

CBCS SCHEME

15ME753



Seventh Semester B.E. Degree Examination, June/July 2019 Mechatronics

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Define mechatronics. Explain about multidisciplinary scenario. (10 Marks)
b. List advantages, limitations and applications of mechatronics. (06 Marks)

OR

- 2 a. Sketch and explain hall effect sensor. (06 Marks)
b. Define sensor and transducer. Give the classification of transducers. (10 Marks)

Module-2

- 3 a. Define microprocessor. Explain organization of microprocessor based control system. (10 Marks)
b. List the differences between microprocessor and microcontroller. (06 Marks)

OR

- 4 Sketch and explain Intel's 8085A microprocessor architecture. (16 Marks)

Module-3

- 5 a. Sketch and explain basic structure of Programmable Logic Controller (PLC). (12 Marks)
b. Explain the basic standard symbols used in ladder diagram for programming PLC. (04 Marks)

OR

- 6 a. Write short notes on: (i) Advanced actuators (ii) Pneumatic actuators (06 Marks)
b. Explain different parts of a robot. (10 Marks)

Module-4

- 7 a. Explain the following mechanisms with neat sketch:
i) Cam and cam follower ii) Gear trains iii) Ratchet and Pawl (12 Marks)
b. What are the mechanical aspects of motor selection? Explain in brief. (04 Marks)

OR

- 8 a. Sketch and explain the working principle of relays with suitable application. (08 Marks)
b. Explain the working principle of DC motor. Give the classification of DC motors. (08 Marks)

Module-5

- 9 a. Sketch and explain: (i) Spool valve (ii) Poppet valve. (08 Marks)
b. Explain different ways of valve actuation with their symbols. (08 Marks)

OR

- 10 a. With neat sketch, explain various components of a hydraulic system. (08 Marks)
b. Sketch and explain (i) check valve (ii) needle valve. (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.

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