DUE 9/01/21

Homework
EET 110
Chapter 2

Thomas Crow
3, 4, 6, 8, 13, 21, 22, 23, 41

3) How many C in 50×10^{31} electrons

$C = 6.242 \times 10^{18}$

$$X = \frac{50 \times 10^{31}}{6.242 \times 10^{18}},$$

$X = 8.01 \times 10^{13}$

or

80×10^{12} C

4) $C = 6.242 \times 10^{18}$ Micro = $\mu = 10^{-6}$

Charge of an electron
1.6×10^{-19}

$$\frac{80 * 10^{-6}}{1.6 \times 10^{-19}}$$

$= 50 \times 10^{13}$

$= 5 \times 10^{14}$

#6

500 J
100 C

$V = ?$

$V = \frac{W}{Q}$

$V = \frac{500}{100} = \boxed{5V}$

#8

12V
2.5C

$V = \frac{W}{Q} \Rightarrow W = VQ$

$W = 12 * 2.5 = \boxed{30J}$

#13

$I = 100mA$

By definition, a current source produces a constant current with varying load.

So if $R = 500\Omega$, $\boxed{I = 100mA}$

21)

a) Red, violet, orange, gold = 27×10^3

= $27k\Omega \pm 5\%$

b) Brown, gray, red, silver

18×10^2

$1.8k\Omega \pm 10\%$

c) Brown, red, brown, gold

$12 \times 10^1 = 120\Omega \pm 5\%$

D) orange, blue, red, silver

$36 \times 10^2 = 3.6k\Omega \pm 10\%$

22)

A) $25,650 = 25.65\ k\Omega$

$28,350 = 28.35\ k\Omega$

B) $1620 = 1.62\ k\Omega$

$1980 = 1.98\ k\Omega$

C) $114 = 114$

$126 = 126$

D) $3240 = 3.24\ k\Omega$

$3960 = 3.96\ k\Omega$

23) 4-band 5% Tolerance

a) 330Ω Orange, Orange, Brown, Gold

b) 2.2kΩ Red, Red, Red, Gold

c) 56kΩ Green, Blue, Orange, Gold

d) 100kΩ Brown, Black, Yellow, Gold

e) 39kΩ Orange, White, Orange, Gold

39)