Measurements Lab.

Cycle I Questions

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* Required

While calibrating single phase energy meter by Phantom loading, the power loss minimized is

- (●) Copper loss
- ( ) Iron loss
- ( ) Mechanical loss
- ( ) Friction loss

Clear selection

The meter constant of a 230 V, 10 A watthour meter is 1800 revolutions per kWh. The meter is tested at half load and rated voltage and unity power factor. The meter is found to make 80 revolutions in 138 s. How many revolutions it should have made to measure energy accurately.

- ( ) 80
- (●) 79
- ( ) 81
- ( ) None

Clear selection

In Kelvin's Double bridge maximum sensitivity occurs at

- (●) a) R3/R4=1
- ( ) b) R2/R4=1
- ( ) c) R2/R1=1
- ( ) d) R3/R2=1

Clear selection

What is creeping error in energy meter?

- (●) Disc revolves on no load
- ( ) Disc does not revolve on no load
- ( ) Disc makes at least one revolution on no load
- ( ) Disc makes not more than one revolution on no load

Clear selection

If the length of a potentiometer wire is doubled, the accuracy in determining the null point

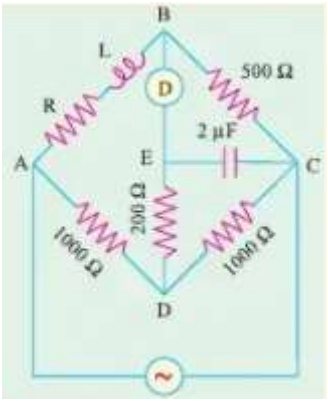
- (●) (a) is increased
- ( ) (b) is decreased
- ( ) (c) remains constant
- ( ) (d) May increase and decrease

Clear selection

A DC potentiometer uses a slide wire of 800 mm. A standard cell of emf 1.18V obtains balance at 600 mm. A test cell is seen to obtain balance at 660 mm. The emf of test cell is

- (a) 1.00V
- (b) 1.30V
- (c) 1.50V
- (d) 1.70V

For the Anderson's bridge of Fig. 1, the values are under balance conditions. Determine the values of unknown resistance R and inductance L.



- (●) R=5 ohm and L=1.5 H
- ( ) R=5.8 ohm and L=1.5 H
- ( ) R=4.8 ohm and L=5.1 H
- ( ) R=5 ohm and L=5.1 H

Clear selection

Volt ratio box is used for

- (a) measuring the voltage
- (b) extending the range of voltmeter
- (c) extending the voltage range of the potentiometer
- (d) measuring power

Clear selection

Compare Direct loading and Phantom loading while testing a single phase energy meter whose rating is 230 V and 50 A.

- Direct loading is economical
- Phantom loading is economical
- Both are economical
- Both are expensive

Clear selection

A consumer connects a heater load whose rating is 500 W. If the energy meter constant is 500 rev/kWh then no of revolutions to be made and time to be taken to consume 5 units of energy is ..... and .....

- 2500 rev and 10 h
- 500 rev and 10 h
- 500 rev and 1 h
- 1 rev and 10 h

Clear selection

What is the need of AC bridge balancing equations

- ○ Easy to drive
- ○ Complex in nature
- ○ Real in time
- ○ Independent of the components

The sensitivity of a potentiometer can be increased by

- ○ (a) Increasing the emf of the primary cell
- ◉ (b) Increasing the length of potentiometer wire
- ○ (c) decreasing the length of potentiometer wire
- ○ (d) Not change

Clear selection

The material is used for the standard cell

- ○ (a) Carbon
- ○ (b) Graphite
- ◉ (c) Weston cadmium
- ○ (d) Zinc

Clear selection

While calibrating single phase energy meter by Phantom loading, the power loss is minimized in

- (●) Current coil
- ( ) Potential coil
- ( ) In both coils
- ( ) None

Clear selection

Admission No. *

U19EE015

What is the nature of pressure coil in energy meter

- ( ) Resistive
- (●) Inductive
- ( ) Capacitive
- ( ) None

Clear selection

An energy meter is designed to make 100 revolutions of disc for one unit of energy. While testing the energy meter by Phantom loading, it was found that the time taken by the disc to make 5 revolutions is 30 s and the wattmeter connected in the experiment shows 5 kW. The correction can be made by:

- ○ Lag adjustment
- ○ Light load adjustment
- ○ By adjusting the position of braking magnet and making it move closer to the centre of the disc
- ○ By adjusting the position of braking magnet and making it move away from the centre of the disc

An energy meter is designed to make 100 revolutions of disc for one unit of energy. While testing the energy meter by Phantom loading, it was found that the time taken by the disc to make 5 revolutions is 30 s and the wattmeter connected in the experiment shows 5 kW. The % error is

- ◉ 20
- ○ 15
- ○ 10
- ○ 5

Clear selection

In dc potentiometer measurements, a second reading is often taken after reversing the polarities of dc supply and the unknown voltage, and the averages of two readings are taken. This is with a view to eliminate

- (a) Ripple in the dc supply
- (b) Stray magnetic fields
- (c) Stray thermal emf
- (d) Erroneous standardization

Clear selection

The dc potentiometer is consist of ------slide wire :

- (a) Copper
- (b) Aluminimum
- (c) Magnin
- (d) Any wire

Clear selection

Student 's Name *

Agrawal Avni Hemant

schering bridge is used to measure

- ○ quality factor
- ◉ dissipation factor
- ○ mutual inductance
- ○ frequency

Clear selection

On which principle, Kelvins double bridge operates_____

- ◉ a) Null indication
- ○ b) ampere's rule
- ○ c) partial indication
- ○ d) krichoffs law

Clear selection

Bridge circuit is said to be balanced when

- ○ a) voltage is applied
- ○ b) current flow through opposite end of bridge circuit
- ◉ c) when no current flow through the galvanometer
- ○ d) when impedence is minimum

Clear selection

relation between power factor angle 'p' and loss angle 'l' is

- (●) p=90-l
- ( ) p=90+l
- ( ) p=180-l
- ( ) p=180+l

Clear selection

In a single phase energy meter, the direction of revolution of disc can be reversed by

- ( ) Reversing the supply terminals
- ( ) Reversing the load terminals
- (●) Reversing either ML or CV terminals
- ( ) Reversing both ML and CV terminals

Clear selection

If voltage is measured using a potentiometer then under balanced condition of the instrument which of the following is correct

- (●) (a) Power consumed in the circuit containing the unknown emf is zero
- ( ) (b) Power consumed in the circuit containing the unknown emf is maximum
- ( ) (c) Current in the circuit containing the unknown emf is maximum
- ( ) (d) Voltage measurement depends upon the source resistance

Clear selection

Energy meter is a

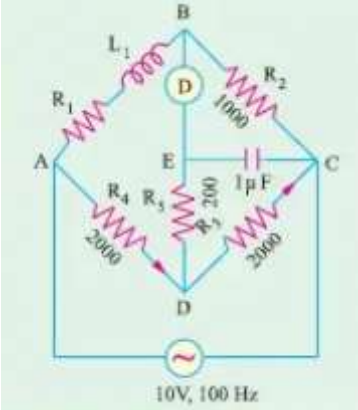
- ○ Vibrating type instrument
- ◉ Integrating type instrument
- ○ Indicating type instrument
- ○ Revolving type instrument

Clear selection

Anderson's bridge _____

- ☑ can't be shielded
- ☐ can be fully shielded
- ☐ can be partially shielded
- ☐ can be shielded based on the components used

Fig. 1 gives the connection of Anderson's bridge for measuring the inductance L1 and resistance R1 of a coil. Find R1 and L1 if balance is obtained when R3 = R4 = 2000 ohms, R2 = 1000 ohms R5=200 ohms and C =1μF.



- 2 H
- 2.4 H
- 3.4H
- 3.8H

Value of unknown resistance for 50m wire is 15mΩ then find the value of unknown resistance for 2km long wire?

2

A direct current can be measured by dc potentiometer in conjunction with a

- (a) Standard volatge
- (b) Standard current
- (C) Standard resistance
- (d) Standard power

Clear selection

An energy meter is designed to make 100 revolutions of disc for one unit of energy. While testing the energy meter by Phantom loading, it was found that the time taken by the disc to make 5 revolutions is 30 s and the wattmeter connected in the experiment shows 7 kW. The correction can be made by:

- Lag adjustment
- Light load adjustment
- By adjusting the position of braking magnet and making it move closer to the centre of the disc
- By adjusting the position of braking magnet and making it move away from the centre of the disc

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