% Correct

Quiz 2 (2/6/2020)

98%

1. **Which is a technical term we have used in EECS 140?**
   A) Truth-or-Dare (B) Truth Table C) Lie Detector D) Truth Serum E) None of A-D

75%

2. **Which is an equivalent expression for $(a \cdot \bar{b} \cdot c + \bar{a} \cdot \bar{b} \cdot c)$?**
   A) $a \cdot \bar{b} \cdot c$ B) $\bar{a} \cdot \bar{b} \cdot c$ C) $b + \bar{c}$ (D) $\bar{b} \cdot c$ E) None of A-D

31%

3. **Which is an expression for minterm m_3 of a function f(x,y,z)?**
   A) $\bar{x} \cdot y \cdot \bar{z}$ B) $y \cdot z$ C) $x \cdot \bar{y} \cdot \bar{z}$ D) $x + y + z$ (E) None of A-D

63%

4. **A function is implemented as $g(a,b,c) = \bar{a} \cdot b \cdot \bar{c} + a \cdot \bar{b}$. What is the *cost* of this implementation?**
   A) 7 (B) 10 C) 13 D) 16 E) None of A-D

2. original $a \cdot \bar{b} \cdot c + \bar{a} \cdot \bar{b} \cdot c$

Distributive $(a + \bar{a}) \cdot \bar{b} \cdot c$

$(1) \cdot \bar{b} \cdot c$

$\bar{b} \cdot c$

3.

Row	x	y	z	f(x,y,z)
0	0	0	0	
1	0	0	1	
2	0	1	0	
→ 3	0	1	1	

Minterm m_3 is associated with row 3 of the truth table.

$\bar{x} \cdot y \cdot z = m_3$.

4. $g(a,b,c) = \underbrace{\bar{a} \cdot b \cdot \bar{c}}_{\text{3-input AND, cost} = 3+1 = 4} + \underbrace{a \cdot \bar{b}}_{\text{2-input AND, cost} = 2+1 = 3}$

2-input OR, cost = 2+1 = 3

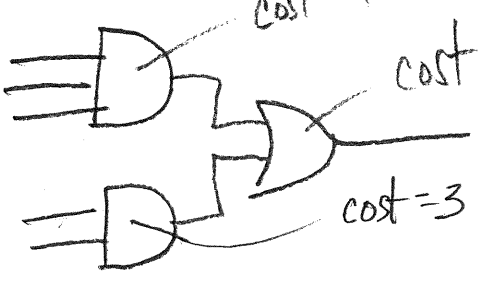
Total cost

4+3+3 = 10

NOT gates that invert input variables have 0 cost.

OR

You can sketch out the logic diagram:



Total: 10