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Question Paper Code : 21380

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Fourth Semester

Computer Science and Engineering

CS 2252/CS 42/EC 1257/080250010/10144 CS 403/10144 EC 506 —
MICROPROCESSORS AND MICROCONTROLLERS

(Common to Information Technology)

(Regulations 2008/2010)

(Also common to PTCS 2252/10144 EC 506 — Microprocessors and Microcontrollers for B.E. (Part-Time) Fourth Semester — Computer Science and Engineering — Regulations 2009/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the special purpose registers in 8085 CPU and mention their usage.

2. Write an 8085 assembly language program to find the 1's complement of 3 numbers stored in memory.

3. Give the function of the 8086 pins (a) ALE (b) READY.

4. Compare intersegment and intrasegment branching of 8086 processor.

5. What are the issues to be addressed in multi processor configuration?

6. What is the need for a numeric coprocessor?

7. Highlight the need for interfacing.

8. Give the various modes of operation of keyboard and display controller.

9. Compare a micro processor and micro controller.

10. Give the characteristics of the inbuilt memory in a 8051.

PART B — (5 × 16 = 80 marks)

11. (a) Draw the 8085 architectural diagram and explain the various units available in it. (16)

Or

(b) (i) With the suitable examples, explain the instruction types of 8085 processor. (8)

(ii) Write an 8085 ALP for sorting an array of numbers in the ascending order. (8)

12. (a) Explain all the pin functions of the 8086 processor configured in the maximum mode. (16)

Or

(b) (i) What do you understand by assembler directives? Give examples and explain their usage. (6)

(ii) Describe the interrupt structure of the 8086 CPU. (10)

13. (a) What is the different multiprocessor configuration supported by the 8086 processor? Compare them. Explain any one configuration in detail. (16)

Or

(b) Draw the internal architectural diagram of 8089 IOP and explain how it functions as a intelligent DMA controller with the 8086 CPU. (16)

14. (a) (i) With a block diagram explain how 8255 PPI functions in different modes to accommodate different kind of I/O devices. (10)

(ii) Frame the control word for the 8255 PPI for the following cases.

(1) To connect one input device and one output device in the strobed mode.

(2) To connect two input devices in the strobed mode.

(3) To connect one out put device in strobed mode and one I/O devices as a bi-directional device. (6)

Or

(b) (i) List the different DMA transfer modes supported by a DMA controller and explain these modes. (6)

(ii) Draw the internal architectural diagram of the 8237 and explain how it functions as a DMA controller. (10)

15. (a) (i) Explain the memory organization and SFR area of the micro controller 8051. (8)

(ii) Write a brief note on the timer operations of 8051. (8)

Or

(b) Write short notes on :

(i) Stepper motor interface.

(ii) Keyboard interface. (16)