SAINIK SCHOOL GOPALGANJ
SUB: COMPUTER SCIENCE
CLASS - XI
ASSIGNMENT

Lesson: 2 Boolean Algebra

A. (Q1 to Q10) There are four options against each question. Choose the option which you consider the most appropriate as your answer.

1 In logic algebra, variables can assume only two values:either…….or 1.

(a) 2

(b) 0

(c) 3

(d) 4

2 The……. gate is also called any-or-all gate.

(a) OR

(b) AND

(c) NOT

(d) EX-OR

3 A logic gate is an electronic circuit which

(a) makes logic decisions

(b) allows electron flow only in one direction

(c) works on binary algebra

(d) alternates between 0&1 values

4. In positive logic, logic gate 1 corresponds to

(a) positive voltage

(b) higher voltage level

(c) zero voltage level

(d) lower voltage level

5. In negative logic, the logic state 1 corresponds to

(a) negative logic

(b) zero voltage

(c) more negative voltage

(d) lower voltage level

6. The output of a 2-input OR the gate is 0 only when it's

(a) both inputs are 0

(b) either input is 1

(c) both inputs are 1

(d) either input is 0

7. In Boolean algebra , A+ A= ----------

(a)A

(b)1

(c)0

(d)None of these

8. In Boolean algebra , A . A=----------

(a) A2

(b) A

(c)2A

(d)1

9. In Boolean algebra A+ AB =----------

(a) B

(b) A

(c) AB

(d) A+B

10. When an input electrical signal A=10100 is applied to a NOT gate, it's output Signal is

(a) 01011

(b) 10101

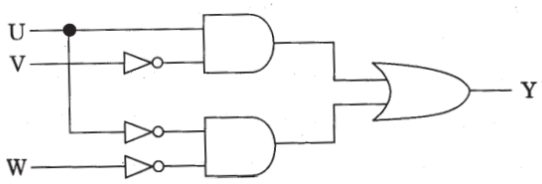
(c) 10100

(d) 00101

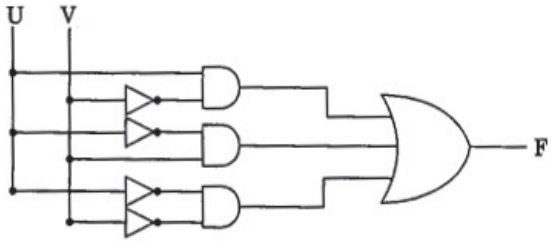
B. <u>Short Answer Questions:</u>

1. Draw a truth table of following Boolean expression
   ab+(ab)'+c

2. Write the equivalent Boolean expression for the following Logic Circuit



3. Draw a truth table of following Boolean expression using NOR gate only.
   (a+b).c'
4. Write the equivalent Boolean expression for the following Logic Circuit



5. Draw the Logical circuit of the following expression with the help of NAND gate only
   x+yz

C. Long Answer Questions:

1. State and verify Demorgan's Laws with truth table.
2. State and verify Demorgan's Laws algebraically.
3. Explain NAND Gate. Write its truth table and logic diagram.
4. Explain NOR Gate. Write its truth table and logic diagram.
5. Explain XOR Gate. Write its truth table and logic diagram.
6. Explain all Basic gates (AND, OR, NOT) using truth table and logic diagram.
