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**T 3181**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Fourth Semester

Information Technology

CS 1304 — MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the function of HOLD and HLDA?
2. Let accumulator content is 9 AH and CY = 1. What will be content of CY after RRC instruction is executed.
3. What information is conveyed when  $Q_{s1}$   $Q_{s0}$  bits are 01?
4. What is the addressing mode of the following instructions?  
JMP [3001 H]  
MOV AX, 55 H [BX] [SI]
5. What happen in 8086 when  $\overline{DEN} = 0$  and DIR = 1?
6. What is the storage space required to store the interrupt vectors of 8086?
7. Which type of decoding requires minimum hardware?
8. What is key bouncing?
9. How does the status of  $\overline{EA}$  pin affect the access to internal and external program memory?
10. State the difference between RET and RET I instruction in 8051.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the signals present in 8085.  
(ii) Write a program to convert 8 bit binary number to BCD.

Or

- (b) (i) Write a program for block transfer of data bytes.  
(ii) Write a program to add a series of 10 numbers stored from location 3000 H onwards.

12. (a) Explain the internal block diagram of 8086.

Or

- (b) (i) Write a program to find the number of positive numbers and negative numbers in a given series of signed numbers using 8086.  
(ii) Explain the following assembly directives.

SHORT, TYPE, FAR PTR.

13. (a) Explain the maximum mode of 8086 with the timing diagrams of memory read cycles, memory write cycle and  $\overline{RQ}$  |  $\overline{GT}$  timing.

Or

- (b) Discuss about the multiprocessor configurations of 8086.

14. (a) (i) Describe the architecture and working of 8253 timer. (12)  
(ii) Write a program to generate triangular waveform using DAC 0800. (4)

Or

- (b) (i) Write an ALP to receive 100 bytes of data string serially using 8251. (6)  
(ii) Describe the working of 8259 interrupt controller. (10)

15. (a) (i) Explain the architecture of 8051. (10)
- (ii) Write a program to find the number of positive and negative numbers in a given array. (6)

Or

- (b) Discuss any two applications of microcontroller. (16)

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