1. What is the value of a capacitor with 250 volts applied having 750 pC of charge?

$Q = CV$

$\therefore\ C = \frac{Q}{V} = \frac{750\,pC}{250\,V} = \boxed{3.0\,pF}$

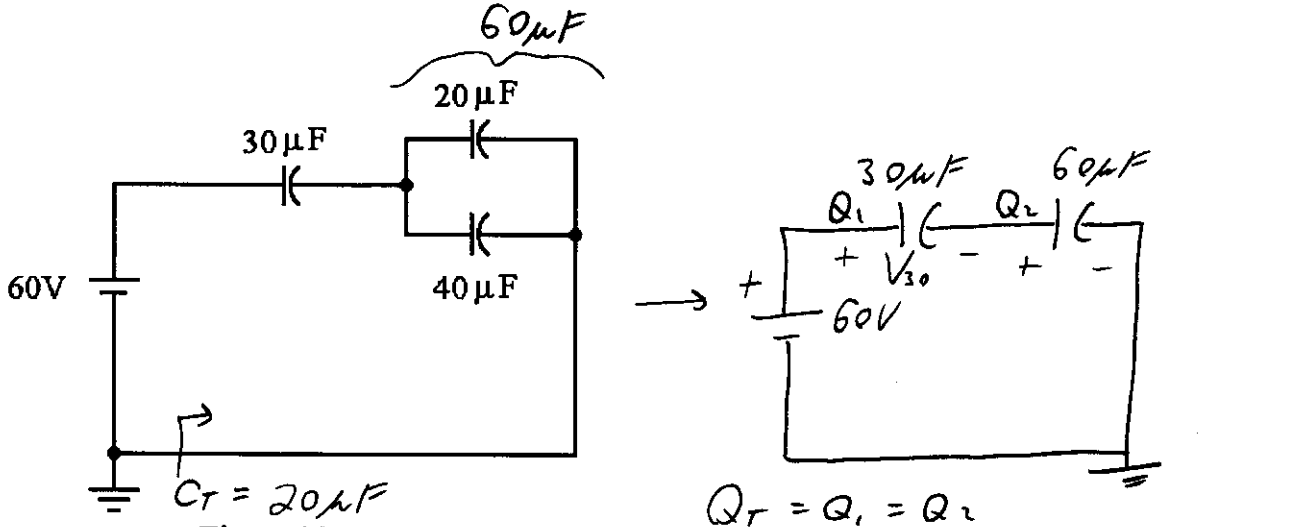

Figure 10.6

$Q_T = Q_1 = Q_2$

$= (20\,\mu F)(60V) = 1.2\,mC$

2. See Figure 10.6. What is the voltage across the 30 μF capacitor?

$V_{30} = \frac{Q_{30}}{30\,\mu F} = \frac{1.2\,mC}{30\,\mu F} = \boxed{40V}$

Problems 3 – 5 on the back →

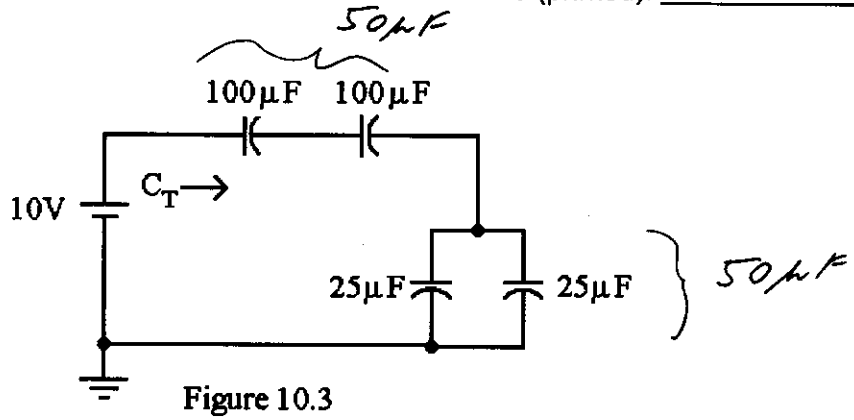

Figure 10.3

3. See Figure 10.3. What is the total capacitance C_T?
   a. 12.5 μF
   b. 25 μF
   c. 50 μF
   d. 212.5 μF

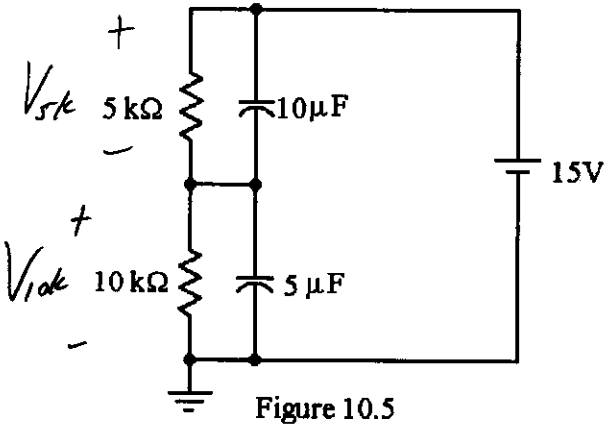

Figure 10.5

$V_{5k} = 15V\left(\frac{5k\Omega}{5k\Omega+10k\Omega}\right) = 5V$

$V_{10k} = 15V\left(\frac{10k\Omega}{10k\Omega+5k\Omega}\right) = 10V$

C → o/c AFTER CHARGED

V_{10k}

4. See Figure 10.5. What is the voltage across the 5 μF capacitor after <u>each capacitor has charged to its final value</u>?
   a. 0 V
   b. 5 V
   c. 10 V
   d. 15 V

V_{5k}

5. See Figure 10.5. What is the voltage across the 10 μF capacitor <u>after each capacitor has charged to its final value</u>?
   a. 0 V
   b. 15 V
   c. 10 V
   d. 5 V