B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fourth Semester

Information Technology

IF 250 — MICROPROCESSOR AND MICROCONTROLLER APPLICATIONS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How the multiplexed address / data bus (AD7–AD0) in 8085 is splitted into address bus (A7–A0) and data bus (D7–D0)?

2. What are the differences between memory mapped I/O and I/O mapped I/O scheme?

3. Which port of 8051 requires external pull up resistances when configured as output port? Why?

4. Write the expression for baud rate in model operation of 8051 serial port.

5. What is the function of trap flag and direction flag in 8086?

6. Write the operations carried out when the instructions IN AL, OOH and IN AL, DX are executed by 8086.

7. Write the I/O control word format of 8255.

8. What is the function of EOI command in 8259 (programmable interrupt controller)?

9. How high power devices are interfaced with microprocessor ports?

10. What is the basic principle of a digital filter?

PART B — (5 × 16 = 80 marks)

11. (a) Draw and explain the timing diagram when 8085 fetches and executes the instruction OUT FFH which is stored in memory starting from the address 8000H. (16)

Or

(b) (i) Interface an 8-bit DIP switch with 8085 such that the address assigned to it OFH. (8)

(ii) Write 8085 assembly language program to find the number of occurrence of the data 80H in an array having one hundred 8-bit data stored from the address 2000H in memory. (8)

12. (a) Explain the different modes of operation of serial port in 8051 in detail. (16)

Or

(b) (i) Explain the structure of parallel port P_0 in 8051. (8)

(ii) Write 8051 assembly language program to find the sum of ten 8-bit data that are stored in external data memory starting from the address 1000H. (8)

13. (a) Explain the architecture of 8086 microprocessor with neat functional block diagram. (16)

Or

(b) (i) Write 8086 assembly language program to move one hundred words of data present in the data segment 2000 H from the offset address 1000H to the extra segment 3000 H from the offset address 0000H. (8)

(ii) Write the salient features of 80386 microprocessor. (8)

14. (a) With neat functional block diagram, explain the organisation of USART (8251) in detail. (16)

Or

(b) Interface an 8-bit DAC with any one microprocessor and write assembly language program to generate square wave of 1 kHz from DAC. Assume suitable data whichever is required. (16)

15. (a) With neat block diagram and flowcharts, explain typical microcomputer based process control system. (16)

Or

(b) Explain the interfacing of a microprocessor to a stepper motor with necessary circuit and how the motor speed can be controlled using microprocessor? (16)

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