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10AU82

Eighth Semester B.E. Degree Examination, Jan./Feb. 2021
Autotronics

Time: 3 hrs.

Max. Marks:100

Note: 1. Answer any FIVE full questions, selecting at least TWO full questions from each part.
2. Draw neat sketches wherever necessary.

PART – A

- 1 a. Define mechatronics and state the major differences between conventional and mechatronic product design approach. (08 Marks)
b. Explain need of mechatronics in industries. (06 Marks)
c. Write any 3 advantages and disadvantages of mechatronics. (06 Marks)
- 2 a. Define the following terms: i) Hysteresis error ii) Repeatability (04 Marks)
b. Explain with a sketch, an eddy current proximity sensor. (06 Marks)
c. Explain the working principle of Hall effect sensor. How can this sensor be used to determine the level of fuel in an automobile fuel tank. (10 Marks)
- 3 a. Explain the principles of brushless D.C. permanent magnet motor with a neat sketch. (10 Marks)
b. Differentiate between a diode, thyristor and transistor. (06 Marks)
c. With a neat sketch, explain the solenoid. (04 Marks)
- 4 a. Briefly explain the different processes of signal conditioning. (10 Marks)
b. Explain ADC with signals. (05 Marks)
c. What is meant by data acquisition? Explain DAQ system. (05 Marks)

PART – B

- 5 a. Briefly explain how the following are represented in the memory:
i) Positive and negative integer.
ii) Maximum integer.
iii) Floating point number.
iv) Character representation. (10 Marks)
b. With the help of symbol and truth table, explain NOT, NAND, NOR and XOR gates. (10 Marks)
- 6 a. Explain with a neat sketch, pin configuration of Intel 8085 microprocessor. (10 Marks)
b. What are microcontrollers? Explain the general form of a microcontroller. (10 Marks)
- 7 a. Describe the functions that can be required of an interface. (05 Marks)
b. Explain the difference between a parallel and a serial interface. (05 Marks)
c. Explain different microprocessor timings, timing and control unit. (10 Marks)
- 8 a. Describe the method for measurement of temperature with use of,
i) RTD's ii) Thermistors. (10 Marks)
b. Explain the different automotive applications used in a mechatronic system. (10 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.