Roll No. | | | | | | | | 20 |

B.E./ B.TECH. (FULL-TIME) DEGREE END SEMESTER EXAMINATIONS- NOV./DEC. 2011

MECHANICAL ENGINEERING
VI SEMESTER
ME 9352 – MICROPROCESSOR AND MICROCONTROLLER
(REGULATIONS 2008)

Time : 3 Hours **Max. Marks : 100**

Answer ALL Questions

PART-A (10 x 2 = 20 Marks)

1. What are Registers and how data is stored in them?
2. After the execution of RIM instruction the accumulator contained 4A and state the status of the interrupts.
3. How many machine cycles are there in RET instruction and indicate what are they?
4. Write an assembly language program(ALP) for 8085 MPU that finds the two's complement of a unsigned number A8.
5. State the principle of 3 bit DAC.
6. Distinguish between memory mapped I/O and peripheral I/O.
7. Why are microcontroller often called single chip computer?
8. Write the format of the 8051 PSW.
9. Differentiate between RL A and RLC A.
10. Sketch the schematic outline diagram for interfacing of stepper motor with 8085 microprocessor.

PART-B (5 X 16 = 80 Marks)

11. Explain microprocessor based temperature controller with block diagram, flow chart and program segments.

12. a) Sketch the architecture of 8085 MPU and explain the functions of each block.

(OR)

b) i) Explain conditional and unconditional JUMP instructions with examples. (8)
ii) Explain how data is stored and retrieved from the stack using PUSH and POP instructions are suitable examples. (8)

13. a) Draw the Timing diagram for the instruction IN 02. Determine the time taken if this is executed in a processor speed of 2 MHZ.

(OR)

b) Write an assembly language program to convert a binary number into BCD number.

14. a) Explain how a DIP switch key board is interfaced with 8085 microprocessor and write an ALP to read the data.

(OR)

b) Explain how a analog signal is converted into a digital signal using ADC with suitable diagram. Write an ALP for the same.

15. a) i) Sketch and explain the functional block diagram of 8051 microcontroller. (12)
ii) Explain the stack operation of 8051 microcontroller. (4)

(OR)

b) i) Draw the pin details of 8051 microcontroller and explain. (10)
ii) How do you classify the 8051 instructions based on length of instructions, addressing mode and functions performed. Give two examples each. (6)