

- Q)\_\_\_\_\_ instruments are those which gives a continuous record of the variations of the electrical quantity over a selected period of time--> **Recording**
- Q)\_\_\_\_\_ instruments are those which measure the total quantity of electricity delivered in a particular time.--> **Integrating**
- Q)\_\_\_\_\_ instruments are those which indicate the instantaneous value of the electrical quantity being measured at the time at which it is being measured.--> **Indicating**
- Q)\_\_\_\_\_ Instruments give the magnitude of the quantity under measurement in terms of physical constants of the instrument--> **Absolute**
- Q)Tangent Galvanometer is an example of \_\_\_\_\_ Instrument--> **Absolute**
- Q)\_\_\_\_\_ instruments are used as standard Instruments in Laboratories--> **Absolute**
- Q)\_\_\_\_\_ Instruments are so constructed that the quantity being measured can only be measured observing the output indicated by the instrument.--> **Secondary**
- Q)Electrostatic type instruments are primarily used as--> **Voltmeters**
- Q)The range of an electrostatic voltmeter can be extended by using--> **a capacitor in series with the voltmeter whose capacitance is smaller than the capacitance of the voltmeter**
- Q)In D-Arsonval galvanometer, an iron core is usually used between the permanent magnet pole faces. This is used so that--> **Flux density in the air gap becomes high, due to which a large deflecting torque is produced**
- Q)Ampere hour and Wattmeters are the examples of \_\_\_\_\_ type of Instruments--> **Integrating**
- Q)In \_\_\_\_\_ controlled instruments have scales which are not uniform but are cramped or crowded at their lower ends.--> **Gravity**
- Q)\_\_\_\_\_ torque is required in measuring instruments to oppose the motion and ceases when the pointer comes to rest.--> **Damping**
- Q)The size of electrostatic voltmeters is large as compared with that of corresponding electromagnetic voltmeters because--> **energy density in an electrostatic field is considerably smaller than that in an electromagnetic field**
- Q)Horizontally mounted moving iron instruments use--> **air friction damping**
- Q)An external battery is used in which quadrant type electrostatic instrument--> **Heterostatic connection**
- Q)The sensitivity of a PMMC instrument is  $10\text{K}\Omega/\text{V}$ . If the instrument is used in a rectifier type voltmeter with half wave rectification, what would be the sensitivity?-->  **$4.5\text{ K}\Omega/\text{V}$**
- Q)The high torque to weight ratio in an analog indicating instrument indicates--> **Low friction loss**
- Q)Swamping resistance is connected--> **in series with meter and have a negligible resistance temperature co-efficient in order to reduce temperature errors in shunted ammeters**
- Q)Moving iron instruments when measuring voltages or currents--> **indicate higher value of measurand for descending values**
- Q)An electrodynamic type of instruments finds its major use as--> **both as standard and transfer instrument**
- Q)Moving iron instruments can be used as--> **Indicator type instruments**
- Q)A milli ammeter of resistance  $100\Omega$  is connected in series with a circuit. Its power consumption is  $0.1\text{mW}$ . Supposing it is replaced with a milli ammeter of  $200\Omega$  resistance the power consumption will be-->  **$0.2\text{mW}$**
- Q)A  $1\text{ mA}$  D-Arsonval movement has a resistance of  $100\Omega$ . It is to be converted to a  $10\text{ V}$



voltmeter. The value of multiplier resistance is--> **99000Ω**

Q)A D-Arsonval movement is rated at 50 A. its sensitivity is--> **20000Ω/V**

Q)The instrument usually used as transfer instrument is--> **Electro dynamic type**

Q)The instrument whose deflection depends upon the average value of measured is--> **Rectifier type**

Q)The meter, that is suitable for only dc measurements is--> **PMMC type**

Q)The operating magnetic field in an electro-dynamometer type of instrument has a flux density typically about--> **0.005 Wb/m<sup>2</sup>**

Q)Which meter has the highest accuracy in the prescribed limit of frequency range-->

**Electrodynamometer**

Q)Which instrument is the cheapest disregarding the accuracy--> **PMMC**

Q)The ratio of transformation in the case of potential transformers--> **decreases with increase in power factor of secondary burden**

Q)In case of potential transformers--> **the phase angle error is positive when the secondary winding voltage reversed leads the primary winding voltage and vice versa**

Q)An ammeter can be used as voltmeter by using--> **series high resistance**

Q)The instrument, most likely to be effected by change in frequency is--> **Induction type**

Q)The common device used for extending the range of instruments are--> **shunts, multipliers and Instrument transformers**

Q)The range of milli ammeter can be extended by using a--> **shunt of low resistance**

Q)\_\_\_\_\_ is defined as the ratio of number of turns of secondary winding to the number of turns on the primary winding--> **Turns ratio**

Q)The ratio marked on the transformers name plate is \_\_\_\_\_--> **Nominal transformation ratio**

Q)\_\_\_\_\_ is the ratio of rated primary winding current or voltage to the rated secondary winding current or voltage.--> **Nominal transformation ratio**

Q)The instrument transformers cannot be used for \_\_\_\_\_ measurements--> **DC**

Q)The burden of an instrument transformer is expressed in \_\_\_\_\_--> **Volt- amperes**

Q)\_\_\_\_\_ is defined as the ratio of the primary phasor to the secondary phasor-->

**Transformation ratio**

Q)\_\_\_\_\_ is the transformation ratio divided by nominal ratio--> **Ratio correction factor**

Q)Core material for the current transformer is usually \_\_\_\_\_--> **Silicon Steel**

Q)Turns compensation is used in current transformers primarily for reduction of--> **ratio error, reduction in phase angle error is incidental**

Q)The errors in current transformers can be reduced by designing them with--> **high permeability and low loss core materials**

Q)The size of Potential transformers--> **is much greater than that of power transformer of the same VA rating**

Q)The current in the primary winding of a current transformer depends on--> **Load connected to the system in which the CT is installed**

Q)The braking torque provided by a permanent magnet in a single phase energy meter is proportional to the--> **Square of the flux of the permanent magnet**

Q)In a single phase induction meter, in order to obtain the true value of energy, the shunt magnet flux should lag behind the applied voltage by \_\_\_\_\_ degrees--> **90**



- Q)Light load adjustments for induction type energy meters are usually done at \_\_\_\_ percent of full load current--> **5**
- Q)Current transformer must never be operated on open circuit for \_\_\_\_\_ reason--> **Core flux will increase enormously**
- Q)Creeping in a single phase induction type energy meter may be due to--> **Over compensation for friction**
- Q)A merz price maximum demand indicator indicates--> **average maximum demand over a specified period of time**
- Q)In an induction type energy meter, compensation for static friction is provided by--> **shading bands**
- Q)In a house hold single phase induction type wattmeter, the meter can be reversed by--> **opening the meter connections and reversing either the potential coil terminals or current coil terminals**
- Q)Phantom loading for testing of energy meters is used--> **to test meters having a large current rating for which loads may not be available in the laboratory**
- Q)In an induction type of meter, maximum torque is produced when the phase angle between the two fluxes is \_\_\_\_ degrees--> **90**
- Q)In an induction type meter, maximum torque is obtained when the parameters such as resistance and reactance of eddy current paths in the rotating disc are-->  **$X = 0$**
- Q)In a single phase induction type energy meter, the lag adjustment is done--> **to make the pressure coil flux to lag  $90^\circ$  behind the applied voltage**
- Q)When measuring power with an electrodynamicometer wattmeter in a circuit where the load current is large--> **The pressure coil should be connected on the load side**
- Q)When measuring power with an electrodynamicometer wattmeter in a circuit having a low power factor--> **a compensated wattmeter with pressure coil connected on the load side should be used.**
- Q)The power in a three phase circuit is measured with the help of 2 wattmeters. The reading of one wattmeter is positive and that of the other is negative. The magnitude of the readings is different, the power factor of the circuit is--> **less than 0.5 lagging**
- Q)If an induction type energy meter runs fast, it can be slowed down by--> **by adjusting the position of braking magnet and making it move away from the centre of the disc**
- Q)The operating magnetic field in an electrodynamicometer type of instrument has a flux density typically about \_\_\_\_  $W/m^2$ --> **0.005**
- Q)The power in a 3 phase 4 wire circuit can be measured by using \_\_\_\_ number of wattmeters--> **3**
- Q)The position of the Copper shading bands in Induction wattmeter are adjusted so that resultant flux lags the applied voltage by \_\_\_\_ degrees.--> **90**
- Q)The dynamometer wattmeters are used in--> **Both DC and AC systems**
- Q)Errors due to pressure coil inductance in dynamometer watt meters gives--> **High reading on lagging power factor and low reading on leading power factor**
- Q)In an electrodynamicometer type wattmeters, current coils designated for carrying heavy currents use stranded wire or laminated conductors--> **to reduce eddy current losses in conductors**
- Q)In electrodynamicometer type of wattmeters, the inductance of pressure coil circuit produces



error--> **Which is higher at low power factors**

Q)In an electrodynameometer type of wattmeters--> **the current coil is fixed**

Q)In two wattmeter method , if the readings are equal in magnitude but opposite in sign then the power factor is--> **Zero**

Q)In case of a balanced load, the reactive power is \_\_\_\_ times the difference of the readings of the two wattmeters used to measure the power of a three phase circuit--> **1.732**

Q)In two wattmeter method , if the reading of one wattmeter is positive and to obtain the reading of second wattmeter if it is necessary to reverse the connections then the power factor is--> **0.5 > power factor .0**

Q)The Induction wattmeters are used in--> **AC only**

Q)In two wattmeter method , if the reading of each wattmeter is equal and opposite then the power factor is--> **Unity**

Q)In two wattmeter method , if the reading of one wattmeter is zero then the power factor is--> **0.5 lagging**

Q)Mercury motor meters are normally used on \_\_\_\_ circuits--> **DC**

Q)Induction energy meters are used in \_\_\_\_ circuits--> **AC**

Q)Braking device or Braking torque in induction Energy meters gives\_\_\_\_--> **Proportional to the speed of the moving system**

Q)One wattmeter method for measuring power is applicable to \_\_\_\_ loads--> **Balanced**

Q)\_\_\_\_\_ power can be measured by poly phase VAR meter--> **Reactive**

Q)\_\_\_\_\_ is often referred as Watt hour meters--> **Energy meter**

Q)\_\_\_\_\_ error can be minimized by correctly adjusting the position of the brake magnet in Induction energy meter--> **Speed**

Q)\_\_\_\_\_ error can be reduced by making the ratio of the shunt magnetic flux and series magnetic flux with the help of two shading bands in Induction energy meter--> **Frictional**

Q)\_\_\_\_\_ error is compensated by means of adjustable copper bands placed over the central limb of the shunt magnet in Induction energy meter--> **Phase**

Q)\_\_\_\_\_ Coil in Induction energy meter is wound to aid the field and is adjusted to the point where it just overcomes the meter friction.--> **Compensating**

Q)\_\_\_\_\_ in induction energy meter is connected across the supply mains--> **Shunt magnet**

Q)The speed of the disc in Induction type energy meter may be adjusted by changing the position of the \_\_\_\_--> **Brake magnet**

Q)Thermocouple instruments can be used for a frequency range--> **50 MHz and above**

Q)In Dynamometer type single phase power factor meters the pressure coils connected across voltage terminals should carry the same amount of current at normal frequency under the condition-->  **$R = \omega L$**

Q)Merz Price maximum demand indicator can be used to record \_\_\_\_--> **Maximum current and maximum power.**

Q)In Induction energy meter the slow but continuous rotation of motor when only the voltage is excited but no current flowing in the circuit is called as \_\_\_\_--> **Creeping**

Q)To overcome creeping in energy meter on no load, two holes are drilled on the disc to cause sufficient distortion of the field to prevent rotation when one of the holes comes under one of the poles of \_\_\_\_ magnet--> **Shunt**

Q)The primary requirement of \_\_\_\_ meter is that they shall record maximum power taken



by a consumer during a particular period.--> **Maximum demand meter**

Q)The determination of voltage by a potentiometer is \_\_\_\_\_ of the source resistance-->

**Independent**

Q)The potentiometer method of measurement of resistance is suitable for measurement of \_\_\_\_\_ resistances--> **Low**

Q)\_\_\_\_\_ is an instrument used for measuring and comparing the emfs of different cells for calibrating and standardizing meters--> **Potentiometer**

Q)In alternating field type power factor meters the range of the scale extends over \_\_\_\_\_ --> **360°**

Q)In \_\_\_\_\_ type frequency meter, greater sensitivity can be obtained if the inductance of the moving coil changes slowly with the variation of its position on the core.--> **Electrical resonance**

Q)A \_\_\_\_\_ meter is a moving iron instrument whose action depends on the variation in current distribution between two parallel circuits, one inductive and the other non inductive, when frequency changes--> **Weston frequency type**

Q)To achieve balance in AC potentiometers the source should be free from \_\_\_\_\_ --> **Harmonics**

Q)In ac potentiometers, in order to avoid error in readings, the slide wire and resistance coils should be \_\_\_\_\_ --> **Non reactive**

Q)In A.C Potentiometer \_\_\_\_\_ criteria is required for the balance to be obtained.--> **Both magnitudes and phases should be equal**

Q)A potentiometer can be used to measure \_\_\_\_\_ range of emfs directly--> **1.5 V**

Q)High emfs can be measured with potentiometers with the help of \_\_\_\_\_ --> **Volt ratio box**

Q)Usually a series resistance of at least \_\_\_\_\_ ohms will be inserted in the standard cell to protect it against over currents.--> **20,000**

Q)In Drysdale polar potentiometer the slide wire supplied from a phase shifting circuit is so arranged that the magnitude of the voltage supplied by it remains \_\_\_\_\_ --> **Constant**

Q)In Drysdale polar potentiometer, the phase shifting circuit consists of two stator coils supplied from the same source in parallel, their currents are made to differ by \_\_\_\_\_ degrees--> **90**

Q)\_\_\_\_\_ is an example of Co-ordinate type of potentiometer--> **Gall- Tinsley instrument**

Q)In \_\_\_\_\_ potentiometer the unknown emf is measured in terms of its magnitude and relative phase--> **Polar potentiometer**

Q)In \_\_\_\_\_ potentiometer the unknown emf is measured in terms of its components along and perpendicular to a standard axis.--> **Co-ordinate Potentiometer**

Q)\_\_\_\_\_ is an example of Polar type of potentiometer--> **Drysdale Instrument**

Q)When a potentiometer is used for measurement of voltage of an unknown source, the power consumed in the circuit of the unknown source under null conditions--> **is ideally zero**

Q)The standardization of ac potentiometers is done by--> **Using DC standard sources and transfer instruments**

Q)A potentiometer is basically a \_\_\_\_\_ type instrument--> **Null**

Q)In Gall Co ordinate potentiometer two slide wires are used and their currents  $I_1$  and  $I_2$  having a mutual phase difference of \_\_\_\_\_ degrees--> **90**

Q)Standardization of potentiometers is done in order that, they become--> **accurate and direct reading**