

CBCS SCHEME

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15ME753

Seventh Semester B.E. Degree Examination, Aug./Sept.2020 Mechatronics

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. With a block diagram, explain multidisciplinary scenario in mechatronics. (08 Marks)
b. What are the objectives of mechatronics and list out, its advantages and disadvantages? (08 Marks)

OR

- 2 a. Briefly discuss the classification of transducers. (06 Marks)
b. Explain: (i) Light sensors (ii) Hall effect sensors (06 Marks)
c. Differentiate between transducer and sensor. (04 Marks)

Module-2

- 3 a. Explain the elements of closed control system. (06 Marks)
b. With the help of a sketch, explain microcontroller. (06 Marks)
c. Differentiate between microprocessor and microcontroller. (04 Marks)

OR

- 4 a. With a sketch, explain 8085A microprocessor architecture. (10 Marks)
b. Explain the following: (06 Marks)
(i) Fetch cycle
(ii) Types of Buses
(iii) Flag registers

Module-3

- 5 a. Explain the structure of PLC, with a block diagram. (08 Marks)
b. Explain the following logic function in PLC's: (08 Marks)
(i) AND
(ii) OR
(iii) NOT
(iv) NAND

OR

- 6 a. Write a note on pneumatic actuators. (06 Marks)
b. Brief about different parts of robot. (04 Marks)
c. List and explain the types of sensors used in Robot. (06 Marks)

Module-4

- 7 a. Briefly explain the classification of CAMS. (06 Marks)
b. With a neat sketch, explain ratchet and pawl mechanism. (06 Marks)
c. List and explain mechanical aspects of motor selections. (04 Marks)

OR

- 8 a. With the help of sketch, explain Solenoids and relays. (08 Marks)
b. With a sketch, explain the principle of Stepper motor and list its uses. (08 Marks)

Module-5

- 9 a. Define actuation and explain how actuation systems are used. (06 Marks)
b. Discuss the classification of valves. (04 Marks)
c. With a neat sketch, explain pressure relief valve and write its graphical symbol. (06 Marks)

OR

- 10 a. With a neat sketch, explain poppet type DCV. (08 Marks)
b. Explain pressure compensated FCV with a sketch and its graphical symbol. (08 Marks)
