (SCADA). (10 Marks)

Module-4

- 7 a. Explain the working of variable reluctance stepper motor with a neat sketch. (10 Marks)
b. Explain the components and working of DC servo motor. (10 Marks)

OR

- 8 a. Define PLC (Programmable Logic Controller). Explain with a neat diagram, working of a PLC. (10 Marks)
b. Sketch and explain basic structure of programmable logic controller. (10 Marks)

Module-5

- 9 a. Discuss the design stages involved in mechatronics system development in detail. (10 Marks)
b. With the help of mechatronics system, explain automatic car park system. (10 Marks)

OR

- 10 a. Discuss a traditional and mechatronics design process. (10 Marks)
b. Design a mechatronic system for pick and place of object by robot. (10 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.