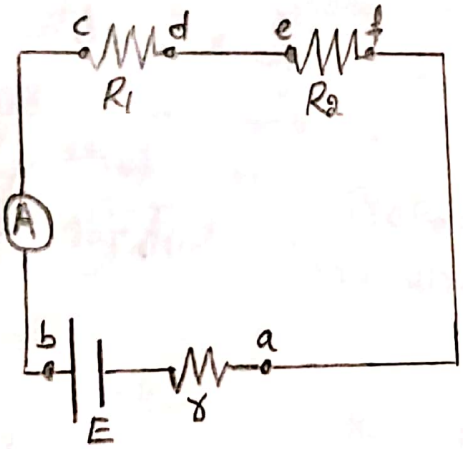
Answer No 1 (A)

Ammeters:-

An ammeter measures the electric Current in a Circuit The name of derived from the name for the SI unit for electric Current ampers (A)
In order for an ammeter to measure a device's Current, it must be Connected in Series to that device. This is necessary because objects in Series experience the Same Current The must not be Connected to a voltage Source ammeter are designed to work under a minimal burden



Ammeter in Series:-

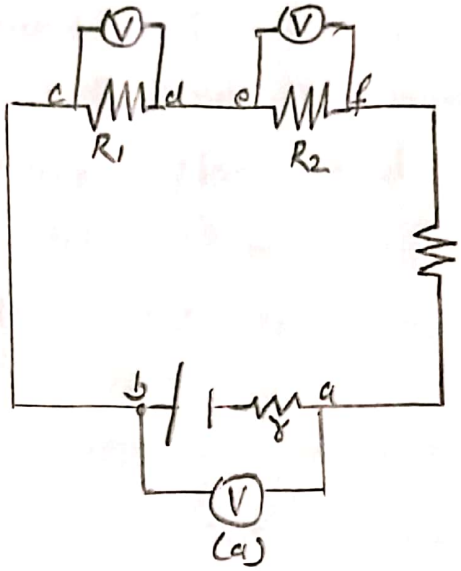
An ammeter (A) is placed in Series to measure Current All of the Current in this Circuit flows through the meter. The ammeter would have the Same reading

If ~~doac~~ located between Points d and e or between Points f and a as it does in the Position shown (Note that the Script Capital E Stands for EMF and r stands for the Internal resistance of the Source of Potential difference)..

(B) Voltmeters:

A voltmeter is an instrument that measures the difference in electrical Potential between two Points in an electric Circuit An analog voltmeter moves a Pointer across a Scale in Proportion to the Circuit's voltage a digital voltmeter Provides a numerical display Any measurement that can be Converted to voltage Can be displayed on a meter that is Properly Calibrated Such measurements Include Pressure temperature and flow.

In order for a voltmeter to measure a device's voltage it must be Connected in Parallel to that device. This is necessary because objects in Paralled experience the Same Potential difference.



Voltmeter in Paralled:

(a) To measure the Potential difference in this Series Circuit the voltmeter (V) is Placed in Paralled with the voltage Source or either of the resistors. Note that terminal voltage is measured between Points a and b it is not Possible to Connect the voltmeter directly across the EMF without including its internal resistance r. (b) A digital voltmeter in use.

Answer 2 (A)

Direct Method of Measurement: In this method of measurement the unknown quantity is directly Compared

with the standard quantity. The result of the quantity is expressed in number it is the most common method of measuring the Physical quantities like length. temperature Pressure, etc

Example:

The Physical balance directly measures the weight of the matter.

Indirect Method of measurement:

The direct measurement gives the inaccurate results in most of the Cases. Hence the direct method is rarely Preferred for measurement ~~the Physical~~ In Indirect method of measurement. the Physical Parameters of the quantity are measured by the direct method and then the numerical value of the quantity is determined by the mathemical relationship.

Example: The length breadth and height of the Substance measured by direct method and then by the help of given relation the weight of Substance is known.

weight = Length x Breadth x Height x Density.

Answer 2 (B)

The moving Coil galvanometer working Principle is based upon the fact that when electric Current flows in a Coil Placed in a magnetic field a deflecting torque acts upon the Coil whose magnitude depends upon the strength of the Current.

For the the measurement of the deflection of the Coil the Coil the strength of the Current Can be Computed.

Moving - Coil galvanometers are of two types.

- Suspended Coil galvanometer
- Pivoted - coil or weston galvanometer.

The Principle and working of the two types of galvanometer are the Same only there is Some difference in their Constructions.

In a Suspended Coil galvanometer the Coil is Suspended by a thin Phaspor bronze strip and the deflection of the Coil is measured by a lamp and a Scale arrangement. A Suspended Coil galvanometer Can measure Currents of the order of 10^{-9} A.

A Pivoted-Coil galvanometer is also a moving coil galvanometer. It is less sensitive than a Suspended Coil galvanometer but is more. It Consists of a coil having a large number of turns of fine Insulated Copper wire wound on an aluminum frame.

The ends of the axle of the aluminum frame are Inserted in two Pivots So that the coil may rotate about the axle. At both ends of the coil near the Pivots. two Springs are attached which Produce a Controlling torque on the moving System and Connect the coil to the outer Circuit.

On both Sides of the Coil there are Pole Pieces of a Permanent Strong horseshoe magnet. The Coil rotates in the magnetic field of these Pole Pieces.

Answer 3

Solution:

$$I_2 = 50 \text{ mA}$$

$$I = 90 \text{ mA}$$

$$R = = \frac{I_g R_g}{I - I_g}$$

$$R_S = \frac{(50)(90)}{50 - 90}$$

$$R_S = \frac{4500}{-40}$$

$$R_S = 4,460 \Omega$$