D 92871 (Pages : 2) Name.....

Reg. No.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2015

(CUCBCSS—UG)

Complementary Course

BCS 1C 01—COMPUTER FUNDAMENTALS

Time : Three Hours Maximum : 64 Marks

Part A

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

1. Find the decimal equivalent of the binary number 10110011.
2. Differentiate between 7-bit ASCII and 8-bit ASCII.
3. What does the duality principle of Boolean algebra says ?
4. Define a full-adder logic circuit.
5. What is the role of an Instruction Register (IR) in a CPU ?
6. Differentiate between PROM and EPROM.
7. What is a digitizer ?
8. Define an algorithm.
9. What is the difference between VGA and SVGA ?

(9 x 1 = 9 marks)

Part B

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

0. Subtract $(11011)_2$ from $(110111)_2$ using 2's complement.
11. Using truth table, prove that $X + YZ = (X + Y) \cdot (X + Z)$.
12. What are different steps taken by the CPU to execute an instruction ?
13. Differentiate between even parity and odd parity.
14. Write notes on MICR.

(5 x 2 = 10 marks)

Turn over

Part C

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

15. Write the ASCII-8 coding for the word "RAJU" in both binary and hexadecimal notations. How many bytes are required to store this word using the same coding ?

16. Express the Boolean function $x.y + x.z$ in product of sums canonical form.

17. Explain, how cache memory helps in improving the speed of a computer ?

18. Simplify the Boolean function F (A, B, C, D) = E (3, 7, 11, 13, 14, 15).

19. Decode the codeword 1110110 created using Hamming code.

20. Construct the logic circuit diagram for Exclusive-OR function using NAND gates only.

21. Design a full-adder combinational circuit.

22. Explain about various pointing devices.

(5 x 5 = 25 marks,

Part D

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

1. Explain how data can be stored and accessed on a magnetic disk ?

2. Write short notes on :

   (a) Measuring storage capacity of a computer.

   (b) Various logic gates used to construct circuit diagrams.

3. Briefly explain the following :

   (a) Various types of printers.

   (b) Memory hierarchy.

(2 x 10 = 20 mar s)