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Question Paper Code : 60380

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fourth Semester

Computer Science and Engineering

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

(Common to Information Technology)

(Regulations 2008/2010)

(Also common to PTCS 2252 — Microprocessors and Microcontrollers for B.E.
(Part – Time) Fourth Semester — CSE – Regulations 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the effect of executing the instruction DAD B and ADD M?
2. Draw the contents of the flag register of 8085.
3. Give the function of the 8086 pins (a) ALE (b) READY.
4. Compare intersegment and intrasegment branching of 8086 processor.
5. What is co-processor?
6. What is a floating point coprocessor?
7. Why are the port lines of programmable port devices automatically put in the input mode when the device is first powered – up or reset?
8. How to change the direction of the stepper motor from clockwise direction to anticlockwise direction using a program segment.
9. What are the differences between a microprocessor and microcontroller?
10. What are the uses of port 0 and port 2 of 8051?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Write an 8086 ALP to sort out any given 10 numbers in ascending and descending order. (10)
(ii) Explain the addressing modes of 8085 with an example. (6)

Or

- (b) With neat block diagram, explain the architecture of 8086 microprocessor. (16)
12. (a) (i) Explain about the following assembler directives:
END P, EQU, EVEN, EXTRN with examples. (8)
(ii) Draw and discuss a typical minimum mode 8086 system. (8)

Or

- (b) (i) Describe the maximum mode of operation of 8086. (12)
(ii) What are assembler directives and pseudo ops? (4)
13. (a) (i) Draw the architecture of 8089 I/O processor and explain the need for 8089 I/O processor. (8)
(ii) Compare closely coupled configuration with loosely coupled configuration. (8)

Or

- (b) (i) How is the communication between CPU and IOP being done? (8)
(ii) Draw the internal block diagram of 8087 co-processor and explain. (8)
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) Explain the internal architecture of 8051 microcontroller. (16)

Or

- (b) (i) $V_{in} = 2.78$ v, $V_{ref} = 5$ v Number of data lines are 6. Convert the given analog quantity into its equivalent output digital quantity. (8)
(ii) Explain the different techniques to convert a digital quantity into its equivalent analog quantity. (8)