

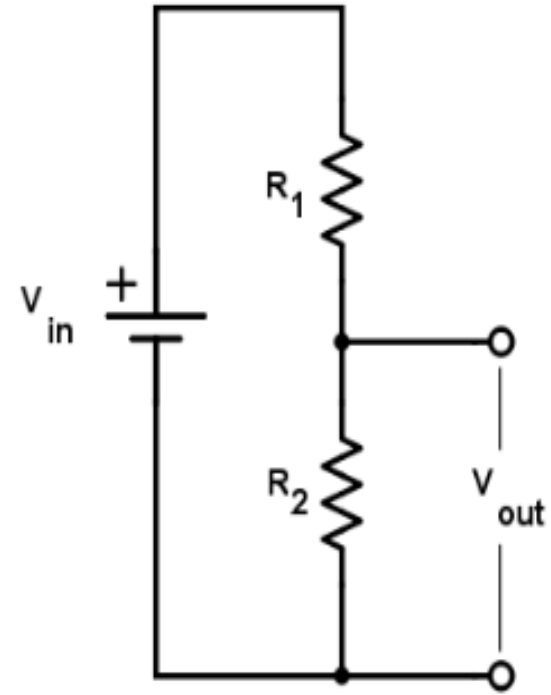
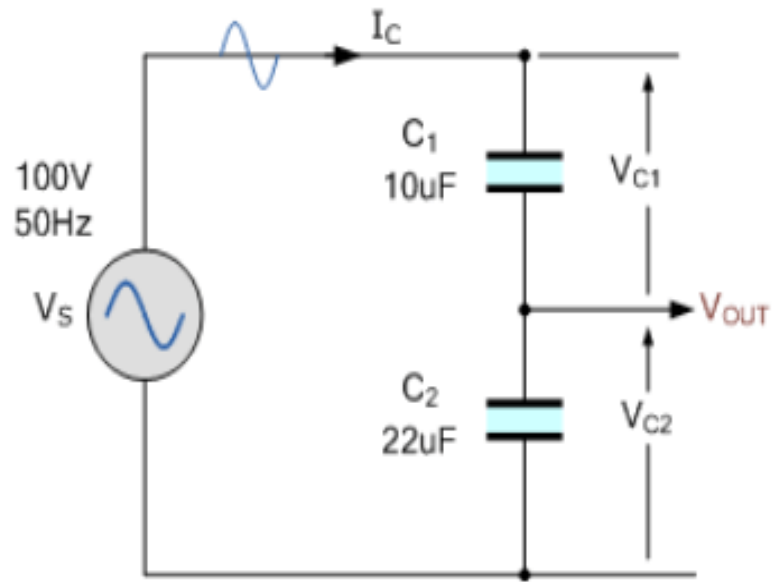
Chapter-11

(Understand the high voltage measurement and testng)

Lecture-2



What is a Voltage Divider?



Electrical 4 U

Potential Divider method:

$$V_S = V_{R1} + V_{R2} \quad (\text{KVL})$$

$$V_{R1} = I \times R_1 \quad \text{and} \quad V_{R2} = I \times R_2$$

$$\text{Then: } V_S = I \times R_1 + I \times R_2$$

$$\therefore V_S = I(R_1 + R_2)$$

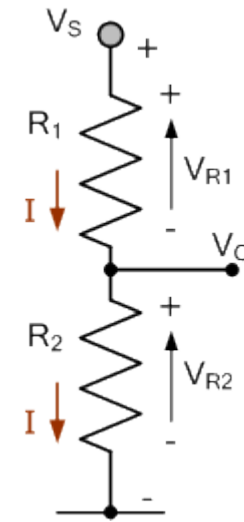
$$\text{So: } I = \frac{V_S}{(R_1 + R_2)}$$

$$I_{R2} = \frac{V_{R2}}{R_2} = \frac{V_S}{(R_1 + R_2)}$$

$$\therefore V_{R2} = V_S \left(\frac{R_2}{R_1 + R_2} \right)$$

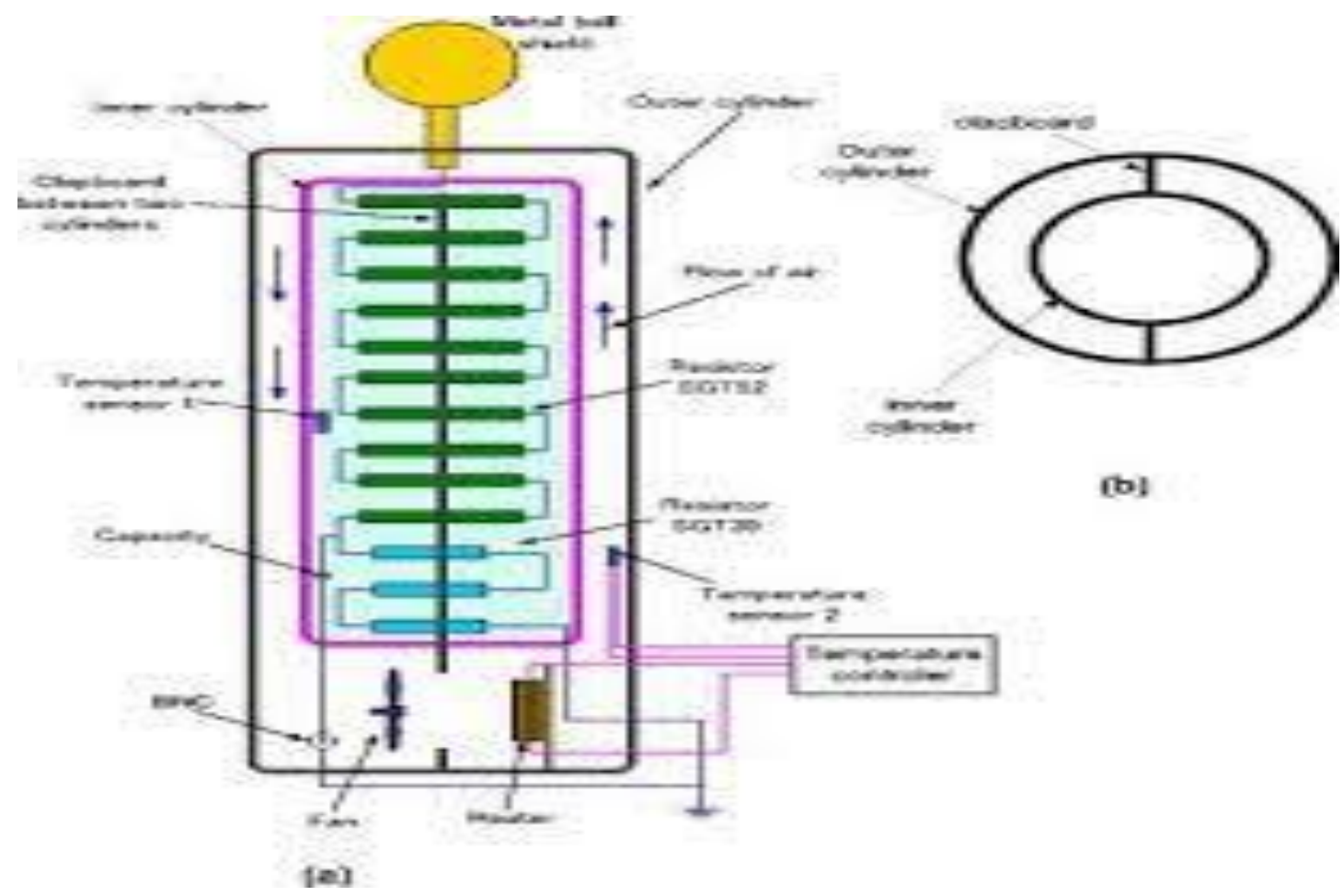
$$I_{R1} = \frac{V_{R1}}{R_1} = \frac{V_S}{(R_1 + R_2)}$$

$$\therefore V_{R1} = V_S \left(\frac{R_1}{R_1 + R_2} \right)$$



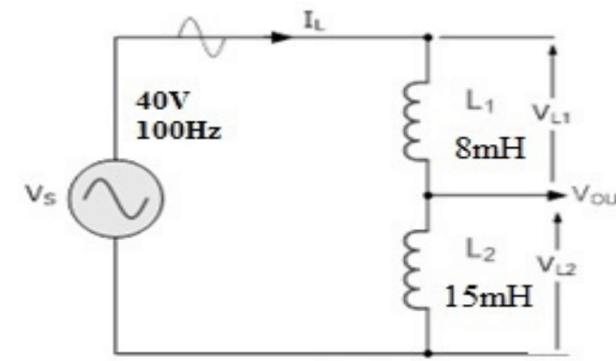
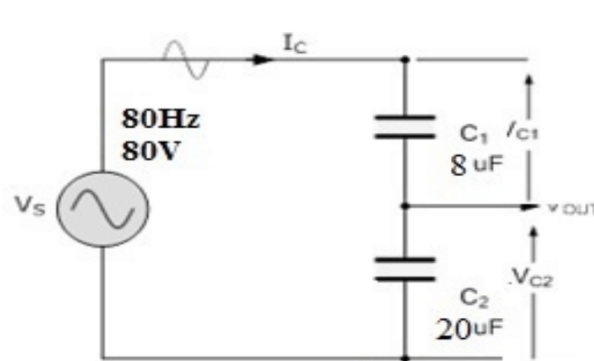
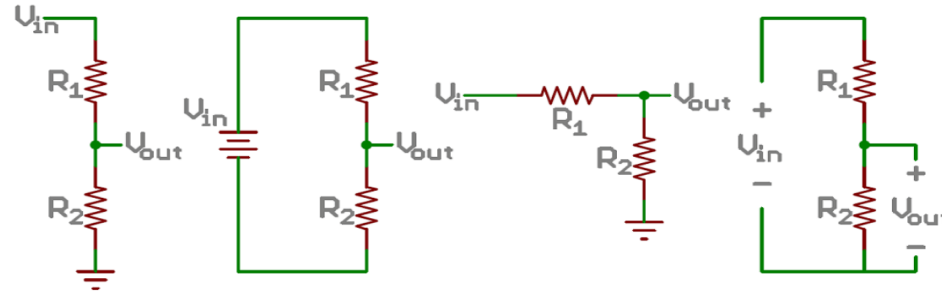
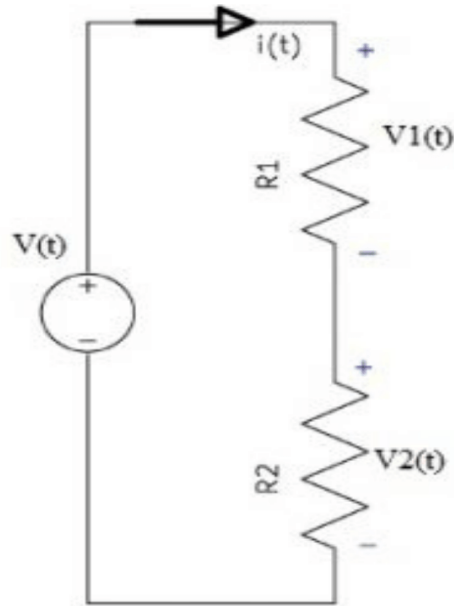
Voltage Divider Circuit

- Voltage usually contains two important terms: electromotive force (EMF) and potential difference (PD). When something provides a voltage, such as a battery, it provides the force required to pull electrons along the circuit because of emf. When a component consumes the voltage in the circuit, the amount of voltage drop on it called potential difference. Some rules about voltage can help circuit design, including:
 - 1) Series voltages accumulate.
 - 2) The parallel voltage is always the same.
 - 3) The PD in the component is proportional to its resistance.
 - 4) Polarity is decisive.
 - 5) Sum EMF around the circuit is equal to the sum of PD



Type of HV Divider:

ElectricalGang.com



Voltage Divider Rule