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Question Paper Code : P 1259

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Fifth Semester

Electronics and Communication Engineering

EC 1303 — MICROPROCESSORS AND ITS APPLICATIONS

(Common to B.E. (Part-Time) Fourth Semester Regulation 2005)

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is nonmaskable interrupt in 8085 and what is its vector address?
2. How many address lines are required to select one of 2048 memory locations?
3. Write control word format of 8255.
4. Why is interrupt-driven I/O more efficient than polling?
5. Assume register AL=B7H and the instruction AND AL, 3CH is given. Determine the new value of register AL.
6. The Code segment is CS=B3FF, data segment is DS = E000 and stack segment is SS = 5D27. What physical memory location is accessed by the instruction MOV [BP], AL, if BP = 2C30H?
7. Which ports of 8051 are bit addressable?
8. A given 8051 chip has a speed of 16 MHz. What is the range of frequency that can be applied to the XTAL1 and XTAL2 pins?
9. What is the role of SBUF register in serial data transfer?
10. What register keeps track of interrupt priority in the 8051? Explain.

11. (a) (i) Draw the functional block diagram of 8085 microprocessor and explain the function of each block. (10)
- (ii) Design the hardware required for memory address range from 8000 H to 83FFH. (6)

Or

- (b) (i) Explain in detail the classification of instruction set of 8085. (10)
- (ii) A bar code scanner scans the boxes being shipped from the loading dock and records all the codes in computer memory; the end of the data is indicated by the byte 00, the code 10100011 (A3H) is assigned to 19" television sets. Write a program to count the number of 19" television sets that were shipped. (6)

12. (a) (i) Explain the operating modes of the 8255 programmable peripheral Interface. (10)
- (ii) Write a BSR control word subroutine to set bits PC₇ and PC₃ and reset them after 10 ms. Assume that a delay subroutine is available. (6)

Or

- (b) (i) Draw key board and display controller (8279) block diagram and explain the function of each section. (10)
- (ii) Explain in detail the electric characteristics of RS 232C. (6)

13. (a) (i) Draw the basic minimum mode system configuration using the 8086 without memory or I/O interface, and list the functions performed by each chip. (8)
- (ii) What is pipeline flushing? When does it occur in the 8086 system? Explain with the help of an example how pipeline flushing affects the system performance? (8)

Or

- (b) (i) Explain in detail the different addressing modes of 8086. (10)
- (ii) Write an 8086 assembly language program to add the elements of two 2 × 2 matrices in the memory. (6)

14. (a) (i) Draw the block diagram of 8051 and explain the function of each block. (10)
- (ii) Explain the use of port 3 of 8051 for interrupt signals. (6)

Or

- (b) (i) Explain in detail the timer of 8051 and their associated registers. (8)
- (ii) Describe various modes of the 8051 timers. (8)

15. (a) (i) Explain in detail the serial communication registers of the 8051. (10)
(ii) Write an 8051 assembly language program to receive bytes of data serially, and put them in P1. Set the baud rate at 4800, 8-bit data, and 1 stop bit. (6)

Or

- (b) (i) Describe the two external hardware interrupts of 8051. (8)
(ii) Explain how to interface ROM with the 8051. (8)