

**FIRST SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2023  
(Regular/Improvement/Supplementary)**

**COMPUTER SCIENCE  
FCSS1C05 – COMPUTER ORGANIZATION & ARCHITECTURE**

**Time: 3 Hours**

**Maximum Weightage: 30**

**Section A: Short answer questions. Answer any *four* questions. Each carries *two* weightage.**

1. What are the different phases of instruction cycle?
2. Perform binary subtraction (10001 – 1100) using 2's complement representation.
3. What is the use of EEPROM ?
4. Define a ripple counter.
5. What is Flip-Flop?
6. What is Parity? Give its significance?
7. Why NAND gate is called a universal gate?

**(4 × 2 = 8 weightage)**

**Section B: Short essay questions. Answer any *four* questions. Each carries *three* weightage.**

8. Design Full adder using NAND gates only.
9. Discuss the DMA controller in detail.
10. Why memory hierarchy is important in computer system?
11. Explain any cache memory mapping technique.
12. Briefly explain the arithmetic logic shift unit.
13. Define bit, byte and word. Discuss various number system used in the computer system.
14. Discuss about floating point representation.

**(4 × 3 = 12 weightage)**

**Section C: Essay questions. Answer any *two* questions. Each carries *five* weightage.**

15. Explain different addressing modes with suitable example for each.
16. Draw and explain the operation of 3 to 8 decoder.
17. Explain multiplication using Booth's algorithm.
18. With the help of neat diagram explain 8085 microprocessor Architecture.

**(2 × 5 = 10 weightage)**