EET/CPE 1140 - Homework # 2

Chapter 2

3. How many coulombs of charge do 50×10^{31} electrons possess?

$Q = \frac{number\ of\ electrons}{6.25*10^{18}}$ = (number of electrons) *1.6 * 10^{-19}

$$Q = 50 * 10^{31} * 1.6 * 10^{-19} = 8 * 10^{13} coulombs$$

I have found that (number of electrons)*(1.6*10^{-19}) has the same output might be a better equation because of lesser memorization.

17. How many coulombs pass a point in 0.1 s when the current is 1.5 A?

$I = \frac{Q}{T}$

I (Amperes || A)	current
Q (coulombs || C)	charge
T (Seconds || S)	time

Algebra rearrangement for coulombs of charge by multiplying both sides by T.

I*T=Q

1.5*10^{-1}

0.15 coulombs

21. Determine the resistance values and tolerance for the following 4-band resistors:
    a. red, violet, orange, gold
    b. brown, gray, red, silver
    c. brown, red, brown, gold
    d. orange, blue, red, silver

0	Black
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Purple
8	Grey
9	White

I have associated the wavelengths of the visible light spectrum to the color codes of the resistor ascending frequency of light is a higher number. Exemptions are at the beginning and the end. Black and brown for no light or all pigments. The high-end grey then white. White is all visible wavelengths.

a)$27*10^3$ +/- 5%

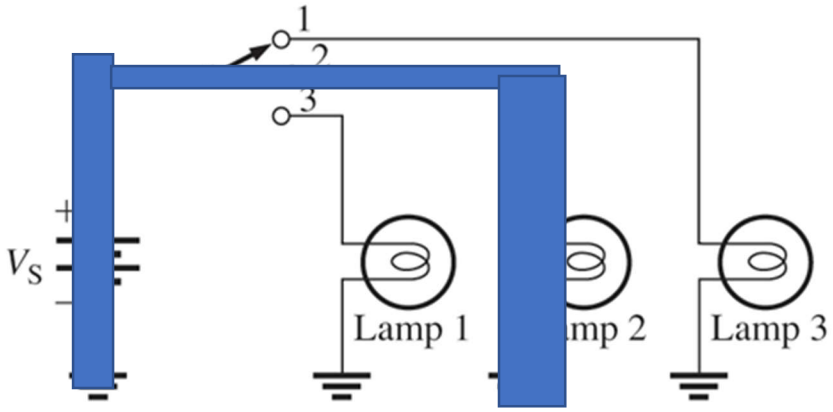
b)$18*10^2$ +/- 10%

c)120 +/-5%

d)$36*10^2$ +/-10%

33. Trace the current path in **Figure 2–68(a)** with the switch in position 2.

Figure 2–68



(a)