B.E. / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2011

ELECTRICAL & ELECTRONICS ENGINEERING BRANCH

FIFTH SEMESTER

EE372 – MICROPROCESSORS AND MICROCONTROLLER

(REGULATIONS 2004)

Time: 3 hr   Max. Marks: 100

Answer ALL Questions

PART-A (10 X 2 = 20 Marks)

1. Distinguish between microprocessor and microcontroller.

2. List the registers available in 8085 Microprocessor.

3. How many address lines are necessary to address four megabytes (4 MB) of memory?

4. What is the size of stack pointer and program counter in 8085?

5. List down the different modes of operation of 8255 PPI.

6. What is meant by resolution in A/D and D/A converters?

7. What happens when the 8051 microcontroller is reset?

8. Indicate the use of RSO and RSI bits in the program status word (PSW) of 8051 microcontroller.

9. Which ports of 8051 are bit addressable?

10. Indicate the steps to detect key press.

PART – B (5 x 16 = 80 Marks)

11(a)(i). With a neat block diagram explain the architecture of 8085 microprocessor.   (10)

   (ii). Explain the hardware interrupt structure available in 8085 microprocessor.   (6)

12(a)(i). Explain the different data transfer control instructions supported by 8085 processor. (8)

   (ii). Write an 8085 based assembly language program to divide two 8 bit data and store their result in the memory.   (8)

(Or)

(b). Write an 8085 based assembly language program to find the square root of an 8 bit binary number. The binary number is stored in memory location XXOOH and store the square root in XXOO/H.   (16)

13(a). Draw the block diagram of programmable communication interface (USART) and explain its different modes of operation. (16)

(Or)

(b). Explain the internal block diagram of 8255. (16)

14(a). Explain the architecture and salient features of 8051 microcontroller with neat block diagram. (16)

(Or)

(b)(i). Explain the addressing modes of 8051 with example. (8)

(ii). Explain the serial data transfer operation supported by 8051 microcontroller. (8)

15(a). Give the hardware schematic of a 8051 microcontroller based system that reads a bank of 8 switches and converts this binary data into three digit BCD form and displays this number on three 7-segment displays. Give the hardware details and the necessary assembly language program that performs this task. (16)

(Or)

(b). Design a closed loop circuit using 8051 microcontroller to control the speed of a servo motor. Explain the circuit with flow diagram. (16)