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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 principle 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)