PG – 368

I Semester M.C.A. (Two Years Course) Degree Examination, June/July 2024
(CBCS) (2020 – 2021 and Onwards)
COMPUTER SCIENCE
1MCA3 : Computer Organisation and Architecture

Time : 3 Hours Max. Marks : 70

Instructions : *1) Answer **any five** questions from Part – **A**.* ***(5×6=30)***
*2) Answer **any four** questions from Part – **B**.* ***(4×10=40)***

PART – A

I. Answer **any five** questions : **(5×6=30)**

1) Convert the following :
   i) $F3A7_{(16)}$ = _____ (8)
   ii) $204.125_{(10)}$ = _____ (16)
   iii) $11111110_{(2)}$ = _____ (10)
2) Explain addressing models and its types.
3) With a neat diagram explain Von-Neuman architecture.
4) Write a detailed note on different characteristics of multiprocessor.
5) Explain instruction level parallelism in detail.
6) Differentiate between CISC and RISC.
7) Explain different types of ROM.
8) What are the key architectural components and design principles employed in the development of a multi-threaded processor ? Explain in detail.

PART – 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) Analyse booth multiplication algorithm with flow chart, hardware implementation with an example. **5**

P.T.O.

10) a) Construct a 4 to 1 line multiplexer using logic gates. Explain its working procedure. 5

b) Explain error detection using Hamming code. 5

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

b) Explain interrupt cycle with flow chart. 5

12) a) What is memory-mapped I/O and program controlled I/O ? 5

b) Explain different instruction formats with an example for each. 5

13) Explain distributed memory MIMD architecture with a neat diagram. 10

14) What are interconnection structures ? Explain interprocessor communication and synchronization. 10
