

D 74386

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Name.....

Reg. No.....

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 Boolean function $F(A, B, C) = \sum(0, 1, 2, 5)$.
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 $F(A, B, C, D) = \sum(0, 1, 2, 4, 5, 7, 11, 15)$.
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 marks)

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 system.
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 marks)