National University of Co mputer and Emerging Sciences, Lahore Campus

	Course:	Digital Logic Design Lab	Course Code:	EL227
	Program:	BS (Computer Science)	Semester:	Spring 2018
	Duration:	25 mins	Total Marks:	15
	Date	05-03-18	Weight	5%
	Section:	B-2	Pages:	2

Question # 1

$$F = xy + x'y' + y'z \qquad Eq: (1)$$

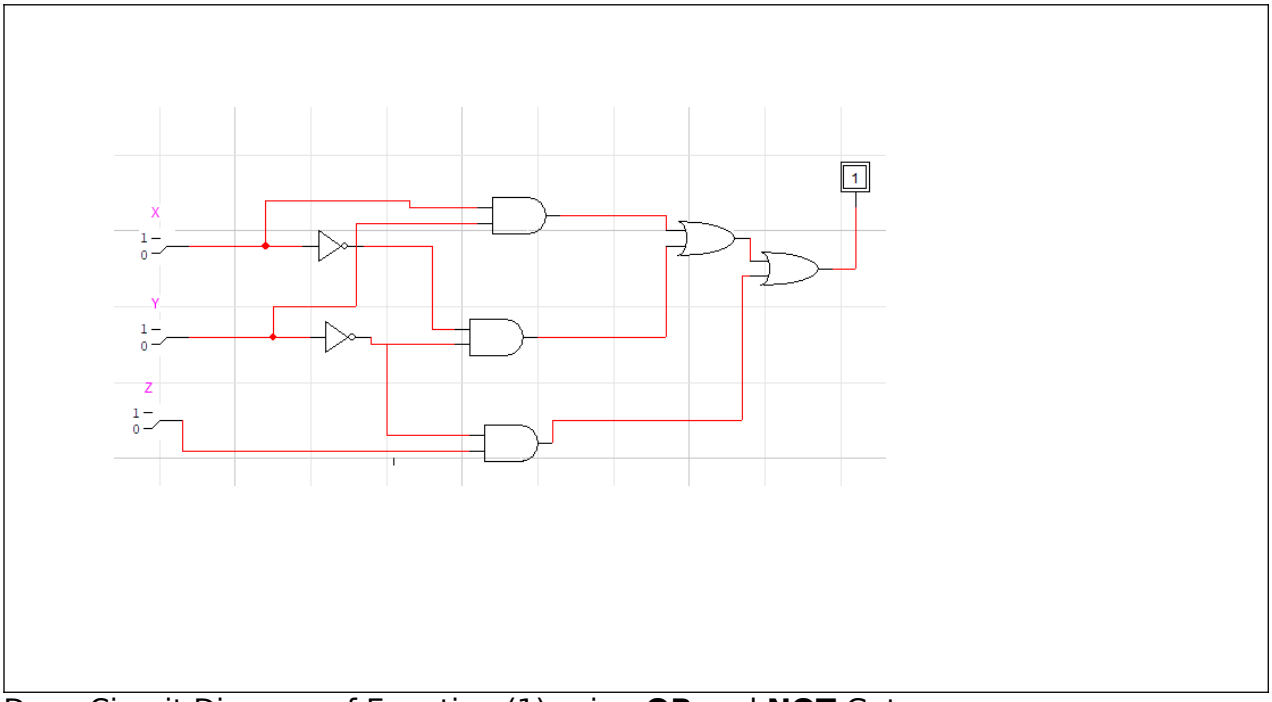
a. Fill in the truth table of function given above.

Inputs			Output
X	**y**	**z**	**F**
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

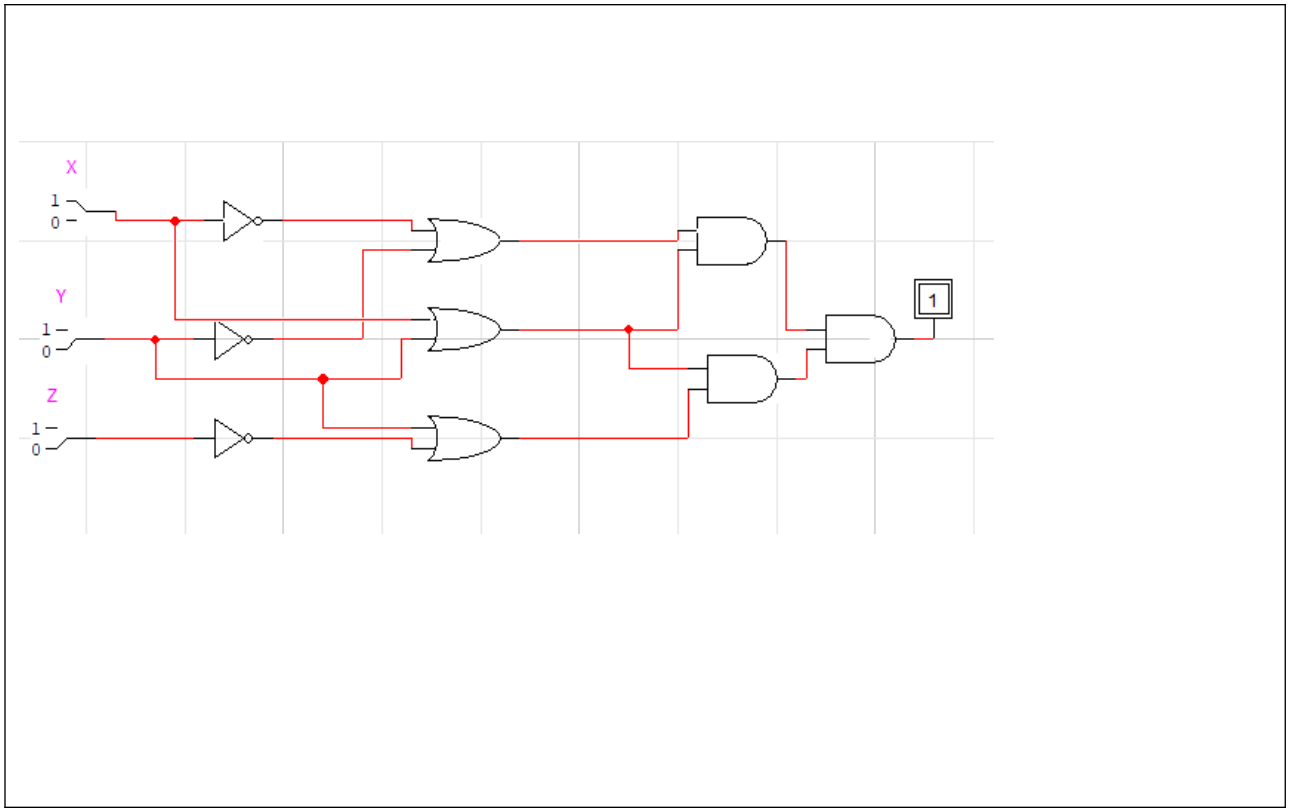
b. Write Equation of Function in POS form (algebraic expression):

M (A, B, C) = _____(x' + y +z)
(x+y')_____

c. Draw Circuit Diagram of Equation (1)
Note: Use 2-input AND Gates



d. Draw Circuit Diagram of Equation (1) using **OR** and **NOT** Gates.
Note: Use 2-input OR Gates only



e. Apply Boolean Simplification Techniques to equation derived in Part (b) and show that the simplified equation is same as Equation (1).

$$(x' + y + z)(x + y')$$

$$¿ (x\,x' + x'\,y' + xy + y\,y' + xz + zy')$$

$$¿ (0 + x'\,y' + xy + 0 + y'\,z)$$

$$¿\, xy + x'\,y' + y'\,z$$