



10ME65

**Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020**  
**Mechatronics and Microprocessor**

Time: 3 hrs.

Max. Marks:100

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

**PART - A**

- 1 a. What is Mechatronics? What are the objectives of Mechatronics? (05 Marks)  
b. Explain with the block diagram of generalized measurement system. (08 Marks)  
c. Explain with the block diagram, how a microprocessor based control system is used to control the focusing and exposure of an automatic camera. (07 Marks)
- 2 a. What is Transducer? Explain the types of transducers in briefly. (10 Marks)  
b. What is light sensor? Explain the basic types of light sensors. (10 Marks)
- 3 a. What is an Electrical Actuators? List the categories of electrical actuators with examples. (05 Marks)  
b. Explain briefly the terms bouncing and debouncing as applied to mechanical switches. (05 Marks)  
c. Explain briefly the important solid – state switches. (05 Marks)  
d. What are Stepper Motors? State the advantages and applications. (05 Marks)
- 4 a. Define Single Conditioning. What are the necessity for signal conditioning? (05 Marks)  
b. What is the term filtering and filter? How are filters classified? (05 Marks)  
c. Write a short note on : i) Wheat stone bridge ii) Digital signals iii) Multiplexers iv) Data acquisition. (10 Marks)

**PART - B**

- 5 a. Explain briefly the evolution of microprocessor. (06 Marks)  
b. What is a Logic gates? What are the logic gates and gate networks? (08 Marks)  
c. Prove  $(A + B) (\bar{A} \bar{B} + C) (\bar{B} + AC) = \bar{A} B C$ . (02 Marks)  
d. What is the concept of overflow and underflow, with an example? (04 Marks)
- 6 a. List the difference between microprocessor and microcontroller. (04 Marks)  
b. What is a Clock? Why a clock is necessary in a microprocessor? Draw the ideal and non – ideal clock. (06 Marks)  
c. Explain the requirements for control and their implementation in micro controllers. (10 Marks)
- 7 a. Explain with block diagram of INTEL 8085 micro processor. (10 Marks)  
b. Explain the flow of instruction word and flow of data word in a microprocessor. (06 Marks)  
c. Write short notes on the Assembly Language Programming. (04 Marks)
- 8 a. Explain with a block diagram of Central processing unit of microprocessor. (08 Marks)  
b. Enumerate the difference between INTEL 8085 and INTEL 4004 register organization. (06 Marks)  
c. What is a timing and control unit basic concepts? (06 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, 42+8 = 50, will be treated as malpractice