D 74386 (Pages : 2) Name.....

Reg. No.....49

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2014

(CUCBCSS—U.G.)

Complementary Course—Computer Science

BCS 1C 01—COMPUTER FUNDAMENTALS

Time : Three Hours Maximum : 64 Marks

Part A

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

1. What is the binary equivalent of the decimal number 105 ?
2. Differentiate between BCD and EBCDIC.
3. What is a logic gate ? Name the three basic logic gates.
4. Find the complement of the Boolean function $\bar{x}.y.\bar{z}+\bar{x}.\bar{y}.z$.
5. Prove that $x.(x+y)=x$.
6. What do you mean by an instruction set of a computer ?
7. List any two secondary storage devices which do not use any mechanical component for its operation.
8. What are the specifications to be considered for comparing two monitors ?
9. List various symbols used for drawing flowcharts.

(9 × 1 = 9 marks)

Part B

Answer **all** *questions. Each question carries* 2 *marks.*

10. Subtract $(011011)_2$ from $(110111)_2$ using 1 's complement method.
11. Using the laws of Boolean algebra, prove that $A+\bar{A}B=A+B$.
12. Differentiate between RAM and ROM.
13. How barcode reader recognize the barcodes.
14. Draw a flow chart to find the average of 10 numbers.

(5 × 2 = 10 marks)

Turn over

Part C

Answer any **five** *questions. Each question carries* 5 *marks.*

15. What are the advantages of using ASCII code compared to EBCDIC ?
16. Draw the simplified logic diagram using only NAND gates to implement the three input Boole function $F(A, B, C) = \Sigma(0, 1, 2, 5)$.
17. Explain how cache memory helps in improving the speed of a computer ?
18. What are the factors affecting the disk access time ? Explain.
19. Simplify the Boolean function $F(A, B, C, D) = \Sigma(0, 1, 2, 4, 5, 7, 11, 15)$.
20. Encode the four bit data word 0101 using Hamming code.
21. Design the full adder combinational circuit.
22. Explain about various control devices.

(5 × 5 = 25 ma

Part D

Answer any **two** *questions. Each question carries* 10 *marks.*

23. With the help of a block diagram, explain the working of the control unit of a computer syste
24. Write short notes on :
    (a) Commonly used output devices.
    (b) MIDI instruments.
25. Briefly explain :
    (a) Universal NAND and NOR gates.
    (b) Various units used to measure the memory capacity of a computer.

(2 × 10 = 20 ma