Roll No. .....

**BCA-10 (Bachelor of Computer Application)**

## Second Semester Examination-2014

# *BCA-201*

## Basic Digital Electronics

**Time Allowed :** Three Hours

**Maximum Marks :** 60

**Note : The paper is divided into three sections A, B and C. Notes for each section are given in the section itself.**

### Section - A
### (Long answer type Questions)

**Note : Answer any 2 Question. Each question carries 15 marks. (2×15=30)**

1. What are Flip-Flops ? Explain the types of Flip-Flops.

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

3. What are the differences between asynchronous and synchronous counter? Draw a MODE-8 counter and explain its working principle.

4. Draw the block diagram of :a typical (2048 x 16) bits ROM and describes its working principles.

## Section - B

### (Short answer type Questions)

**Note : Answer any 4 question. Each question carries 5 marks. (4×5=20)**

1. Define and describe DeMorgan's Theorem.

2. Perform the following by 2's complement method:

   a) 10101 - 11011

   b) 100011 -1111

3. Convert the following to its decimal equivalept:

   a) $(81B6.F)_{16}$

   b) $(765.45)_{8}$

4. Prove that (i) x.x = x (ii) x + xy = x

5. What is sequential circuit ? How it differ from combinational circuit?

6. Differentiate between RISC and CISC architecture.

7. What are the main component of CPU of a computer system ? Explain.

8. What is RAM? Give an example. Differentiate SRAM with DRAM.,

## Section - C

### (Objective type Questions)

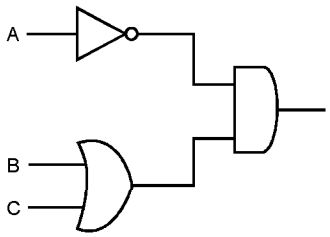
**Note : Answer all questions. Each question carries 1 Marks.** **(10×1=10)**

1. Which operations is called Modulo-2-Sum operations :

   (a) AND (b) OR

   (c) XOR (d) None of these

2. The following logic diagram




   (a) D = A'.(B+C) (b) D = A'.(B+C)'

   (c) D = A' .(B+ AC (d) D = A. (B+C)

3. Shift registers are

   (a) basically a sequential circuit

   (b) a combinational circuit

   (c) permanent memory

   (d) none of these

4. 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

5. A 8-to-1 multiplexer has

(a) 1 control lines (a) 2 control lines

(c) 3 control lines (d) 4 control lines

6. A half-adder can add :

(a) Two binary bit

(b) Two binary number of 4 bit each

(c) Add half of a binary number

(d) None of these

7. The storage element of static device RAM is:

(a) Diode (b) Register

(c) Capacitor (d) Flip-flop

8. T flip-flop is commonly used as:

(a) a digital counter only

(b) a delay switch.

(c) a digital counter and frequency divider

(d) none of these

9. Binary number 1100 in gray code will be represented as

(a) 1010 (b) 1000

(c) 0011 (d) 1001

10. A 3-variable Karnaugh map has

(a) eight cells (b) three cells

(c) sixteen cells (d) four cells