



USN

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) $(48)_{10} = ()_2$
ii) $(1101.11)_2 = ()_{10}$
iii) $(2747)_8 = ()_{10}$
iv) $(736)_8 = ()_2$
v) $(42AB)_{16} = ()_{10}$ (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)

* * * * *

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.