CIS 351 Sample CL2 Problem

1 September 2025

CL2: Boolean Expressions

(a) Complete the truth table below so that it describes the output of the Boolean expression.

x	y	z	$(\overline{x}\overline{y})(\overline{z})$
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

(b) Complete the truth table below so that it describes the output of the Boolean expression.

x	y	z	$xy + \overline{z}$
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

(c) Write a Boolean expression in sum-of-product form that describes the following truth table:

x	y	z	
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

CIS 351 Sample CL2 Problem Solutions

Mon 19th Jan, 2026

CL2: Boolean Expressions

(a) Complete the truth table below so that it describes the output of the Boolean expression.

x	y	z	$(\overline{xy})(\overline{z})$
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	0

(b) Complete the truth table below so that it describes the output of the Boolean expression.

x	y	z	$xy + \bar{z}$
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

(c) Write a Boolean expression in sum-of-product form that describes the following truth table:

x	y	z		
0	0	0	0	
0	0	1	1	
0	1	0	1	
0	1	1	0	$\bar{x}\bar{y}z + \bar{x}y\bar{z} + xy\bar{z} + xyz$
1	0	0	0	
1	0	1	0	
1	1	0	1	
1	1	1	1	

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