ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

SOLUTION TO WORK SHEET: 51

Subject : PHYSICS

Date : 06. 02. 2021

CLASS : XII

Chapter- Digital circuits

Topic: Binary and decimal number system. OR, AND, NOT, NAND, NOR - gates.

Multiple choice questions : **1 X 15 = 15**

1. A binary number 1000 represents

   (a) 8 (b) 16 (c) 32 (d) 64

   Ans. (a) 8

2. In the binary number system 100 + 1011 is equal to

   (a) 1000 (b) 1011 (c) 1110 (d) 1111

   Ans. (d) 1111

3. If A = 1, B = 0, then in terms of Boolean algebra, A + $\overline{B}$ is equal to

   (a) A (b) B (c) $\overline{A}$ (d) $\overline{A+B}$

   Ans. (a) A

4. The following truth table corresponds to the logic gate

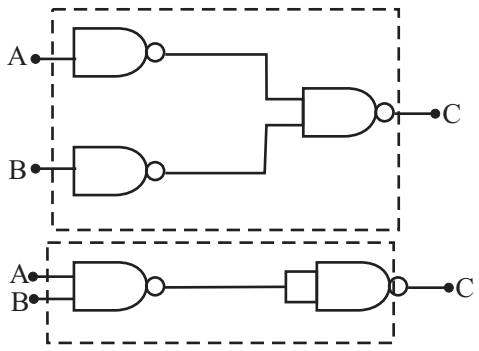
A	B	X
0	0	0
0	1	1
1	0	1
1	1	1

   (a) NAND (b) OR (c) AND (d) XOR

   Ans. (b) OR

5. The combinations of NAND gates are shown in fig. are equivalent to
   (a) an OR gate and an AND gate respectively
   (b) an AND gate and NOT gate respectively
   (c) an AND gate and an OR gate respectively
   (d) an OR gate and a NOT gate respectively

   Ans. (a) an OR gate and an AND gate respectively



6. For the given combination of gates , if the logic states of inputs A, B, C are as follows A= B = C = 0 and A = B = 1. C = 0, then the logic states of output D are

   (s) 0,0 (b) 0,1 (c) 1,0 (d) 1,1

   Ans. (d) 1,1

7. Which of the following logic gates is a universal gate ?

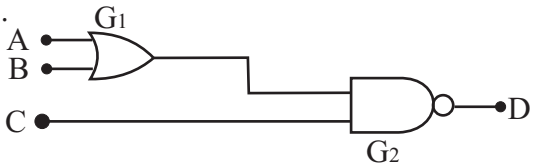
   (a) OR (b) NOT (c) AND (d) NAND

   Ans. (d) NAND

8. The output of OR gate is 1

(a) if both inputs are zero (b) if either or both inputs are 1

(c) only if both inputs are 1 (d) if either input is zero.



Ans. (b) if either or both inputs are 1

9. Two NOT gates are connected at the two inputs of a NAND gate. This combination will behave like

(a) NAND gate (b) AND gate (c) OR gate (d) NOR gate

Ans. (c) OR gate

10. Two inputs of NAND gates are shorted. This gate is equivalent to

(a) OR gate (b) AND gate (c) NOT gate (d) XOR gate

Ans. (c)NOT gate

11. A logic gate is an electronic circuit which

(a) makes logic decisions (b) allows electrons flow only in one direction

(c) works on binary algebra (d) alternates between 0 and 1 values

Ans. (a) makes logic decisions

12. How many NAND gates are used to form AND gate?

(a) 1 (b) 2 (c) 3 (d) 4

Ans. (b) 2

13. NAND gate is

(a) a basic gate (b) not a universal gate (c) a basic universal gate (d) a universal gate

Ans. (d) a universal gate

14. The diagram performs the logic function of

(a) OR gate (b) NOT gate (c) AND gate (d) NAND gate

Ans. (c) AND gate

15. The fundamental Logic gates ase

(a) OR and AND (b) NOT and OR (c) NAND and NOR (d) NAND and NOT.

Ans. (c) NAND and NOR