BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – BCA-2022
Course Name – Computer System Architecture
Course Code - BCAC401
(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) What does an instruction code specify?

    a) Memory address   b) Operation to be performed
    c) Register name   d) I/O device

(ii) Classify the purpose of the accumulator unit in a CPU.

    a) To store data temporarily during processing   b) To fetch instructions from memory
    c) To perform complex arithmetic operations   d) To manage input/output operations

(iii) In assembly language programming, what does the CMP instruction typically do?

    a) Compare two values   b) Compute a mathematical operation
    c) Copy data from one location to another   d) Convert data from one format to another

(iv) Classify the role of the address bus in memory interfacing.

    a) Transfer data between CPU and memory   b) Select a specific memory location for read or write operations
    c) Control the timing of data transfer   d) Store program instructions

(v) Which type of memory is non-volatile and used for storing firmware?

    a) RAM   b) Cache Memory
    c) EPROM   d) DRAM

(vi) Which operation are implemented using a binary counter or combinational circuit?

    a) Shift micro operation   b) Logical micro operation
    c) Arithmetic micro operation   d) None of these

(vii) What is the function of the control bus in a microprocessor?

    a) Transfer data between CPU and memory   b) Carry control signals between CPU and peripherals
    c) Perform arithmetic and logic operations   d) Store program instructions

(viii) Identify the following instructions is used to store data in memory.

    a) MOV   b) ADD
    c) SUB   d) JMP

(ix) The length of a register is called _____.

    a) word limit   b) word size
    c) register limit   d) register size

(x) The process of storing the data in the stack is called _____ the stack.

    a) pulling into   b) pulling out
    c) pushing into   d) popping into

(xi) Classify the addressing mode which makes use of in-direction pointers_____.

    a) Indirect addressing mode   b) Index addressing mode
    c) Relative addressing mode   d) Offset addressing mode

(xii) Which of the following is not a data copy/transfer instruction?

    a) Mov   b) push
    c) Das   d) pop

(xiii) Choose from the following that is not a visible register.

    a) General Purpose Registers   b) Address Register
    c) Status Register   d) MAR

(xiv) What is the size of its address bus if the 8085 microprocessor is an 8-bit processor?

    a) 8 bits   b) 16 bits
    c) 32 bits   d) 64 bits

(xv) Choose which architecture follow the Sun micro systems processors .

    a) CISC   b) ISA
    c) ULTRA SPARC   d) RISC

Group-B
(Short Answer Type Questions)   3 x 5=15

2. Identify the various hardware interrupts supported by the 8085 microprocessor.   (3)
3. State the purpose of a bus in a computer system.   (3)
4. Explain the concept of general register organization in computer architecture.   (3)
5. Extend briefly, the design of a hardwired control unit.   (3)
6. Explain the effect of instruction set on the performance of a computer system.   (3)

OR

Distinguish the difference between PROM and EPROM.   (3)

Group-C
(Long Answer Type Questions)   5 x 6=30

7. Develop an 8085 assembly language program to add two 16-bit numbers.   (5)
8. Draw and explain the flowchart for instruction cycle.   (5)
9. Draw the circuit and explain the function of J-K flip flop.   (5)
10. Explain the addressing mode and its different types.   (5)
11. Explain the Pin diagram of 8085 Microprocessor.   (5)
12. Discuss the stack organization of CPU.   (5)

OR

(3*4) + (5*6) convert into Reverse Polish Notation(RPN) and show stack operations.   (5)

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