Nicholas Curl_____

CMPE-110 Introduction to Computer Engineering

Homework 2

*Due September 25, 2018 to **Dropbox** in mycourses.rit.edu.*

1. Answer the following questions based on the truth table shown below.
   a) (20%) Write a Boolean expression and the corresponding logic schematic diagram that describes the output Z with input signals A, B, and C.
   b) (20%) Describe which 74XX SSI chips and how many logic gates in each chip you will use to implement Z. (Implementation that is minimized with a 1-sentence concise and correct justification will receive a 10% bonus.)

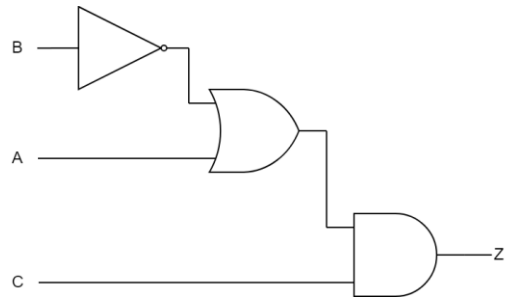
A	B	C	Z
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1

a).

	$\overline{A}\overline{B}$	$\overline{A}B$	AB	$A\overline{B}$
C	1	0	1	1
$\overline{C}$	0	0	0	0

$C\overline{B}+CA=Z$

$Z=C(\overline{B}+A)$



b). Two 7400 utilizing 6 gates to utilize the same chip type to help reduce overall cost.

2. (30%) Convert 323.375_{10} to a) Binary and b) Hexadecimal.

a). 10100011.0110

b). 143.6

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3. (30%) Find the representation of -44_{10} under the 2's Complement system. Use the minimum number of bits to represent this value to obtain full credit.

10100