BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Tech.(RA)-2022/B.Tech.(RA)-2023
Course Name – Microprocessor and Microcontroller
Course Code - PCC-ECR403
(Semester IV)

Full Marks : 60
Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question)
1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the number of pins are present in 8085 microprocessor
   a) 40
   b) 39
   c) 42
   d) 36

(ii) Identify the section/units which are included in Microprocessors
   a) Register section
   b) One or more ALU
   c) Control unit
   d) All of these

(iii) Explain why the program counter in a 8085 micro-processor is a 16-bit register
   a) It counts 16-bits at a time
   b) There are 16 address lines
   c) It facilitates the user storing 16-bit data temporarily
   d) It has to fetch two 8-bit data at a time

(iv) Which of the following are present in 8085 microprocessor?
   a) 8 bit data bus
   b) 8-bit address bus
   c) 8-bit control bus
   d) 8-bit interrupt lines

(v) Identify in which year, 8086 microprocessor was introduced
   a) 1978
   b) 1979
   c) 1977
   d) 1981

(vi) In 8085, the16 bit registers is named as
   a) Stack pointer
   b) Accumulator
   c) Flag register
   d) None of these

(vii) The instruction STA 3526H indicates that its addressing mode is
   a) direct addressing mode
   b) indirect addressing mode
   c) register addressing mode
   d) Immediate addressing mode

(viii) The instruction LXI H, 2500 H indicates that its addressing mode is
   a) direct addressing mode
   b) indirect addressing mode
   c) register addressing mode
   d) Immediate addressing mode

(ix) Determine number of T-states to execute the instruction DCX Rp (Rp is register pair)

    a) 6   b) 4

    c) 3   d) 1

(x) The instruction, MOV AX, 1234H indicates that its addressing mode is

    a) register addressing mode   b) immediate addressing mode

    c) based indexed addressing mode   d) direct addressing mode

(xi) Determine the T-State required to execute the instruction LXI H, 2400 H.

    a) 10   b) 13

    c) 7   d) 16

(xii) The bits of control word of 8253 to select a counter are

    a) SC0SC1   b) RW0RW1

    c) M0M1M2   d) BCD, RW0 & RW1

(xiii) Identify how many register banks are present in 8051 microcontroller

    a) 4   b) 3

    c) 2   d) 1

(xiv) DAA instruction is applied to perform in which type of addition?

    a) BCD addition   b) Excess-3 addition

    c) Binary addition   d) Octal addition

(xv) Suppose registers 'A' and 'C' contains 5FH and 26H respectively. After instruction ADD C, determine the contents of registers A

    a) 85 H   b) 5F H

    c) FF H   d) 4A H

Group-B
(Short Answer Type Questions)

3 x 5=15

2. Describe the operation of following pins of 8085 microprocessor: ALE, $\overline{RD}$, $\overline{WR}$ (3)

3. Write the result after execution of the following instruction: (3)
   (a) MOV AL, 22; MOV BL, 44; ADD AL, BL;
   (b) MOV CL, 34; MOV AL, FF; SUB AL, CL..

4. Distinguish between microprocessor and micro-controller.   (3)

5. Explain the advantages and disadvantages of memory mapped I/O and I/O mapped I/O scheme.   (3)

6. Differentiate between CALL and JMP instructions.   (3)

OR

Calculate the time required to execute the instruction STA 2050 H if the microprocessor clock frequency is 2 MHz.   (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Illustrate the operation of Port 0, port 1, Port 2 and Port 3 of 8051 microcontroller.   (5)

8. With example explain various addressing modes of 8085 microprocessor. (5)

9. Describe the Flag register of 8086 microprocessor. (5)

10. In microprocessor 8085, sketch and explain the timing diagram for the instruction of STA 3050H. (5)

11. An 8085 program adds the hex numbers 2FH and 32H and places the result in its accumulator. Evaluate the status of 8085 flags CY, P, AC, Z, S on completion of this additions. (5)

12. Write an assembly language program in 8085 microprocessor to find multiplication of two 8 bit numbers. Result may be of 16 bit numbers. (5)

OR

Write down an assembly language program to block of data transfer one memory location to another memory location. (5)

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