

D 93399

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Name.....

Reg. No.....

**FIRST SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, NOVEMBER 2020**

(CBCSS)

Computer Science

CSS 1C 05—COMPUTER ORGANIZATION AND ARCHITECTURE

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend **all** questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A*Answer any **four** questions.**Each question carries 2 weightage.*

1. Give truth tables for NAND and NOR gates. Show that AND-OR circuit is equivalent to NAND-NAND.
2. Explain how parity bits help in error detection.
3. Explain the steps in a memory READ operation.
4. How will you convert a Full Adder to a Sub-tractor ?
5. Differentiate between cache memory and virtual memory.
6. Give and explain examples of Direct Addressing and Register Indirect Addressing, from 8085 instruction set.
7. Draw 8085 Flag Register and give the significance of each bit.

(4 × 2 = 8 weightage)

Turn over

Section B

Answer any **four** questions.

Each question carries 3 weightage.

8. Explain Floating point number representation.
9. Outline the working of 4-to-1 multiplexer with suitable diagram.
10. Identify the steps in the execution of a branch instruction.
11. With a block diagram, illustrate working of array multiplier.
12. Explain different algorithms for cache memory replacement (any *three*), highlighting their merits and limitations.
13. Discuss Vectored interrupts and interrupt nesting.
14. Outline 8086 register organization.

(4 × 3 = 12 weightage)

Section C

Answer any **two** questions.

Each question carries 5 weightage.

15. With the help of block diagrams, explain two bus and three bus organization of processors.
16. Explain steps in non-restoring division algorithm. Illustrate the algorithm with suitable example.
17. Explain in detail organization and working of a virtual memory system.
18. Discuss 8051 architecture.

(2 × 5 = 10 weightage)