D 93005 (Pages : 2) Name

Reg. No. . . . .

FIRST SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2015

(CUCSS)

Computer Science

CSS 1C 05—COMPUTER ORGANIZATION AND ARCHITECTURE

(2014 Admission onwards)

Time : Three Hours   Maximum : 36 Weightage

Part A

Answer **all** *questions.*
Each question carries 1 weightage.

1. Convert $(952.756)_{10}$ to binary number system.

2. What are error detection codes ?

3. Draw the logic circuit and truth table for the logic expression.

   (A AND B) NOR (A AND C)

4. What are addressing modes ?

5. List down the actions required to execute the instruction : ADD (R_2), R_1.

6. Differentiate between subroutine and ISR.

7. Describe IEEE format for double precision floating point representation.

8. Perform 2's complement add and subtract operations on following numbers

   (i) **2 and 4.**   (ii) **− 7 and 1.**

9. What is cache coherency ?

10. What is cycle stealing ?

11. What are condition code flags ?

12. List the segment registers and general purpose registers of 8086 multiprocessors.

(12 x 1 = 12 weightage)

Part B

Answer any **six** *questions.*
Each question carries 2 *weightage.*

13. Design a Full Adder.

14. Draw an eight input multiplexer circuit.

15. List and explain control sequences for an unconditional branch instruction.

Turn over

16. Distinguish between Hardwired control and Micro programmed control.

17. Explain Booth's multiplication algorithm.

18. List the rules for performing Arithmetic operations on floating point numbers.

19. Write notes on vectored interrupts.

20. Explain the contents of a page table. How it is used in virtual memory management ?

21. Describe the register organization of 8085 microprocessor.

(6 x 2 = 12 weightage)

Part C

Answer any **three** *questions.*
Each question carries **4** *weightage.*

22. Simplify the following Boolean function in sum-of-products form by means of a four variable map. Draw the logic diagram with (i) AND-OR gates (ii) NAND gates.

$$F (A, B, C, D) = \Sigma (0.2, 8, 9, 10, 11, 14, 15).$$

23. With the help of a diagram explain single bus organization of data paths inside the CPU.

24. Explain restoring and non-restoring division techniques with examples.

25. What is the role of mapping functions in cache memory ? Explain different mapping functions in detail.

26. Draw the block diagram of internal architecture of 8086 microprocessor. Explain each Component.

27. Draw the pin out of 8085 microprocessor. Give the functional details of each pin.

(3 x 4 = 12 weightage)