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10AU82

Eighth Semester B.E. Degree Examination, June/July 2019
Autotronics

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. List out the advantages and disadvantages of mechatronics. **(10 Marks)**

b. Explain with a block diagram engine management system using microprocessor. **(10 Marks)**

2 a. Define the following performance terminology:
i) Range
ii) Span
iii) Sensitivity
iv) Accuracy. **(08 Marks)**

b. Sketch and explain the working principle of following:
i) Pneumatic sensor
ii) Hall effect sensor **(12 Marks)**

3 a. Explain the principle of brushless D.C. permanent magnet with a neat sketch. **(10 Marks)**

b. Write symbolic representation and explain the following:
i) Diode
ii) Thyristor
iii) Transistor
iv) Solenoid
v) TRIAC (Triode AC Switch) **(10 Marks)**

4 a. List the process involved in signal conditioning and briefly explain them. **(10 Marks)**

b. What are different types op-amp? Explain and obtain the voltage gain of the inverting amplifier. **(10 Marks)**

PART – B

5 a. What are logic gates? With the help of symbol and truth table, explain the following: (i) NOT (ii) AND (iii) OR (iv) XOR **(10 Marks)**

b. Convert the following:
i) $(48)_{10} = (\quad)_2$
ii) $(1101.11)_2 = (\quad)_{10}$
iii) $(2747)_8 = (\quad)_{10}$
iv) $(736)_8 = (\quad)_2$
v) $(42AB)_{16} = (\quad)_{10}$ **(10 Marks)**

6 a. Explain with neat sketch pin configuration of Intel 8085 microprocessor. **(12 Marks)**

b. List out the difference between Microprocessor and Microcontroller. **(08 Marks)**

7 a. Explain the difference between parallel and serial interface and also describe the functions that can be required of an interface. **(12 Marks)**

b. With a neat flow chart discuss the programming process. **(08 Marks)**

8 a. Explain the different automotive applications used in a mechatronics system. **(10 Marks)**

b. Draw and explain the timing diagram memory operation. **(10 Marks)**

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