

Jadavpur University
B.Power Engg.3rd Year 2nd Semester Examination(Supplementary) 2023
Microprocessors & Microcontrollers

Time:3hrs

Answer All Questions

Full Marks 100

1a. Express the following

CO(1)

- (i) $(3214)_{10}$ and $(-2383)_{10}$ using a signed 2Byte Hexadecimal representation
(ii) $(-1624)_{10}$ in 2s complement binary notation
(iii) $(56.24)_{10}$ in binary form using a fixed point and an exponent form representation (4+2+4)

1b. Compute the following using suitable binary representations

- (i). $(110)_{10} + (40)_{10}$
(ii). $(13)_{10} - (28)_{10}$ 10

2. Answer the following:

- (i) Name the different General Purpose registers in a 8085 Micro-processor. CO(2)
(ii) A micro-processor has a 8 bit data bus and 20 bit Address Bus. Compute its General Purpose Register size and its Memory Size.
(iii) With a suitable timing diagram represent the RD cycle of a 8085 Micro-processor. (4+6+10) .

3. Write the Truth Table of a Full Adder with a Carry. Represent a Full Adder with Carry that adds two 4 bit numbers using a logic diagram a Hence represent the Full Adder with Carry either by Moore Machine .If each transition takes one clock pulse and the clock frequency is 1MHz. what time is taken by the FSM to produce results. CO(2)

(2+6+10+2)

4. Write an Assembly Level program in 8085 to do the following:

CO(3)

- (i) Move the contents of memory location 2000H to register D
(ii) Move the contents of memory location 2001H to register E
(iii) Add the contents of register D to that of E
(iv) Store the result in memory location in the Memory Location 3020H
(v) If [2000H] is 06H of and [2001H] is EAH then compute the content of [3020H] and deduce the state of the Carry Flag for your selection. (3 +3+3+3+8)

5. Design a Memory system of 64KB for a 8 bit Micro-processor with an Address bus of 16bits using 8Kby1 Chips showing chip selection logic CO(4) 20

Or

6. With a neat schematic represent the interrupt system of a 8085 microprocessor CO(4) 20