Cpr E 281 LAB2
ELECTRICAL AND COMPUTER ENGINEERING
IOWA STATE UNIVERSITY

Lab 2 Answer Sheet

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Date: 1/31/22

PRELAB:

Q1. Read section 3.0 and fill in the truth table below for *lab2step1*. Then use it to construct the SOP expression and draw the resulting circuit using logic gates.

A	B	C	F
0	0	0	0
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	0

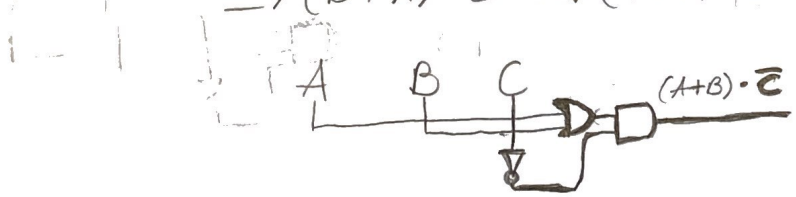
SOP Logic Expression: $\bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C}$

$\Rightarrow B\bar{C}(A+\bar{A}) + A\bar{B}\bar{C} \Rightarrow B\bar{C}(1) + A\bar{B}\bar{C}$

$\Rightarrow B\bar{C} + A\bar{B}\bar{C} \Rightarrow (B + (\bar{B}\cdot A)\cdot\bar{C} = (B+A)\cdot\bar{C}$

$\Rightarrow (B+A)\cdot\bar{C} \Rightarrow (A+B)\cdot\bar{C}$

Circuit Diagram:



TA Initials: _____

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Q2. Read section 4.0 and fill in the truth table below for *lab2step2*. Then use it to construct the SOP expression and draw the resulting circuit using logic gates.

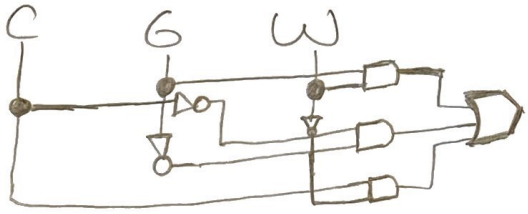
Cabbage	Goat	Wolf	Alarm
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

SOP Logic Expression: $\overline{C}\overline{G}\overline{W} + \overline{C}\overline{G}W + \overline{C}GW + C\overline{G}\overline{W} + CG\overline{W} + CGW$

$\Rightarrow \overline{C}\overline{G}(\overline{W}+W) + GW(\overline{C}+C) + C\overline{W}(\overline{G}+G)$

$\Rightarrow \overline{C}\overline{G} + GW + C\overline{W}$

Circuit Diagram:



TA Initials: _____

LAB:

3.0 Hardware results demonstrate a correct circuit. TA Initials: M.K-S

4.0 Hardware results demonstrate a correct circuit. TA Initials: M.K-S