Boolean Algebra Notes – 1

Binary Valued Quantities: These quantities are those which can have only two possible values i.e., 1 and 0 or TRUE and FALSE.

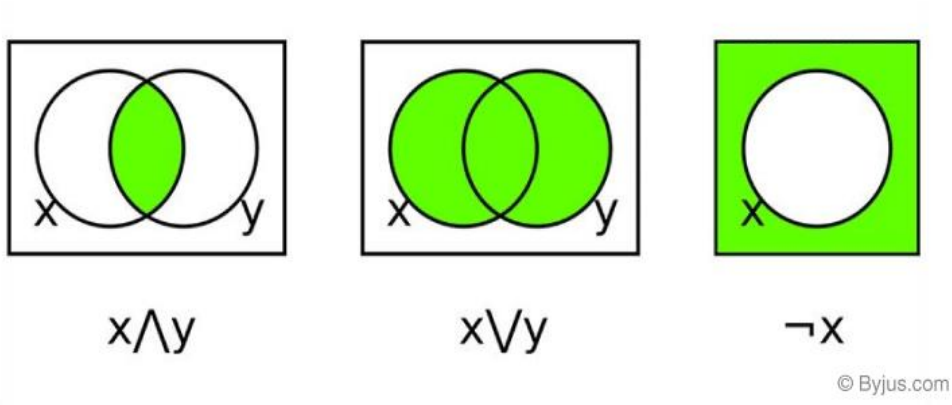
In Boolean algebra we form Logical Statements whose result can be determined to either TRUE or FALSE, these results are called TRUTH VALUES.

Boolean Variable: A Boolean variable is defined as a variable or a symbol defined as a variable or a symbol, generally an alphabet that represents the logical quantities such as 0 or 1.

Boolean Operators: Boolean Operators are simple words (AND, OR, NOT or AND NOT) used as conjunctions to combine or exclude keywords in a search, resulting in more focused and productive results.

Some operators are:

i. Conjunction / AND
ii. Disjunction / OR
iii. Negation / NOT



Boolean Literal: A literal may be a variable or a complement of a variable.

Truth Tables: A truth table is a mathematical table used in logic to compute functional values of logical expressions. Its columns are statements and rows are possible scenarios.

Try this example: “Ram prefer rice and roti for the meal”.

Questions: Prepare Truth tables for the following

1. $X^cY^c + X^cY$
2. Verify: $(X+Y)^c = X^cY^c$

K – Maps Example: F(A,B,C,D) = Sigma(0,2,3,4,5,8,10,11,12,13) using 4 variable k map.

First lookout for Octets then Quads then Pairs. Don’t use all redundant ones in a grouping.

Take the quad columns and rows drop the variables which are changing and takeout the variables which are changing.

F(P,Q,R,S) = Pi(0,1,2,8,9,,11,13,15) -→ POS