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Question Paper Code : X 60377

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
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. Program Counter and Stack Pointer are 16-bit registers in 8085 microprocessor. Why ?
2. What operation can be performed by using the instruction XRA A ? Specify the status of Z and CY flag.
3. Name the hardware interrupts of 8086.
4. What is the function of $\overline{\text{LOCK}}$ and $\overline{\text{RQ}}/\overline{\text{GT}}$ signals ?
5. Justify the need for coprocessor.
6. Justify – Coprocessor can fetch and execute the instructions.
7. Highlight the need for interfacing.
8. Give the various modes of operation of keyboard and display controller.
9. What are the differences between a microprocessor and microcontroller ?
10. What are the uses of port 0 and port 2 of 8051 ?



11. a) Explain the internal architecture of Intel 8085 Microprocessor.
(OR)
- b) i) Write an 8085 Assembly language program to convert a Single Digit BCD number into a binary number. (8)
ii) Write an 8085 Assembly language program to add two 16-bit BCD Numbers. (8)
12. a) Explain the different addressing modes of 8086 Microprocessor.
(OR)
- b) i) Write an 8086 assembly language program to get an input from the keyboard for 2 digit and convert that input into a binary number using BIOS int. (8)
ii) Write an 8086 assembly language program to add 2 digit number by getting an input from the keyboard using BIOS interrupt call. (8)
13. a) Discuss the operation of 8087 numeric data processor.
(OR)
- b) Explain the architecture of 8089, in detail, with necessary diagrams.
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 the 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) $V_{in} = 2.78 \text{ V}$, $V_{ref} = 5 \text{ V}$ 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)