

Eighth Semester B.E. Degree Examination, Feb./Mar.2022
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. State the functions of basic elements of a closed loop control system with a block diagram. (08 Marks)
b. What is sequential controller and explain with a block diagram the working of a domestic washing machine. (12 Marks)
- 2 a. Explain how sensing is achieved by an incremental optical encoder. (10 Marks)
b. Briefly explain the working principle of the following :
(i) Height sensor. (10 Marks)
(ii) Hall effect sensor. (10 Marks)
- 3 a. What is bouncing in mechanical switches? Explain the hardware solution to the bouncing problems. (10 Marks)
b. Explain the principle of brush less DC permanent magnet motor with a sketch. (10 Marks)
- 4 a. Explain the wheat stone bridge circuit used for strain measurement. (10 Marks)
b. With a block diagram, explain the working principle of data acquisition system. (10 Marks)

PART – B

- 5 a. With the help of a block diagram, explain briefly the general form of a microprocessor based system. (08 Marks)
b. What are logic gates? Discuss AND and OR gates with their tables for two inputs. (08 Marks)
c. Convert the following :
(i) $(1011.011)_2 = (\quad)_10$
(ii) $(436)_8 = (\quad)_2$ (04 Marks)
- 6 a. Explain in detail with a block diagram, the architecture of Intel 8085 microprocessor. (10 Marks)
b. Explain with a neat sketch, pin configuration of Intel 8085 microprocessor. (10 Marks)
- 7 a. Explain how the instruction and data flow occurs. (10 Marks)
b. Draw and explain the timing diagram for Opcode fetch operation. (10 Marks)
- 8 a. Discuss the working of Windscreen-wiper motion using a stepper motor and a microcontroller. (10 Marks)
b. With a generalized block diagram, explain the working of a car engine management system. (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, $4+8 = 50$, will be treated as malpractice.