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10ME65

Sixth Semester B.E. Degree Examination, June/July 2019
Mechatronics and Microprocessors

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Classify the control systems of a mechatronic system and explain the components of each class. (12 Marks)

b. Define a measurement system. Name the components required to build a measurement system. With a block diagram, explain the working of a digital thermometer. (08 Marks)

2 a. With a neat diagram, explain the working of LVDT. (08 Marks)

b. Classify optical proximity sensors. With a neat diagram explain through beam proximity sensor. (08 Marks)

c. Differentiate between primary and secondary transducers giving any one example. (04 Marks)

3 a. With a neat diagram, explain the working of variable reluctance stepper motor. (08 Marks)

b. Classify and briefly explain non-permanent magnet type DC motors with equivalent diagrams. (12 Marks)

4 a. With a block diagram, explain the components of OPAMP. Write any two characteristic features of OPAMP. (10 Marks)

b. With neat figures explain pulse modulation. (10 Marks)

PART – B

5 a. Explain exclusive OR gate with a truth table and symbol. How can this logic gate be used for binary addition? (08 Marks)

b. Mention any five functions of micro processor. Explain the organization of microprocessor to meet these functions. (08 Marks)

c. Logic circuit is displayed in Fig.Q.5(c). Obtain the expression for Y interms of ABCD (04 Marks)

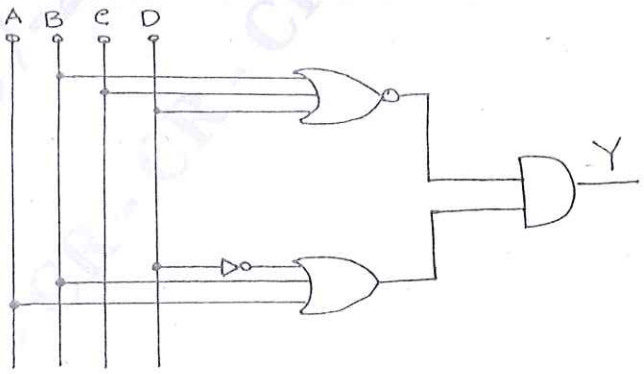

Fig.Q.5(c)

6 a. Explain the stages of instruction cycle carried out by the CPU. Use necessary flow-diagram. (10 Marks)
b. Draw the block diagram of microcontroller and tabulate the differences between a micro controller and micro processor. (10 Marks)

7 a. Discuss on any four registers used in 8085 microprocessor with a block diagram. (10 Marks)
b. Draw the pin configuration of Intel 8085. Discuss on pins 12 to 29. (10 Marks)

8 a. With block diagrams, explain instruction and data flow in the CPU. (10 Marks)
b. Discuss with necessary figures on:
i) Accumulator (04 Marks)
ii) System clock (04 Marks)
iii) System timing (02 Marks)

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