Sixth Semester B.E. Degree Examination, June/July 2018
Mechatronics and Microprocessor

Time: 3 hrs.

Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO full questions from each part.

PART – A

1 a. What is Mechatronics? What are the advantages, disadvantages and applications of mechatronics? **(08 Marks)**
   b. What is sequential controller and explain with a block diagram the working of an domestic washing machine. **(12 Marks)**

2 a. Define the following terms: i) Accuracy   ii) Hysteresis error   iii) Repeatability   iv) Drift   v) Speed of response. **(10 Marks)**
   b. Explain with a sketch, an eddy current proximity sensor. **(06 Marks)**
   c. Explain the following:
      i)   Input and output transducer.
      ii) Primary and secondary transducer. **(04 Marks)**

3 a. Differentiate between a diode, thyristor and transistor. **(06 Marks)**
   b. What are stepper motors? State the advantages and applications. **(08 Marks)**
   c. Write short notes on relays. **(06 Marks)**

4 a. Explain the wheat stone circuit used for strain measurement. **(06 Marks)**
   b. Write a note on data acquisition system. **(06 Marks)**
   c. Define protection. Explain how high voltages and wrong polarity may be protected against, by the use of a zener diode circuit. **(08 Marks)**

PART – B

5 a. With the help of a block diagram, explain briefly the organization of a microprocessor. **(06 Marks)**
   b. What are logic gates? Discuss AND and OR gates with their truth tables and symbols. **(08 Marks)**
   c. Explain different methods of representing negative number. **(06 Marks)**

6 a. Explain in detail with a block diagram, the architecture of Intel 8085A microprocessor. **(10 Marks)**
   b. Define the following: i) Write cycle   ii) Interrupts. **(04 Marks)**
   c. What are microcontrollers? Distinguish between a microprocessor and a microcontroller. **(06 Marks)**

7 a. Explain the classification of instructions for the Intel's 8085 microprocessor. **(10 Marks)**
   b. With a neat flow chart, discuss the programming process. **(10 Marks)**

8 a. Explain with a block diagram the flow of instruction word and flow of data word in a microprocessor. **(12 Marks)**
   b. List the four operations commonly performed by a CPU. **(04 Marks)**
   c. Explain the following: i) System timing   ii) Accumulator. **(04 Marks)**

* * * * *