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10AU82

**Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020**  
**Autotronics**

Time: 3 hrs.

Max. Marks:100

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

**PART - A**

- 1 a. Define Mechatronics and briefly explain the various evolution stages of mechatronics. (10 Marks)  
b. What is a Sequential controller and with a block diagram, explain the working of an engine management system used in automobiles. (10 Marks)
- 2 a. Sketch and explain LVDT. (06 Marks)  
b. Explain the principle and working of a Hall effect sensor, with a neat sketch. (06 Marks)  
c. Discuss the various methods of measuring flow rates and liquid level of water. (08 Marks)
- 3 a. Explain any four solid state switches. (08 Marks)  
b. With a neat sketch, explain the working of a :  
i) Variable Reluctance stepper motor ii) Permanent magnet stepper motor. (12 Marks)
- 4 a. Discuss the following filters with frequency Vs gain curve :  
i) Low pass ii) High pass iii) Band pass iv) Band stop. (10 Marks)  
b. What is Data Acquisition? Explain with a block diagram DAQ system. (10 Marks)

**PART - B**

- 5 a. Briefly explain the evolution and organization of microprocessor with a block diagram. (10 Marks)  
b. With a truth table for two inputs, explain any 5 types of logic gates. (10 Marks)
- 6 a. Classify and explain the Instruction set of Intel 8085  $\mu$ p. (10 Marks)  
b. Discuss the different addressing modes used in 8085  $\mu$ p with an example of each. (10 Marks)
- 7 a. Explain the timing diagram for an Opcode fetch cycle. (10 Marks)  
b. Explain the following :  
i) Address space partitioning ii) Memory Interfacing. (10 Marks)
- 8 a. Explain with a block diagram, complete vehicle control system of an automotive vehicle. (10 Marks)  
b. With a suitable sketch, explain the vehicle area network (VANET) used in a vehicle remote control with GPS for a vehicle. (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 e.g.  $42+8=50$ , will be treated as malpractice.