# H 1351

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2006.

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 lower order address/data bus in 8085 is splitted into separate address and data bus?

2. What is meant by memory mapped I/O?

3. How the selection of a particular register bank is done in 8051?

4. What is the maximum frequency of the clock signal that can be counted by 8051 counter?

5. What is the function of Trap Flag (TF) and IF flag in 8086?

6. What is a segment descriptor?

7. Draw the data format used while asynchronous serial data transmission/reception is done using 8251.

8. Write any four salient features of programmable peripheral interface (8255).

9. What is the need for using opto couple while interfacing high power devices with microprocessor?

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

PART B — (5 × 16 = 80 marks)

11. (i) Write down the various registers present in 8086 and indicate their function. (8)

(ii) Explain the accessing of code segment and data segment by 80386, when it is operating in protected mode. (8)

12. (a) Draw and explain the timing diagram when 8085 fetches and executes the instruction OUT 80 H, which is stored in memory starting from the address 3000 H. (16)

Or

(b) (i) Interface a set of 8 LEDs in Cannon cathode configuration with 8085 such that the address assigned to it is FOH. (8)

(ii) Write any four addressing modes used in 8085 with an example for each. (8)

13. (a) (i) Explain the structure of four parallel ports in 8051 microcontroller in detail. (8)

(ii) Discuss any four addressing methods in 8051 with example. (8)

Or

(b) Describe the different modes of operation of 8051's serial port indicating the various registers associated with it. (16)

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

Or

(b) Draw the circuit diagram showing the interfacing of a DAC with any one microprocessor and write assembly language program to generate a triangular waveform at the output of DAC. (16)

15. (a) Explain the interfacing of 7-segment displays with a micro computer, using time multiplexing principle with necessary diagram. (16)

Or

(b) Explain the interfacing of solenoid coil or motor winding with a microcomputer port using darlington transistor and power MOSFET with necessary diagram. (16)

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