Lab Quiz 1

Closed Book and Notes – TI 30II XS Calculator Allowed

1. A single payment of \$2.41 (tax included) will get you a plain cup of coffee at Stealbucks. Expressed as an **unsigned binary** (base 2) number, the **number of pennies** your piggy bank would have to part with to purchase a small cup o' joe at Stealbucks is:
   (A) $1000\ 1111_2$
   (B) $1111\ 0001_2$
   (C) $010\ 100\ 001_2$
   (D) $0010\ 0100\ 0001_2$
   (E) none of the above

convert to base 16 first to simplify

$16\overline{)241}$ R 1 → $16\overline{)15}$ R 0 → $(F1)_{16}$ → $(1111\ 0001)_2$

2. For only \$0.50 (tax included) you can buy a "reasonably good" cup of coffee from the Nice Guys at the local Eta Kappa Nu Lounge. But just to make it more interesting, the Nice Guys have decided to post their prices as hexadecimal numbers to make everything look like an *even better* buy than it already is! So expressed as an **unsigned hexadecimal** (base 16) number, the **number of pennies** a cup of Eta Kappa Nu coffee costs is:
   (A) 16_{16}
   (B) 23_{16}
   (C) 32_{16}
   (D) 50_{16}
   (E) none of the above

$16\overline{)50}$ R 2 → $16\overline{)3}$ R 3 → $(32)_{16}$

3. The expression **(X + Y)′ = X′·Y′** is an example of:
   (A) Law of Complements
   (B) Duality
   (C) Distributivity
   (D) DeMorgan's Law
   (E) none of the above

Ref. p. 7 of Lecture Summary Notes

4. The **dual** of the expression **X·Y·Z** is:
   (A) **X′·Y′·Z′**
   (B) **X·Y + Y·Z**
   (C) **X + Y + Z**
   (D) **X′ + Y′ + Z′**
   (E) none of the above

5. The **complement** of the expression **X·Y·Z** is:
   (A) **X′·Y′·Z′**
   (B) **X·Y + Y·Z**
   (C) **X + Y + Z**
   (D) **X′ + Y′ + Z′**
   (E) none of the above

X·Y·Z

X	Y	Z	F	F^D	F′
0	0	0	0	0	1
0	0	1	0	1	1
0	1	0	0	1	1
0	1	1	0	1	1
1	0	0	0	1	1
1	0	1	0	1	1
1	1	0	0	1	1
1	1	1	1	1	0

$F^D = X' \cdot Y' \cdot Z'$

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

Signature: _____ **E-mail:** _____ **@purdue.edu**