

Roll No

B.E. (Full time) DEGREE END SEMESTER EXAMINATIONS, Oct. 2012
COMPUTER SCIENCE & ENGINEERING
IV SEMESTER (REGULATIONS 2008)
CS 9251: Microprocessors and Microcontrollers

Time: Three Hours

Max.Marks: 100

Answer All Questions

PART-A (10 X 2 = 20 Marks)

1. Write an 8085 assembly language program to divide two 8-bit numbers.
2. Discuss the functions of the INTR and ALE signals of 8085.
3. Discuss the functions of the $\overline{RQ}/\overline{GT}$ and \overline{BHE} signals of 8086.
4. Discuss any one string primitive supported in 8086 with all its associated options.
5. How is the physical address calculated in an 8086-based system?
6. List down the salient features of the 80286 processor.
7. Discuss the bit set/ reset mode of 8255.
8. Show how the timer can be used to generate a square wave of a particular frequency.
9. What are the addressing modes supported by 8051?
10. Write an 8051 program to multiply two 16-bit numbers.

PART-B (5 X 16 = 80 Marks)

11. i. Discuss the architecture of the 8085 processor with a neat diagram.(10)
ii. Write an 8085 program to convert a sequence of binary numbers to decimal.(6)
12. (a) i. Discuss the addressing modes of 8086 with an example for each.
ii. Write an 8086 program to find whether a given string of 2 characters is present in the input n-character string.

(OR)

- (b) i. Write an 8086 program to sort the given sequence of numbers in ascending order.
ii. Discuss about the interrupts of 8086.

13. (a) Draw a block diagram showing how a coprocessor can be interconnected in an 8086 based system. Explain how co-ordination and communication take place between the two processors.

(OR)

- (b) Discuss the maximum mode of operation of the 8086 processor and show how the memory and I/O devices are interfaced in an 8086 based system.
14. (a) Discuss the operation of a programmable interrupt controller and show how it can be used in an 8086 based system.

(OR)

- (b) i. It is required to use an 8279 to interface to an 8-character display and a 6 x 6 matrix keyboard. Draw a schematic to show the necessary connections and explain the interface.
- ii. Discuss how an 8251 can be used to transmit and receive asynchronous data.
15. (a) Discuss the architecture of the 8051 microcontroller with a neat diagram, clearly bringing out the functionalities of the various components.

(OR)

- (b) Show how the 8051 can be used to control the operation of a microwave oven, assuming three different modes of operation where the timing and temperature settings differ. Show the hardware interface and the required 8051 program.
