

SESSION - II

Useful Equations

Kirchoff's I law: sum of all voltages in a closed loop is zero

$$\sum_{loop} \Delta V_i = 0$$

Kirchoff's II law: sum of all currents into a junction is zero

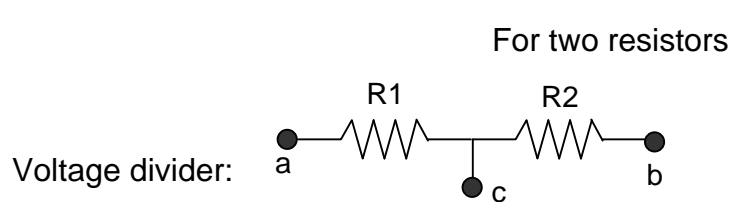
$$\sum_{junc} I_i = 0$$

Resistors in series:

$$R_{eq} = R_1 + R_2 + R_3 + \dots$$

Resistors in parallel:

$$R_{eq}^{-1} = R_1^{-1} + R_2^{-1} + R_3^{-1} + \dots$$



$$R_{eq} = \frac{R_1 R_2}{(R_1 + R_2)}$$

$$V_{cb} = \frac{R_2}{(R_1 + R_2)} V_{ab}$$

Capacitor discharging:

$$Q = Q_0 e^{-t/RC}$$

Capacitor charging:

$$Q = Q_0 (1 - e^{-t/RC}); Q_0 = C e$$

Energy stored in a capacitor:

$$W = \frac{1}{2} C e^2$$

Current during charging:

$$I = \frac{e}{R} e^{-t/RC}$$