Circuit diagram and operation of OR gate:
The circuit diagram of an OR gate is as shown in figure (1). The circuit has two diodes (D_1 and D_2), a load resistor R_L (output is obtained across R_L) and a light emitting diode (LED).
Here, A and B are inputs and Y is output.

Figure (1): *Circuit diagram of OR gate*

Operation:
1. When both the inputs are low (0), both the diodes are in reverse biasing and hence no output is obtained across the load.
2. When any of the inputs is given with high (1), the respective diode becomes forward biased and behaves as ideally short circuited hence output will appear across the load.

Thus, in an OR gate, the output is high when any of the inputs is high and the output is low if both the inputs are low.
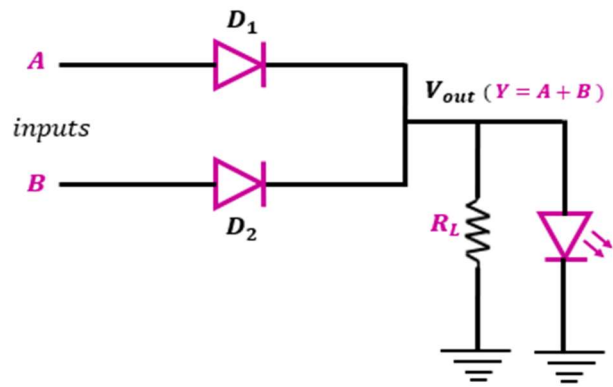

AND gate:
The logic gate which gives high output only if both the inputs are high is called as AND gate.

Symbol:
An AND can have two or more inputs and a single output. However, in most of the cases, it has two inputs.
The symbol of AND gate is:

Fig. (c): **Symbol** of OR gate

Boolean Algebra:
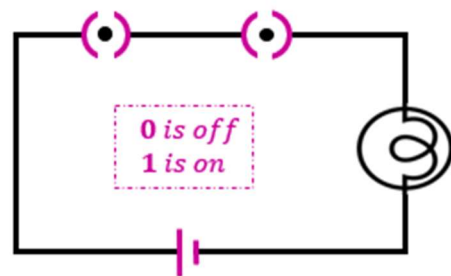If A and B are two inputs of AND gate, then the Output (Y) is given by:

$$Y = A \times B$$

Truth table:

Inputs		Output
A	B	$Y = A \times B$
0	0	0
0	1	0
1	0	0
1	1	1

Fig. (d):*Truth table* of AND gate

Circuit Representation:

0 is off
1 is on

Circuit Representation of AND gate