Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 10264

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2012.

Fourth Semester

Computer Science and Engineering

CS 2252/141402/CS 42/EC 1257/10144 CS 403/080250010 — MICROPROCESSORS AND MICROCONTROLLERS

(Common to Information Technology)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How many memory locations can be addressed by 8085 microprocessor?

2. Give an example for direct and indirect addressing modes of 8085.

3. What are called as assembler directives? Give two examples.

4. What is BIOS function call in 8086 μp?

5. Compare closely coupled configuration features with loosely coupled configuration features.

6. List any four 8087 data formats.

7. Why a latch is used for an O/P port, but a tri-state buffer can be used for an input port?

8. List the six modes of timer.

9. What is the size of the on-chip program memory and on-chip data memory of 8051 microcontroller?

10. List the features of the parallel ports of 8051 microcontroller.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the execution of the instruction MVI A,32h with a timing diagram. (8)

(ii) Write an 8085 Assembly language program to multiply two 8-bit number, which is stored in the memory location 4500h and 4501h. Store the product in the subsequent memory locations? (8)

Or

(b) (i) Explain the different addressing modes in 8085 microprocessor. Give two examples for each addressing mode. (8)

(ii) Write an 8085 assembly language program to find the largest 8-bit number among the five numbers which are stored in the memory locations 4200h to 4204h. (8)

12. (a) (i) Draw the architectural block diagram of 8086 microprocessor and explain. (8)

(ii) Explain how to pass parameters to macros? (8)

Or

(b) (i) Explain the interrupt structure of an 8086 microprocessor with 8086 interrupt-pointer table. (8)

(ii) Write an 8086 assembly language program to read in 100 samples of data at 1-ms intervals. (8)

13. (a) (i) Draw the 8087 internal architecture and explain. (8)

(ii) Give two examples of 8087 data transfer instructions, arithmetic instructions, processor control instructions and transcendental instructions. (8)

Or

(b) (i) Draw the architecture of 8089 I/O processor and explain. (8)

(ii) Explain how I/O processor communicates between the CPU and I/O peripherals with an example. (8)

14. (a) (i) Explain the operating modes of 8255 programmable peripheral interface. (8)

(ii) Draw the control word format of 8254 programmable interval timer and explain. (8)

Or

(b) (i) Draw the architectural block diagram of 8259 Programmable interrupt controller and explain. (8)

(ii) Write a program to make the stepper motor to rotate both clockwise and counter clock wise direction. (8)

(a) (i) Draw the architectural block diagram of 8051 microcontroller and explain. (8)

(ii) Draw the circuit diagram to interface an LCD with microcontroller and explain how to display the data using LCD. (8)

Or

(b) (i) Draw the circuit diagram to interface a keyboard with microcontroller and explain how microcontroller recognizes the key-press. (8)

(ii) Program the on-chip timer in 8051 to be an event counter. Use model and display the binary count on P_1. Set the initial count to be Zero. (8)
