INDIAN SCHOOL AL WADI AL KABIR

Class: XI	Department: Computer Science	Date of submission: 06/05/2021
Worksheet -3	Topic: Boolean Algebra	Note: for practice

1. Prove the Boolean Laws shown below using Truth Table.

1. $X + X'Y = X + Y$
2. $X + XY = X$
3. $X + YZ = (X + Y)(X + Z)$

2. Write a short note on Boolean Algebra.

3. State and prove absorption law and involution law.

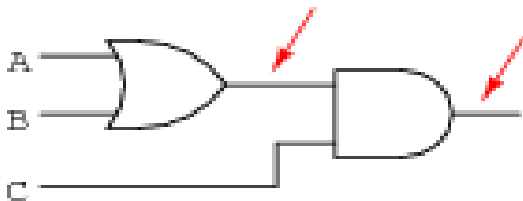4. State and prove De Morgan's Theorems.
 i. Use truth table   ii. Use algebraic method

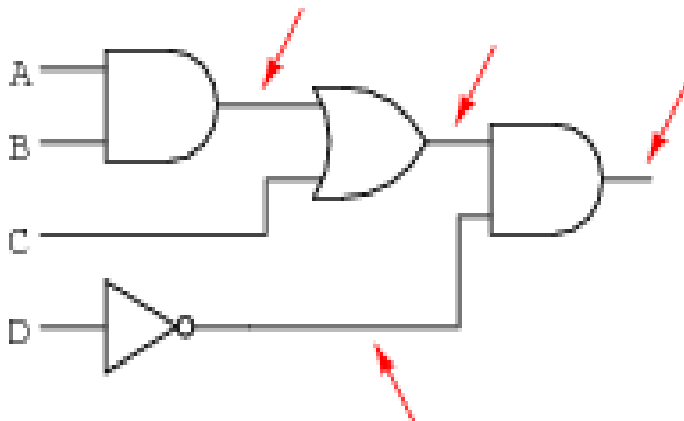5. State and prove complementarity law .Use algebraic method to prove it .

6.State and prove indempotence law. Use algebraic method to prove it.

7. Convert the following logic gate circuit into a Boolean expression.(Write the Boolean expression for the given circuits)
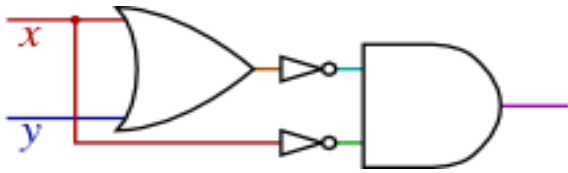
1.

2.

3.

8.

1. Draw Logic circuit for y = A.C + B.C' + A'.B.C

2. Draw Boolean Logical Circuit from the given Boolean expression:

   Q = A.B + B.C.(B+C)

3. Draw Logic circuit for y = A.C + B.C' + A'.B.C

4. Draw a circuit diagram corresponding to the following Boolean Expression:
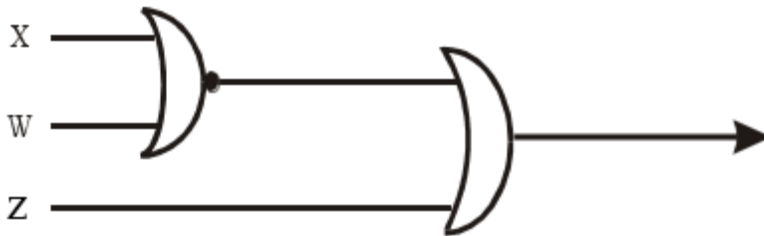
   a) y = A+C .B+C' . A'+B+C

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

   c) F = A.B'+C'.D

   d) F = (U.V')+(U'.W')

   e) F = A.B + A.C' + B'.A'.C

   f) F = (X+Y).(X'+Z').(Y+Z)

9. Obtain logic expression for the following logic circuit:

10.

    (a)   Verify the following using Boolean Laws :
        A'+ B' .C=A' .B' .C'+ A' .B.C'+ A' .B.C + A' .B' .C+ A.B' .C

    (b)   Write the Boolean Expression for the result of the Logic Circuit as shown below :