

USN

--	--	--	--	--	--	--	--	--	--

10ME65

Sixth Semester B.E. Degree Examination, June/July 2015
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. Define Mechatronics. Briefly explain the evolution of mechatronics. (10 Marks)
 b. What is a control system? Explain open loop and closed loop control system with suitable examples. (10 Marks)
- 2 a. How transducers are classified? (05 Marks)
 b. Explain the following terminology : i) Accuracy ii) Repeatability iii) Sensitivity
 iv) Time constant v) Hysteresis. (10 Marks)
 c. With a neat sketch, explain Hall effect sensor. (05 Marks)
- 3 a. Write a symbolic representation of Thyristor and explain its characteristics. (10 Marks)
 b. With a neat sketch, explain the principle working of a permanent magnet stopper motor. (10 Marks)
- 4 a. What is a Multiplexer? Explain with a neat sketch, Two – channel multiplexer. (10 Marks)
 b. What is Pulse modulation? Explain the two types of modulation. (10 Marks)

PART – B

- 5 a. With the help of symbol and truth table, explain NOT, NAND, NOR and XOR gates. (10 Marks)
 b. Convert the following : (10 Marks)
 i) $(654)_{10} = X_8$ ii) $(11010.01101)_2 = X_{16}$ iii) $(156.8F)_{16} = X_2$ iv) $(2747)_8 = X_{10}$.
- 6 a. Explain with a block diagram, the architecture of Intel 8085A processor. (14 Marks)
 b. Enumerate the differences between microprocessor and microcontroller. (06 Marks)
- 7 a. Explain the different types of addressing modes of Intel 8085 microprocessor. (10 Marks)
 b. Explain the following : i) Accumulator ii) Memory address iii) instruction set
 iv) Fetch cycle. (10 Marks)
- 8 Explain in brief the following :
 a. Functions of various registers. (10 Marks)
 b. Register organization of Intel 4004 microprocessor. (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