Reg. No ..... Name **22U346**

END SEMESTER EXAMINATION : OCTOBER 2022

SEMESTER 3 : INTEGRATED M.Sc. PROGRAMME COMPUTER SCIENCE

COURSE : **21UP3CRMCP10 : COMPUTER ORGANIZATION AND ARCHITECTURE**

(For Regular - 2021 Admission)

Time : Three Hours **Max. Weightage: 30**

PART A

Answer any 8

1. Discuss how matrix multiplication is performed with vector processors.
2. Define the term - access time of a memory.
3. Convert the following numerical arithmetic expression into reverse polish notation and show the stack operations for evaluating the numerical result:
   (3 + 4)[10(2 + 6) + 8]
4. Explain page table with reference to virtual memory.
5. Write brief notes on hypercube connection.
6. Write short notes on the basic logic gates with a diagram and truth table.
7. Write short notes on the various memory operations performed by the CPU.
8. Define Content Adressable memory.
9. Discuss the procedure of matching words in an associative memory.
10. Convert the number $(159)_{10}$ to octal number system.

(1 x 8 = 8 Weight)

PART B

Answer any 6

11. In a 16-bit address bus, the ---------- bit position indicates the selection of RAM or ROM.
12. List any two examples of primary memory.
13. Write an example of an assembly-level instruction.
14. State DeMorgan's theorem in boolean algebra.
15. The ---------- register points to the top of the stack.
16. If a node in a hypercube is labelled as 110, write the immediate neighboring nodes of 110.
17. Define the term throughput.
18. Define data dependency in concurrent execution.

(2 x 6 = 12 Weight)

PART C

Answer any 2

19. With a neat and labelled diagram, explain the functional units of a computer system.
20. Discuss the various indirect addressing modes in detail.

21. A stack can exist as a standalone unit in RAM. Discuss its operations and explain how it can be implemented.
22. Write short notes on any two auxiliary memories.

(5 x 2 = 10 Weight)