PG – 667

I Semester M.C.A. (Two Years Course) Examination, May/June 2026
(CBCS Scheme) (2020 – 2021 and Onwards)
COMPUTER SCIENCE
1MCA3 : Computer Organization and Architecture

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Answer* ***any five*** *questions from – Section – **A**.*
2) Answer ***any four*** *questions from – Section – **B**.*

SECTION – A

Answer **any five** of the following. **Each** question carries **six** marks. **(5×6=30)**

1. Perform base conversion : Convert $(2A7)_{16}$ to binary and decimal. Explain steps.
2. Explain one's complement and two's complement representation with examples.
3. Describe Von-Neumann Architecture with a neat diagram.
4. Explain instruction cycle with flowchart.
5. Differentiate CISC and RISC architectures.
6. Explain Register Transfer Language (RTL) with examples.
7. Compare Programmed I/O and Interrupt Driven I/O.
8. Explain cache memory and its performance considerations.

SECTION – B

Answer **any four** of the following. **Each** question carries **ten** marks. **(4×10=40)**

9. a) Perform binary subtraction using 2's complement method. **5**

   b) Explain floating point representation with example. **5**

10. a) Explain different addressing modes with examples. **6**

    b) Describe stack organization in CPU. **4**

P.T.O.

11. a) Explain arithmetic micro-operations with examples. **5**

    b) Design a simple control unit using micro-programming. **5**

12. a) Explain memory hierarchy with diagram. **5**

    b) Discuss virtual memory and paging. **5**

13. a) Explain DMA with diagram. **5**

    b) Discuss instruction level parallelism and its limitations. **5**

14. a) Explain types of ROM and RAM. **5**

    b) Discuss multiprocessor characteristics and cache coherence. **5**