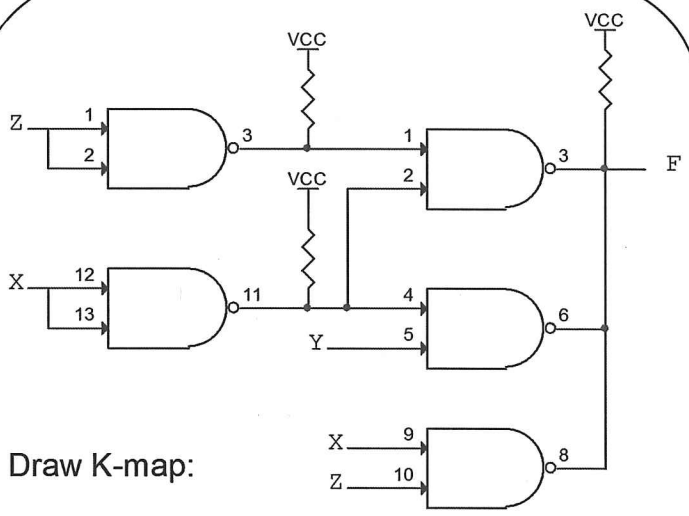
Lab Quiz 6

Closed Book and Notes – No Calculators Allowed

1. The **OFF-SET** of the function realized by this circuit is:
   (A) $\prod_{X,Y,Z}(0,2,4)$
   (B) $\prod_{X,Y,Z}(1,4,6)$
   (C) $\prod_{X,Y,Z}(0,2,3,5,7)$
   (D) $\prod_{X,Y,Z}(1,3,5,6,7)$
   (E) none of the above

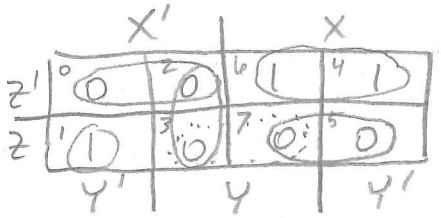
2. Expressed in minimum **sum-of-products** form, the function realized by this circuit is:
   (A) $X \cdot Z' + X' \cdot Y' \cdot Z$
   (B) $X' \cdot Z' + Y' \cdot Z'$
   (C) $X' \cdot Y + X' \cdot Z' + X \cdot Z$
   (D) $Z + X \cdot Y$
   (E) none of the above

3. Expressed in minimum **product-of-sums** form, the function realized by this circuit is:
   (A) $(X+Z) \cdot (Y+Z)$
   (B) $(X+Y') \cdot (X+Z) \cdot (X'+Z')$
   (C) $Z' \cdot (X'+Y')$
   (D) $(X'+Z') \cdot (Y'+Z')$
   (E) none of the above



Draw K-map:

$F' = X'Z' + X'Y + XZ$



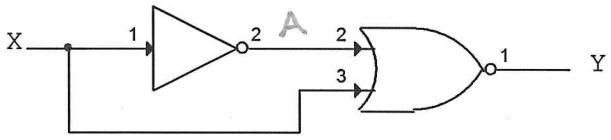
$\pi_{X,Y,Z}(0,2,3,5,7)$

$F = XZ' + X'Y'Z$

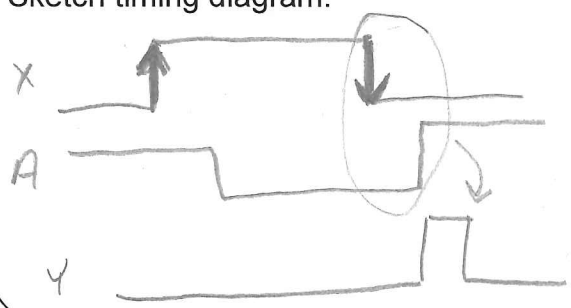
$F = (X+Z) \cdot (X+Y') \cdot (X'+Z')$

4. The **output Y** of the circuit shown exhibits the **following type of hazard** when its input, X, transitions from **low-to-high**:
   (A) a static-zero hazard
   (B) a static-one hazard
   (C) a dynamic hazard
   (D) a minterm hazard
   (E) none of the above

5. The **output Y** of the circuit shown exhibits the **following type of hazard** when its input, X, transitions from **high-to-low**:
   (A) a static-zero hazard
   (B) a static-one hazard
   (C) a dynamic hazard
   (D) a minterm hazard
   (E) none of the above



Sketch timing diagram:



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