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Phys Discussion 12

In Series $\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2}$ $\quad q = CV$

In Parallel $C_{eq} = C_1 + C_2$ $\quad u = \frac{1}{2} C \Delta V^2$

a) $V_{C1} = \Delta V$, $V_{C_1} C_1 = \Delta V C_1 = Q_1$

b) $\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2}$

c) C_2, C_3 in ~~Parallel~~ series $\quad C_{eq}, C_1$ in Parallel

d) $\Delta V C_1 = V_f C_1 + V_f C_{eq}$ $\therefore$ $V_f = \frac{\Delta V C_1}{C_1 + C_{eq}}$

$Q_{1f} = V_f C_1$

e) ~~$\Delta V C_2$~~ $Q_{2f} = V_f C_1$ $\quad V_f = \frac{Q_{2f}}{C_2}$

f) $Q_{3f} = V_f C_1$ $\quad V_f = \frac{Q_{3f}}{C_3}$

g) $V_A = \frac{1}{2} C_1 \Delta V^2$

$V_f = \frac{1}{2} C_1 V_{1f}^2 + \frac{1}{2} C_2 V_{2}^2 + \frac{1}{2} C_3 V_{f3}^2$