SECOND INTERNAL EXAMINATION OCTOBER 2015

THIRD SEMESTER B.Sc. CS

BCS3B04 – FUNDAMENTALS OF DIGITAL ELECTRONICS

Time : 3 hours   **Total Marks :80**

Part- A

Answer all questions

(Each carries 1 mark)

1. The number 10 in Hexadecimal system is equivalent to -------- in decimal system.
2. Hamming distance between 1001 and 10110 ----------
3. A quad in a K-Map can eliminate ------- variables from a Boolean expression.
4. The complemented OR gate is called a------
5. $A + B =$
6. The IC 7483 is a------
    (a)BCD Adder   (b)comparator   (c)multiplexer
    (d)demultiplexer
7. The sum of the half adder is-------
8. Single input version of J-K flip –flop formed by tying both the inputs of j-k is ------
9. Memory is a circuit ,which is used to store ----information

    (a)Accurate   (b)Discrete   (c)Analog   (d)Digital

10. A register is a roup of -------suitable for storing binary information.

                                                        (1*10=10 marks)

Part -B

Answer any five

(Each carries 2 marks)

1. What is SR flip flop?
2. What is a sequential logic circuit?
3. Write a note on Decoder.
4. State the De Morgan's law
5. What is parity bit? Explain its use?

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6. Convert the binary number 101010.01 into decimal.
7. Prove AC+ABC=C(A+B).
8. Writ the symbols used in a number system with base 16

(2*5=10 marks)

Part -C
Answer any five
(Each carries 4 marks)

1. What is a full-adder? Obtain its truth table.

2. Explain the behavior of JK flip-flop.

3. Design a half subtractor with basic gates.

4. What is a binary parallel adder?

5. What is a decoder? Explain the functioning of a basic binary decoder?

6. Describe different types of shift registers.

7. Convert following binary to hexadecimal:

    (a)   110011.11
    (b)   1111000.101

(4*5=20 marks)

Part -D
Answer any five
(Each carries 8 marks)

1. Discuss any three number systems along with rules for converting from one number system to another. Illustrate with examples.

2. What are magnitude comparators? Explain the design of a 4-bit magnitude comparator.

3. What is an encoder? Explain the design of octal-to-binary-encoder.

4. Describe different types of computer codes.

5. Obtain the simplified expression for the Boolean function AC+BC+BC+ABC in standard SOP form. Draw the gate implementation of simplified function using AND and OR gates.

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6. What is a multiplexer? Design a 8X1 multiplexer.

7. What is a JK flip-flop? Draw its circuit diagram. Obtain its characteristic table and characteristic equation .Explain its behavior using its timing diagram.

(8 *5=40 marks)

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