BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – Dip.CSE-2024
Course Name – Computer Organization
Course Code - DCS40110
(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) Select the full form of RISC.
a) Reduced Instruction set computer b) Received computing set computting
c) Reducing Instruction set computer d) Recycle computing set computting

(ii) Identify the representation used for signed numbers where the leftmost bit represents the sign.
a) One's complement b) Two's complement
c) Excess-3 code d) Sign-magnitude

(iii) Select the unit that controls all operations of a computer system.
a) ALU b) Memory Unit
c) Control Unit d) Input Unit

(iv) Identify the correct order of instruction execution.
a) Execute–Decode–Fetch b) Decode–Execute–Fetch
c) Fetch–Decode–Execute d) Execute–Fetch–Decode

(v) Choose the addressing mode where the operand is part of the instruction.
a) direct b) indirect
c) immediate d) register

(vi) Select the location of the operand in register indirect addressing mode.
a) Instruction b) Register
c) Memory location pointed by register d) cache

(vii) Select the most widely used signed number representation.
a) sign magnitude b) 1s complement
c) 2s complement d) excess 3

(viii) Identify the condition for overflow in signed arithmetic.
a) Carry from MSB b) Result exceeds representable range

c) Operand is negative
d) LSB is zero

(ix) Identify the technique used to map a block to any cache line.

a) Direct mapping
b) Set associative mapping
c) Fully associative mapping
d) Indexed mapping

(x) Select the term that refers to overlapping instruction execution.

a) Multithreading
b) Pipelining
c) Multiprocessing
d) Caching

(xi) Choose the parameter measuring instructions per time unit.

a) Latency
b) Throughput
c) Cycle time
d) Delay

(xii) Choose the technique that improves branch handling.

a) Branch prediction
b) Paging
c) Segmentation
d) Mapping

(xiii) Identify the instruction format field that specifies data location.

a) Opcode
b) Operand
c) Flag
d) Mode

(xiv) Select the unit responsible for arithmetic operations.

a) ALU
b) Control Unit
c) Memory Unit
d) Input Unit

(xv) Identify the register that stores the address of the next instruction.

a) IR
b) PC
c) MAR
d) MDR

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Describe the characteristics of Hardwired Control Unit design, highlighting its structure and the way it executes instructions within a computer system. (3)
3. Describe about the instruction format. (3)
4. List the basic functional units of a computer system. (3)
5. Illustrate restoring division techniques. (3)
6. Explain about throughput for a pipelined processor. (3)

OR

Analyze the effect of branch instructions on pipelining. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Discuss the advantages and disadvantages of direct mapping and set associative mapping. (5)
8. Illustrate the components of a Logical and Shifter Unit, illustrating their roles in logical operations and data manipulation within ALU and CU organization. (5)
9. Describe the Von Neumann architecture with neat diagram. (5)
10. Explain direct memory access. (5)
11. Explain the advantage of Associative mapping over direct mapping. (5)
12. Summarize the different types of hazards in pipelining (5)

OR

Assess the different performance parameters of pipeline architecture. (5)

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