CBCS SCHEME

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15ME753

Seventh Semester B.E. Degree Examination, July/August 2021
Mechatronics

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions.***

1 a. Define Mechatronics, give its origin. **(04 Marks)**
b. Briefly describe proximity sensor. **(08 Marks)**
c. Explain with the sketch photo emissive transducers. **(04 Marks)**

2 a. Define following terms:
(i) Accuracy.
(ii) Resolution.
(iii) Response time
(iv) Setting time. **(08 Marks)**
b. Explain the working principal of Hall Effect sensor and its application in fluid level detection with a sketch. **(08 Marks)**

3 a. What is microprocessor? Explain its role in mechatronics. **(04 Marks)**
b. Differentiate microprocessor and micro controller. **(04 Marks)**
c. Explain with a block diagram the following with respect to general form of microprocessor system:
(i) Databus
(ii) Control bus
(iii) Address bus **(08 Marks)**

4 a. With the help of block diagram of 8085 A processor architecture. Explain terminologies related to it. **(12 Marks)**
b. Write a note on classification of microcontroller. **(04 Marks)**

5 a. With help of neat sketch, explain pneumatic actuators. **(08 Marks)**
b. Write a note on functional requirement of Robot. **(08 Marks)**

6 a. List and explain different parts of Robot controller. **(08 Marks)**
b. What is PLC? Explain with neat sketch basic structure of PLC. **(08 Marks)**

7 a. Sketch and explain the working of stepper motor. **(08 Marks)**
b. Explain briefly the following solid state devices which can be used to electronically switch circuits:
(i) Diodes (ii) MOSFET. **(08 Marks)**

8 a. With the help of neat sketch, explain working principle of DC motor. **(08 Marks)**
b. What is a mechanical actuator? List the various types of mechanical actuators. **(08 Marks)**

9 a. With a neat sketch, explain ball type check valve. **(08 Marks)**
b. Explain briefly meter-out circuit. **(08 Marks)**

10 a. Explain briefly meter-in circuit. **(08 Marks)**
b. With neat sketch, explain pressure compensated flow control valve. **(08 Marks)**

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