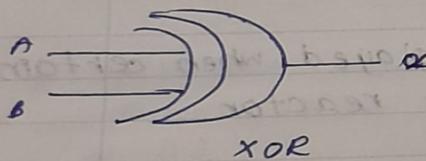


Tutorial 02 :-

- Q:- 01) Imagine you have two inputs A and B, and you want to design a logic circuit that outputs 0 if and only if;
- A is a 0 and
  - B is a 1 or
  - A is a 1 and B is a 0.

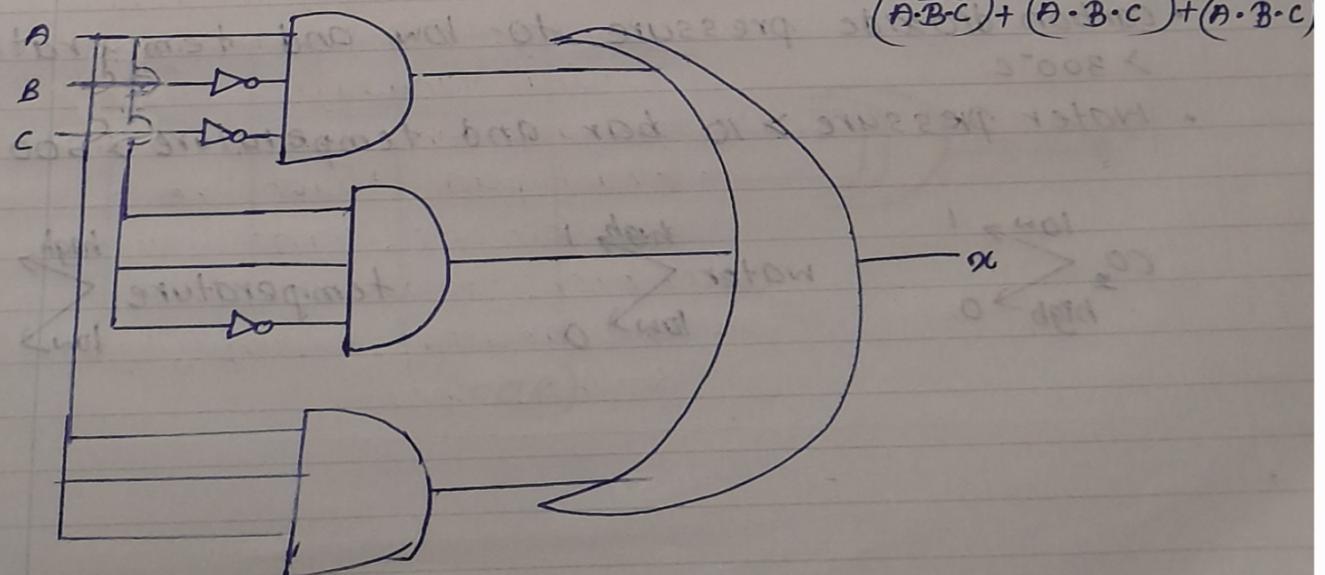
which logic gates would you use to create this circuit.

$$(A' \cdot B) + (A \cdot B')$$



A	B	$A'$	$B'$	$A' \cdot B$	$A \cdot B'$	$(A' \cdot B) + (A \cdot B')$
0	0	1	1	0	0	0
0	1	1	0	0	1	1
1	0	0	1	0	1	1
1	1	0	0	0	0	0

- Q:- 02) Consider the logic circuit shown in the figure, in which A, B and C are the inputs and X is the output.



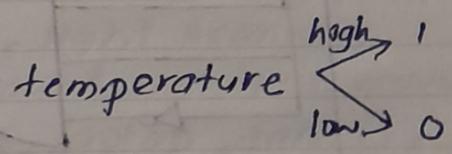
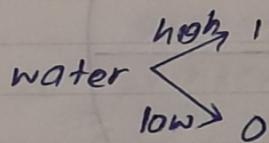
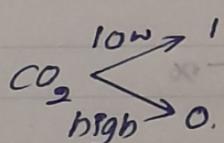
$A$	$B$	$C$	$B$	$\bar{C}$	$A \cdot B \cdot \bar{C}$	$A \cdot \bar{B} \cdot C$	$\bar{A} \cdot B \cdot C$	$\alpha$
0	0	0	1	1	0	0	0	0
0	0	1	1	0	0	0	0	0
0	1	0	0	1	0	0	0	0
0	1	1	0	0	0	0	0	0
1	0	0	1	1	1	0	0	1
1	0	1	1	0	0	0	0	0
1	1	0	0	1	0	1	0	1
1	1	1	0	0	0	0	1	1

(Q-03) Draw the truth table and logic circuit.

Description :- An alert will be displayed when certain conditions occur in a nuclear reactor.

Condition :- The output  $\alpha$  of a logic circuit that drives the display of the alert must have a value of 1 when either (or) one of the conditions is met.

- carbon dioxide pressure to low and temperature  $> 300^{\circ}\text{C}$ .
- water pressure  $> 10$  bar and temperature  $> 300^{\circ}\text{C}$ .



A	B	C	(A · B)	(C · B)	(A · B) + (C · B)
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	0
0	1	1	0	1	1
1	0	0	0	0	0
1	0	1	0	0	0
1	1	0	0	0	1
1	1	1	1	1	1