INDIAN SCHOOL AL WADI AL KABIR

Class: XI	Department: Computer Science	Date of submission: 12-05-2023
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+ Y Z = (X + Y) (X + Z)

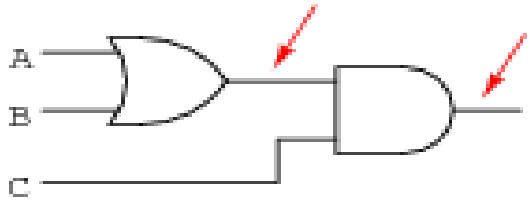
2. State and prove absorption law and involution law.

3. State and prove De Morgan's Theorems using truth table

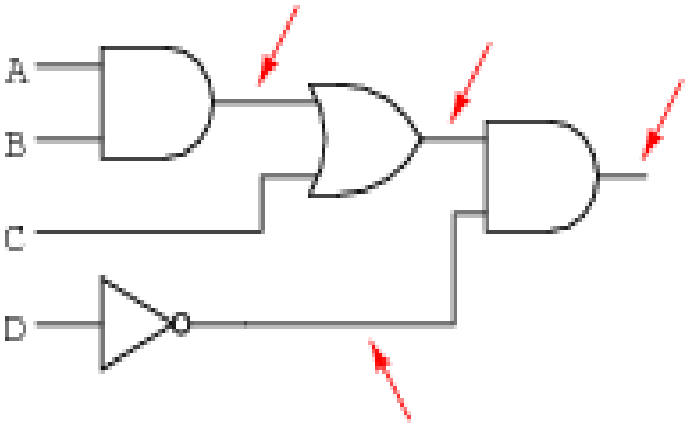
4. State and prove indempotence law.

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

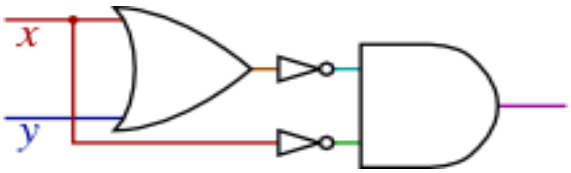
1.



2.



3.



6.

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)’

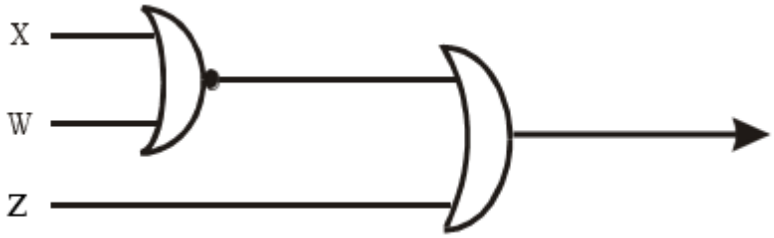
   c) F = A.B’+C’.D

   d) F = (U.V’)+(U’.W’)

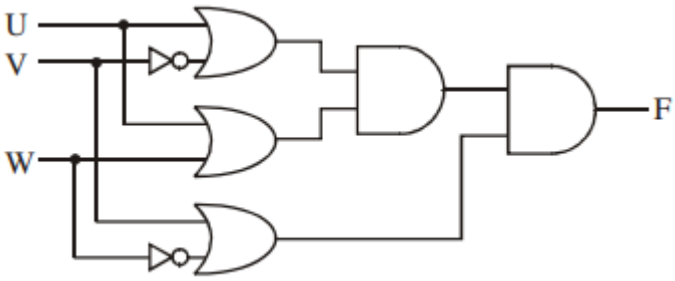
   e) F = A.B + A.C’ + B’.A’.C

   f) F = (X+Y).(X’+Z’).(Y+Z)

7. Obtain logic expression for the following logic circuit:



8. Find the result of the following logic circuit



9.What is principle duality?

10. Prepare a truth table for the given logic expressions:
    i) X’ Y Z’ + X Y’
    ii) X’+Y+Z’ . X+Y’