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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:**

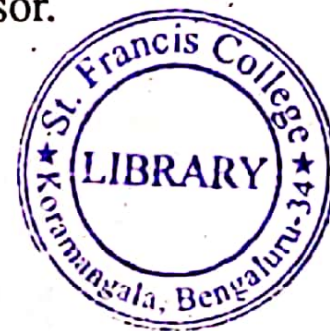
- 1) Answer any **Five** questions from Section A, each carries **Six** marks.
- 2) Any **Four** questions from Section B, each carries **Ten** marks.

**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.]**



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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)
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