HILTRON
Bachelor Of Computer Applications(BCA-10)
Second Semester Examinations 2012-2013
Basic Digital Electronics(BCA-201)

Time : 3 hours   **Max. Marks : 60**
Note:

1. Attempt any two question from Section A

2. Attempt any four question from Section B

3. All question are compulsory in Section C

Section A

(Long Answer Type Question)

2×15 = 30 Marks

1. Explain the function of a multiplexer. Draw the logic diagram of 4 -to-1 multiplexer .

2. Implement a 3-bit binary counter using J-K flip flop.

3. What are universal gate? Explain the operation of 2-input XOR gate and realize it using universal gate.

4. What is memory? Explain various types of memories in digital system. List the advantages and limitations of magnetic disk and magnetic tapes as a secondary storage device.

Section B
(Short Answer Type Question)

4×5=20 Marks

1. Convert the following binary numbers to gray code no.

   (i) 11011 (ii) 10110

2. What are flip-flops? Draw an RS flip-flop using NOR gate.

3. What are combinational circuits? Distinguish between combinational circuit and sequential circuit.

4. What are the differences between asynchronous and synchronous counter?

5. Differentiate between RISC and CISC architecture.

6. What is flash memory? Where it is used?

7. Define and describe DeMorgan's Theorem.

8. Simplify $x'y'z + x'yz + xy'$ using Karnaugh map

Section C
(Objective Answer Type Question)

10×1=10 marks

1. If both inputs are 0 in a 2-input NOR gate, then the output will be
     (a) (a) 0 (b) 1 (c) high (d)None of these
2. Which one of the following is not a valid rule of Boolean algebra?
   (a) A+1=1 (b) A=A' (c) A.A = A (d) A.1 = A
3. According to the commutative law of addition
   (a) AB = BA (b) A = A+A (c) A+(B+C) = (A+B)+C (d) A+B = B+A
4. Which of the following combinational circuit is called Data Selector
   (a) Decoder (b) Decoder/ Demultiplexer (c) Demultiplexer (d) None of these
5. A decoder with n input lines contains maximum of
   (a) 2n output lines (b) n output lines (c) 1 output line (d) n2 output lines
6. A simple flip-flop
   (a) is 2 bit memory (b) is 1 bit memory (c) is a four state device (d) has nothing to do with memory
7. Magnitude comparator
     (a) magnify any digital signal
     (b) compares two multi bit binary number
     (c) compress binary numbers.
     (d) check error in a binary number
8. The storage element of static device RAM is:
   (a) Diode (b) Register (c) Capacitor (d) Flip flop
9. Which operation is called *Modulo-2-Sum* operation:
   (a) AND (b) OR (c) XOR (d) None of these
10. A 3-variable Karnaugh map has
    (a)eight cells (b) three cells (c)sixteen cells (d) four cells