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Instrumentation and measurment:

Q1 a)

Ans: An ideal ammeter has zero resistance on the other hand a non ideal ammeter has very small resistance. when we connect an ammeter in parallel, as we know that current allways follows low resistance Path, maximum amount of current will flow through the ammeter which in turn will burn the fuse or can damage the ammeter.

Q1 b)

A voltmeter is a device used to measure the potential difference difference "Between Two Points".

A voltmeter is a device of having high resistance. So if we connect it in series, it would hinder the current flow in the circuit hence open circuit result.

Therefore in electrical engineering Labs Important precautions while connecting the circuits are. Connect the ampeter in series and voltmeter in parallel.

8.00 am

Q2 A)

8.30

An error or fault can be described as the disparity between the calculated worth and the exact worth.

9.00

9.30

Types of errors are Gross, Systematic error and Random errors

0.00

0.30

Random error:

.00

Random error cannot be easily reduce in measurment Because this type of error is Constantly there in a measurment, which is occurred by essentially random oscillations in the apparatus measurment analysis or in the experimenter's understanding of the apparatus reading. These types of errors shows up as dissimilar outcomes for apparently the similar frequent measurment, which can be expected by Contrasting numerous measurments. with condensed by averaging numerous measurements.

11/2021 Sunday 24

B

Gross errors:

Def: Gross error can be define as physical errors in analysis apparatus or calculating and recording measurement outcomes. In general, these type of errors will happen throughout the experiments

The reasons due to which gross error can occure in the measurment are

- Not careful reading as well as not a recording of information
- By Not taking numerous readings of the instrument by different operators

Anzac Day (Aust, N.Z.) Liberation Day (Italy)

A

Q3 —

The Coil is suspended between the pole pieces of a horseshoe magnet by a fine phosphor-bronze strip from a movable torsion head. The lower end of the coil is connected to a hairspring of phosphor bronze having only a few turns.

The other end of the spring is connected to a binding screw. A soft iron cylinder is placed symmetrically inside the coil. The hemispherical magnetic pole produced a radial magnetic field in which the plane of the coil is parallel to the magnetic field in all its positions. A small plane mirror attached to the suspension wire is used along with a lamp and scale arrangement to measure the deflection of the coil.

So if a spring is not connected with a moving coil of a galvanometer then no magnetic fild will be produced and hence we can not be measure the scale of the deflection of the coil.

Q3 B

Given data:-

$I = 10\,\mu A$

$V_z = 20V$

To find $R = ?$

Formula: $V = IR$

$$R = \frac{V}{I}$$

$$R = \frac{20}{10 \times 10^{-6}} = \frac{20}{10} \times 10^{6}$$

$$R = 2 \times 10^{6}$$

To find the 20V voltage we should be connected the $2 \times 10^{6}\,\Omega$ resistor in parallel with the instrument.