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10ME65

Sixth Semester B.E. Degree Examination, Aug./Sept.2020

Mechatronics and Microprocessor

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Define mechatronics. Briefly explain various evolution stages of mechatronics. (10 Marks)
b. Explain with a block diagram the working of Engine Management System. (10 Marks)
- 2 a. Define transducer. Explain primary and secondary transducers with examples. (10 Marks)
b. What is Hall effect? Explain the working of Hall effect sensors with a neat sketch. (10 Marks)
- 3 a. What are solid state switches? Explain with neat diagram four important solid state switches. (10 Marks)
b. Explain the working principle of a permanent magnet DC motor with a schematic diagram. (10 Marks)
- 4 a. What is the significance of Operational Amplifier? How it is used in an non-inverting amplifier? (10 Marks)
b. Explain Multiplexer and digital signal processing with block diagram and modulation respectively. (10 Marks)

PART – B

- 5 a. Explain with block diagram the general form of microprocessor system. (10 Marks)
b. What are logic gates? Discuss AND and OR gates with their truth table for two inputs. (10 Marks)
- 6 a. Explain 8085A microprocessor architecture with a block diagram. (10 Marks)
b. What are microcontrollers? Explain the general form of microcontroller. (10 Marks)
- 7 a. What are the types of registers used in 8085 microprocessor? Explain with a block diagram. (10 Marks)
b. With a neat flow chart, discuss the programming process. (10 Marks)
- 8 a. Distinguish between Instruction cycle, machine cycle and T-state. (10 Marks)
b. Draw and explain the timing diagram for opcode fetch operation. (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.