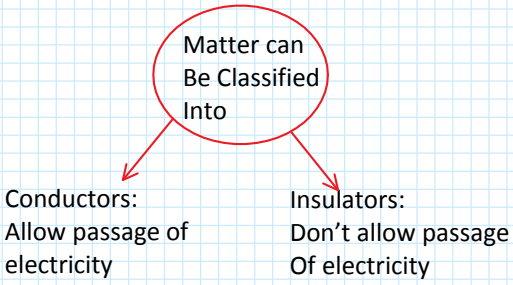
Physics DC-Voltage Summary

Tuesday, January 3, 2023 11:28 AM



1. **Voltage (V):** Measures the difference in potential between 2 points

VPN=-VNP

→ If **V** drycell = rated voltage → Lamp functions normally

→ If **V** drycell >rated voltage → Lamp will burn out

→ If **V** drycell< rated voltage → Lamp will glow weakly

2. **Electric current**: Due to the flow of charges in a unit of time

3. Voltmeter:
   - ✓ Used to measure voltage
   - ✓ Connected in parallel
   - ✓ Com terminal must be connected to the -Ve pole

★ **Remark!!!!!!!!:** If the connection of the voltmeter is reversed

↓

A negative reading for the voltage measured will be given

4. **Ammeter:**
   - ✓ Used to measure current
   - ✓ Connected in series
   - ✓ Com terminal must be connected to the -Ve pole

★ **VAB=** $V_{closed\ switch}$ **= OV**

★ $V_{open\ switch} = V_{dry\ cell}$

★ **The voltage across a connecting wire=0V**

5. **Parallel connection**
   - Law of addition of current ($I_{main}=I_{L_1}+I_{L_2}$)
   - Law of uniqueness of voltage ($V_{L_1}=V_{L_2}$)

6. **Series connection**
   - Law of uniqueness of current ($I_{main}=I_{L_1}+I_{L_2}$)
   - Law of addition of voltage: $V_{PN}=V_{AB}+V_{BC}$

OR

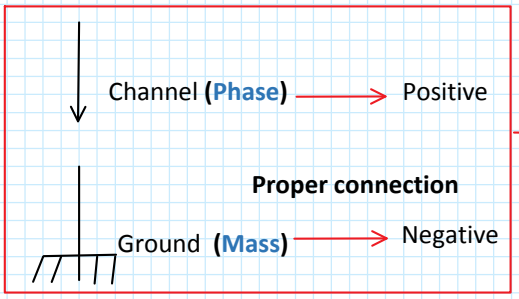
$$V_{PN} = V_{L_1} + V_{L_2}$$

Remark!!!!!!!!!!: If the lamps are identical → VPN will be divided equally on both lamps

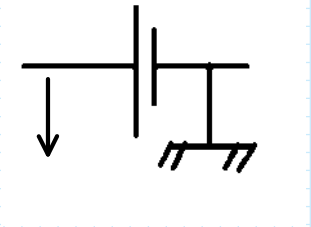
$$V_{L_1} = V_{L_2} = \frac{V_{PN}}{2}$$

7. **Oscilloscope :** Device used to measure and display the electric voltage **(Signal)**

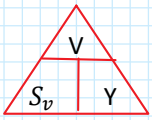
→ **Connection of the 0scilloscope:**



Luminous line will be displaced upward



$V_{dry\ cell}=V_{PN}=V_{phase}$ → V_{ground}



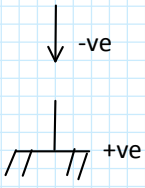
$V_{dry\ cell}=V_{PN}= S_v \times Y$

Number of divisions on the y-axis **(div)**

Scale on the Vertical (Vertical sensitivity) (V/div)

Measured Voltage **(V)**

Remark!!!!!: If the connection of the oscilloscope are reversed



Luminous line will be displaced downward