D 13115 (Pages : 2) Name.....

Reg. No.....

FIRST SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Computer Science

CSS 1C 05—COMPUTER ORGANIZATION AND ARCHITECTURE

(2019 Admission onwards)

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. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *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. Draw labelled block diagram and excitation table for J K Flip Flop.
2. Draw full Adder circuit using logic gates.
3. Explain "microinstructions" with an example.
4. Explain the concept of bit pair recoding.
5. Explain ' daisy chaining'.
6. What are the different types of 8086 instructions ? Give one example each.
7. Give an example Timing Diagram based on 8085 instruction set.

(4 × 2 = 8 weightage)

Turn over

Section B

Answer any **four** *questions.*
Each question carries 3 *weightage.*

8. Simplify using K-map : F (P, Q, R, S) = Σ (1, 2, 4, 7, 10, 12, 13, 15).
9. With the help of a block diagram, explain the working of Serial-In, Serial-Out shift register.
10. Illustrate how instructions are executed in a single bus architecture.
11. Summarize Booth's Algorithm.
12. Explain the working principle of cache memory. Illustrate any *one* cache mapping technique.
13. Outline the organization of a DRAM memory cell. Identify different types of DRAM.
14. Write a note on 8051 instruction set.

(4 × 3 = 12 weightage)

Section C

Answer any **two** *questions.*
Each question carries 5 *weightage.*

15. Discuss the organization of hardwired control unit. Compare it with microprogrammed control unit.
16. With the help of block diagrams explain 'Fast Adders' and 'Sequential Multipliers'.
17. Give a detailed account of programmed I/O, interrupt driven I/O and DMA.
18. Give an overview of 8085 architecture and addressing modes.

(2 × 5 = 10 weightage)