62453

Reg. No. | | | | | | | | |

I Semester M.C.A. Degree Examination, July - 2022

COMPUTER SCIENCE

Computer Organization and Architecture

(CBCS 20-21 Scheme)

Paper : 1MCA3

Time : 3 Hours **Maximum Marks : 70**

Instruction to Candidates:

1) Answer any **Five** questions from Section A, each carries **Six** marks.
2) Any **Four** questions from Section B, each carries **Ten** marks.

SECTION - A

I. Answer any **FIVE** of the following questions. Each carries 6 marks. **(5×6=30)**

1. Convert $(FADE)_{16}$ into decimal, octal and binary number system.
2. With a neat diagram explain Von-Neuman architecture.
3. Subtract $73_{(10)}$ from $28_{(10)}$ using 2's complement method.
4. Explain the different instruction formats.
5. Write a note on RISC and CISC.
6. Explain instruction level parallelism and its limitations.
7. Explain the characteristics of multiprocessor.
8. Explain virtual memory.

SECTION - B

II. Answer any **Four Full** questions. **(4×10=40)**

9. a) With a neat circuit diagram and truth table, explain the working of full adder. **(5)**

   b) Simplify $F(ABCD)=\sum m(1,2,6,11,15)+\sum d(0,3,9,10,14)$ using k map and write the circuit diagram for the simplified expression. **(5)**

[P.T.O.

10. a) Explain error detection using Hamming code. (5)

b) Explain binary counter. (5)

11. a) With a neat circuit diagram explain the working of JK flip flop. (5)

b) Explain interrupt cycle with a neat flow chart. (5)

12. a) Explain memory reference instruction and register reference instruction with an example. (5)

b) What is memory-mapped I/o and program controlled I/o. (5)

13. a) Define addressing mode and explain any 4 addressing mode. (5)

b) Explain the block diagram of DMA Controller. (5)

14. a) Explain MIMD architecture. (5)

b) What is inter process communication ? Explain shared memory method of process communication. (5)