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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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