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10ME65

Sixth Semester B.E. Degree Examination, June/July 2018
Mechatronics and Microprocessor

Time: 3 hrs.

Max. Marks:100

*Note: Answer FIVE full questions, selecting
at least TWO full questions from each part.*

PART – A

- 1 a. What is Mechatronics? What are the advantages, disadvantages and applications of mechatronics? (08 Marks)
- b. What is sequential controller and explain with a block diagram the working of an domestic washing machine. (12 Marks)
- 2 a. Define the following terms: i) Accuracy ii) Hysteresis error iii) Repeatability iv) Drift v) Speed of response. (10 Marks)
- b. Explain with a sketch, an eddy current proximity sensor. (06 Marks)
- c. Explain the following:
 - i) Input and output transducer.
 - ii) Primary and secondary transducer. (04 Marks)
- 3 a. Differentiate between a diode, thyristor and transistor. (06 Marks)
- b. What are stepper motors? State the advantages and applications. (08 Marks)
- c. Write short notes on relays. (06 Marks)
- 4 a. Explain the wheat stone circuit used for strain measurement. (06 Marks)
- b. Write a note on data acquisition system. (06 Marks)
- c. Define protection. Explain how high voltages and wrong polarity may be protected against, by the use of a zener diode circuit. (08 Marks)

PART – B

- 5 a. With the help of a block diagram, explain briefly the organization of a microprocessor. (06 Marks)
- b. What are logic gates? Discuss AND and OR gates with their truth tables and symbols. (08 Marks)
- c. Explain different methods of representing negative number. (06 Marks)
- 6 a. Explain in detail with a block diagram, the architecture of Intel 8085A microprocessor. (10 Marks)
- b. Define the following: i) Write cycle ii) Interrupts. (04 Marks)
- c. What are microcontrollers? Distinguish between a microprocessor and a microcontroller. (06 Marks)
- 7 a. Explain the classification of instructions for the Intel's 8085 microprocessor. (10 Marks)
- b. With a neat flow chart, discuss the programming process. (10 Marks)
- 8 a. Explain with a block diagram the flow of instruction word and flow of data word in a microprocessor. (12 Marks)
- b. List the four operations commonly performed by a CPU. (04 Marks)
- c. Explain the following: i) System timing ii) Accumulator. (04 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.