Answer No 3

As for the bridge Circuits originated by wheatstone as a Dc bridge and extended by many Scientists for Ac as Ac bridges are though for measuring the Circuit elements a. R Land C The measurment of the elements are based on the So called null measurement Concept where the voltage dector IC the Circuit just is used to Indicate the zero voltage in the bridge further Calibrated to Indicate the value of the element This is the Case of the deflection type measurement where the measuring Instrument is calibrated to Indicate directly the value of the element. The null type measurement using the bridges and the null detector is characterized by more accuracy than the deflection type using the voltage over current ratio.

The bridge method is called also the Comparison method where eg the value of the unknown element say Rx is determine by other known resistance.

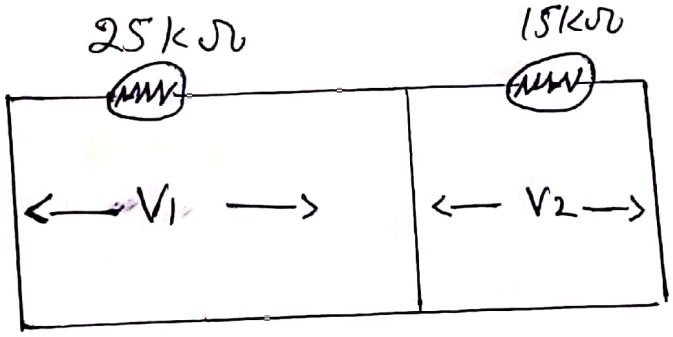
As foe the classical bridge circuit it is described by Cyril. Talking whetstone as a model it Consists of two half bridges fed

by a voltage Source and a detector Connected at the Common Point of very half The detector represents the bridge between the two halves as cyril hinted before So, there are four resistors in the different branches of the bridge say R_1, R_2 IN The LEFT Side And R3AND R4 in The right Side.

The Condition of balance where he detector voltage is zero, and assuming $R1 = R3$ Results. in $R2 = R4$

Answer No 2 :-

Solution:



Hence by ~~using~~ voltage Dividing rule ~~A~~ resulting of the two voltmeter are.

$$V_1 = \frac{25\,k\Omega}{25k\Omega + 15k\Omega} \times 500V$$

$$= \boxed{312.5\,V}$$

$$V_2 = \frac{15k\Omega}{25k\Omega + 15k\Omega} \times 500V$$

$$= \boxed{187.5V}$$

Answer No 4

Single Phase Induction type energy meter is also Polularly known as watt hour meter. The name is given to it This article is only focused about its Constructional features and its working Induction type energy meter essentially Consists of following Components.

1. Driving System
2. Braking System.

1 Driving System: it Consists of two electromeagnets Called Shunt magnet and Series magnet of Jaminated Construction A Coil having large number of turns of fine wire is wound on the middle limb of the shunt magnet.

This Coil is known as Pressure or Voltage Coil and is Connected across the Supply

Supply mains This voltage coil has many turns and is arranged to be as highly Inductive as Possible In other words the voltage coil Produces a high ratio of Inductance to resistance.

Braking System:

Damping of the disk is Provided by a small Permanent magnet located dimetrically opposite to the a.c magnet gaps The movement of rotating disc through the magnetic field Crossing the air gap sets up eddy Currents in the disc that reacts with the magnetic field and exerts a braking torque.

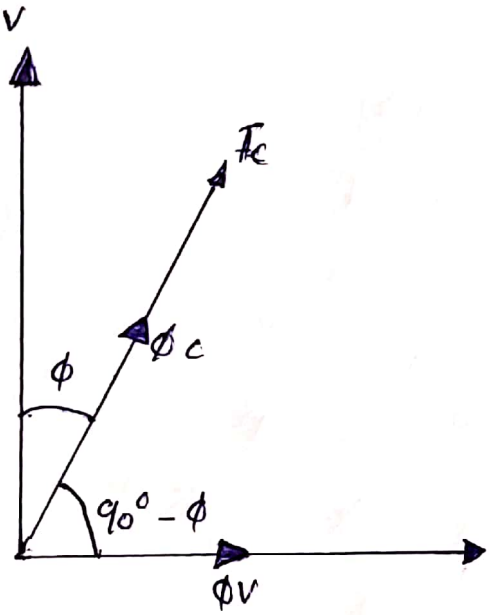
By changing the Position of the brake magnet or diverting Some of the flux there form the Speed of the rotating disc can be Controlled.

Working of Single Phase Induction type Energy Meter:

The basic working of Single Phase Induction type Energy Meter is only focused on two mechanisms.

(i) Mechanism of rotation of an aluminum disc which is made to rotate at a Speed Proportional to the Power.

I) Mechanism of Counting and displaying the amount of energy transferred.



Quest Answer No 1

Kelvin Bridge:

It is often necessary to make rapid measurement of low resistance such as samples of water wire or low value of meter shunt resister. A frequently used instrument that is capable of good precision is the Kelvin bridge shown in figure 3-1. Note a similarly b/w this and the wheat-stone bridge. Two additional resistance R_1 and R_2 connected in series and shunted across resistance R_x and respectively. In performing the adjustment for balance you may mast the ratio of R_1 and R_2 equal to the ratio of R_A to R_g. when this is done unknown resistance can be computed in the same manner as that for the wheatstone bridge Because resistance R is effectively eliminated.

In using a Kelvin bridge you must follow precautions similar to those given for the wheatstone bridge. A rheostat is usually placed in series with the battery so that bridge current can be conveniently limited to the maximum current allowed. This value of current which effects the sensitivity of the bridge. is determined by the largest amount of heat that can be standed by the bridge resistance without causing a change in their value. All connection must be firms and electricity perfect so that contant resistance are held to a maximum. The use of point and knife-edge clamps is recommended commercially manufactured Kelvin bridges that accurates of approximately 2% for resistance ranges froms 0.001 ohms to 25 Ohms.

Wheat stone Bridge:

Definitions:

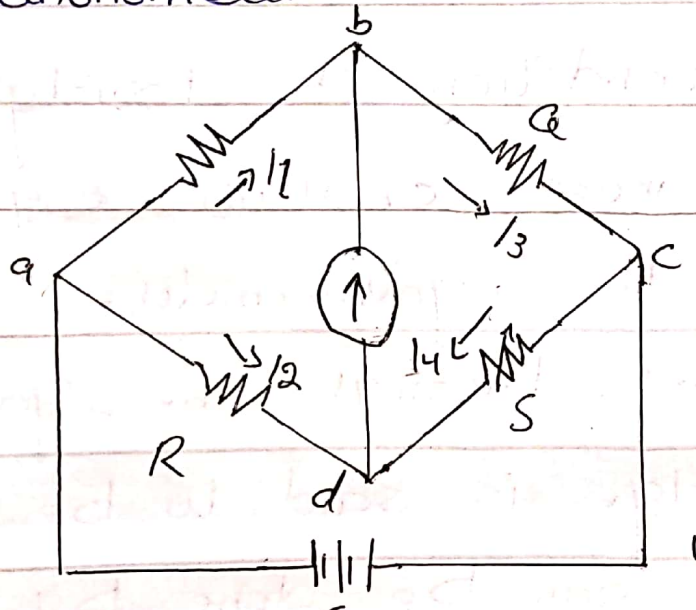
The device usec for the measurement of minium resistance with the help of comparison method is known as the wheat stone bridge. The

value of unknown resistance is determined by comparing it with known resistance. The wheat-stone bridge works on the principal of known deftections i.e The ratio of their resistance are equal and no current flows thrugh galvanometer. The bridge is very reliable and gives in accurate result as.

In normal condition the bridge remain in the unbalanced condition eg the current flows through the galvanometer, when 0 current passes through the galvanometer than the bridge is said to be inbalanced condition. This can be done by adjusting the non-resistance P, Q in the variable resistance S. The working of the bridge is similar to the potentiometer. The wheatstone bridge is only used for determining, the medium resistance for measuring the high resistance the sensitive ammeter is used in the circuit.

Construction of Wheat Stone Bridge:

The basic circuit of the wheat-stone bridge is shown in the figure below. The bridge as four arms w/c consist two unknown resistance one variable resistance in the one unknown resistance when the emf source and galvanometer.



Wheat Stone Bridge

The emf supply is attached b/w point a and b in the galvanometer is connected b/w point c and d the current through the galvanometer depend on the potential dipperence accross it.

3)

In case of DC circuit electric power is the product of voltage time the current, the following are the power precaution equation in DC circuits.

$$P_{dc} = V \times I \text{ watts}$$

$$= I^2 \times R$$

$$= V^2/R$$

In case of AC circuit electric power includes power effector along with the product of voltage and current. In DC circuit voltage and current or in phase inhence power is the product of voltage and current but in AC circuits. There exist a phase difference b/w voltage and current and also instantaneous values vary from time two times. Therefores the instantaneous value of powel (w/c is the

is the product of instantaneous voltage and instantaneous current is not very important in AC circuit.

The average power is calculated in AC circuit in it is a very useful quantity. due to the instantaneous fluctuation of the power, It can be negative of positive science indicates consumption of power by the load while negative sign indicates. The returning the power to the source from the load.

Most common concentrating terms is the dissipated average power from the load, parg. The average electric power in a single phase AC circuit is given.