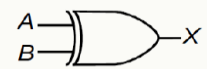

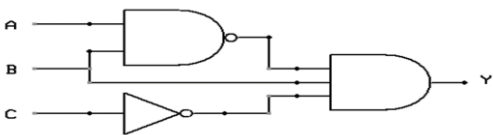
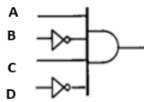


Question 1

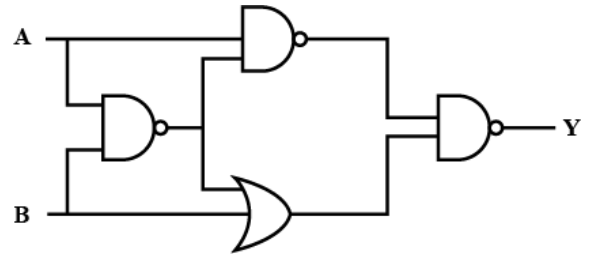
Complete the following:

1	For multi-input XNOR gate, the output is “1” when the total number of ones in the input signals is
2	The decimal value of the hexadecimal number (AA) is
3	For the gate shown, the output of the gate if B=0, the output X is 
4	If both inputs of a NAND gate are connected to a single line A, the output will be
5	For the Boolean function $F=A'+B.C+B$, the dual (F_D) is
6	The Boolean function $F(A, B, C) = \sum m(0, 2, 5)$ can be represented also by maxterms as
7	Convert the hexadecimal number A5 to decimal
8	 identifies the symbol of gate
9	The simplification of the Boolean expression $(\overline{A}B\overline{C}) + (\overline{A}B\overline{C})$ is
10	The complement of the function, $F = wx + yz$ is

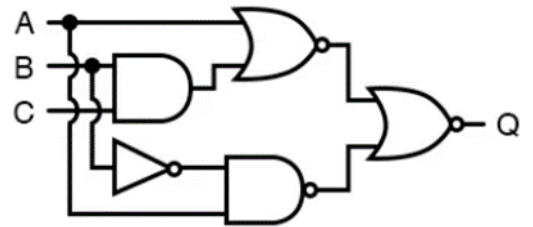
11	The maxterm M_6 of a Boolean function $F(X, Y, Z)$ is.....
12	Find the Boolean expression X for the shown Figure: 
13	The simplification of the Boolean function $F = (x + y)(x + y')$ is
14	The simplification of the Boolean Function $F = y(y' + x) + y$ is
15	Using K-Map , the function $F(X, Y, Z) = \prod(1, 3, 7)$ can be expressed as
16	The XNOR gate output is high=1 if the two inputs are
17	In a 4-variable function $F(A, B, C, D)$, how many minterms are possible?
18	For a Boolean function with two variables A and B , which minterm corresponds to the combination $A = 1, B = 1$?
19	The output of the AND the shown gate is logic-1 if the binary input $ABCD$ is 
20	Simplify the Boolean function using a 3-variable K-map: $F(x, y, z) = \sum(0, 2, 4, 5, 6)$
21	Using Boolean Algebra simplify the following expression: $F = (x + y)' (x' + y')$
22	Applying De Morgan's Law to the expression: $F = \overline{((AB' + C)(A' + B'D))}$

Question 2:

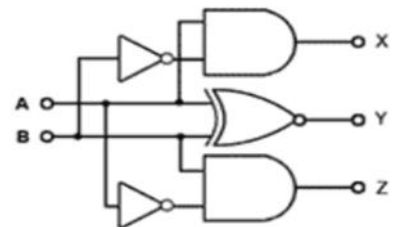
1 . Write a **Boolean expression** for the output **y** of the circuit described by the shown logic diagram.



2. Write a **Boolean expression** for the output **y** of the circuit described by the shown logic diagram.



3. Write a **Boolean expression** for the output **y** of the circuit described by the shown logic diagram.



4 .From the following truth table, write the Boolean equation of **f1** as a **sum of minterms** and **f2** as a **product of maxterms**.

A	B	C	F1	F2
0	0	0	1	1
0	0	1	0	0
0	1	0	1	1
0	1	1	1	0
1	0	0	1	1
1	0	1	0	0
1	1	0	1	0
1	1	1	0	1

Question 3

1. Complete the following

• NAND gate

Logic Symbol	Truth table
	$\begin{array}{cc c} x & y & F \end{array}$
Logic expression	

• NOR gate

Logic Symbol	Truth table
	$\begin{array}{cc c} x & y & F \end{array}$
Logic expression	

• AND gate

Logic Symbol	Truth table
	$\begin{array}{cc c} x & y & F \end{array}$
Logic expression	

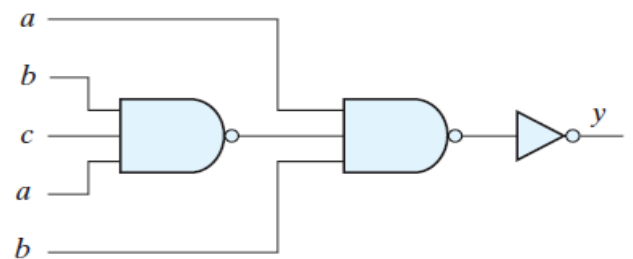
XOR gate

Logic Symbol	Truth table
	$\begin{array}{cc c} x & y & F \end{array}$
Logic expression	

2. From the following truth table, write the Boolean equation of **f1** as a **sum of minterms** and **f2** as a **product of maxterms**.

A	B	C	F1	F2
0	0	0	1	1
0	0	1	0	0
0	1	0	1	1
0	1	1	1	0
1	0	0	1	1
1	0	1	0	0
1	1	0	1	0
1	1	1	0	1

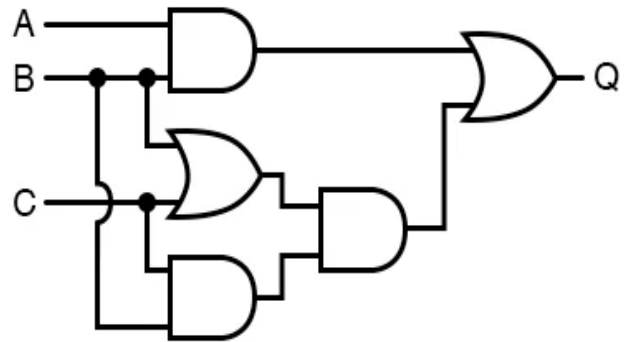
3. Write a **Boolean expression** for the output **y** of the circuit described by the shown logic diagram. Then **simplify** it



4. Write **expression** for the output **Q** then list the **Truth Table** of the output **Q**

Q=

A	B	C	Q



5. Simplify the following Boolean functions, using three-variable K maps

a. $F(A, B, C) = \sum m(0, 2, 6, 7)$

b. $F(A, B, C) = \sum m(0, 1, 2, 3, 7)$

Question 4:

Complete the following:	
1	The complement of the function, $F = wx + yz$ is.....
2	The simplification of the Boolean function $F = xyz + x'y + xyz'$ is
3	Convert $(AB)_{16}$ into its decimal equivalent.....
4	For multi-input XNOR gate, the output is “1” when the total number of ones in the input signals is
5	Find the Boolean expression X for the shown Figure: <div data-bbox="938 651 1481 763" data-label="Diagram"> </div>
6	Find the dual function of $f = ABC + (\bar{A} + B + D)(AB\bar{D} + \bar{B})$
7	The simplification of the Boolean function $F = (x + y)(x + y')$ is
8	The Boolean function $F(A, B, C) = \sum m(0, 2, 5, 6, 7)$ can be represented also by maxterms as.....
9	<div data-bbox="188 1106 363 1182" data-label="Diagram"> </div> identifies the symbol of gate a) NAND b) NOR c) XNOR d) XOR