OBJECTIVES

This course deals with measuring instruments mainly indicating instruments and the associated torques, instrument transformers, power factor meter, frequency meter , synchro scopes, wattmeter, energy meter, potentiometer ,resistance measuring methods, ac bridges, ballistic galvanometer, flux meter, extension range of indicating instruments.

QUESTION BANK ON SHORT ANSWER QUESTION

S. No	Question	Blooms Taxonomy Level	Course Outcome
	UNIT -1 MEASURING INSTRUMENTS		
1	Give the main classifications of electrical instruments.	Understand	1
2	Define the absolute instruments.	Remember	1
3	Define the secondary instrument.	Remember	1
4	Define the recording instruments.	Remember	1
5	State the principle of magnetic effect.	Remember	2
6	State the principle of electro-static effect.	Remember	2
7	State the principle of electro-induction effect.	Remember	2
8	What the different types are of associated with secondary instruments?	Remember	4
9	What are the different arrangements to provide damping torque?	Remember	1
10	What is the different control torques?	Remember	1
11	What is the importance of spring control torque?	Understand	1
12	What is the importance of gravity control torque?	Understand	1
13	What is the importance of MC instruments?	Understand	1
14	What is the importance of MI instruments?	Understand	1
15	Give two differences between MC and MI instruments.	Understand	1
	UNIT – II		
1	Define instrument transformer.	Remember	1
2	Give the importance of instrument transformer.	Understand	1

S. No	Question	Blooms Taxonomy Level	Course Outcome
3	What is the main two instrument transformer?	Create	4
4	Define transformation ratio.	Remember	1
5	Define turns ratio.	Remember	1
6	Define nominal ratio.	Remember	1
7	Define ratio correction factor.	Remember	1
8	Define the ratio error.	Remember	1
9	Define the phase angle error.	Remember	1
10	Define the burden on secondary winding of instrument transformer.	Remember	1
11	What is the limitation on operation of current transformer?	Understand	4
12	Write the expression for ratio and phase angle error of potential Transformer.	Understand	2
13	Write the expression for ratio and phase angle error of current Transformer.	Understand	2
14	Suggest the different methods to reduce the ratio and phase angle Error of potential transformer.	Evaluate	3
15	Suggest the different methods to reduce the ratio and phase angle error of current transformer.	Evaluate	3
UNIT – III **(MEASUREMENT OF POWER)**		
1	Define power.	Remember	1
2	Define power in DC circuits.	Remember	1
3	Define power in AC circuits.	Remember	1
4	Write the expression for torque in electro-dynamometer type wattmeter.	Understand	2
5	What are the main two coils in wattmeter?	Remember	1
6	Define element in wattmeter/.	Remember	1
7	Define the nature of resistance in pressure and current coil in wattmeter.	Remember	1
8	How the pressure and control coil of wattmeter are connected in circuit/	Analyse	2
9	What is the principle of ferro-dynamic type wattmeter?	Remember	2
10	How the low power factor is different from regular wattmeter?	Analyse	2
11	Name the power measured by wattmeter.	Remember	1
12	Suggest the type of connection of wattmeter into circuit under different conditions.	Evaluate	3
13	What is the importance of instrument transformer in collaboration with wattmeter?	Analyse	2
14	Give the expression for three phase power using instrument transformer.	Understand	2
15	Define double element.	Remember	1
UNIT – IV **(MESUREMENT OF ENERGY)**		
1	Define energy.	Remember	1
2	Define energy in DC circuits.	Remember	1
3	Define energy in AC circuits.	Remember	1
4	Write the expression for driving torque in single-phase induction type energy meter.	Understand	2
5	What are the main two coils in energy meter?	Remember	1

S. No	Question	Blooms Taxonomy Level	Course Outcome
6	Define element in energy meter.	Remember	1
7	Define the nature of resistance in pressure and current coil in energy meter.	Remember	1
8	How the pressure and control coil of energy meter are connected in circuit?	Analyze	2
9	What is the different type of registering system of energy meter?	Remember	3
10	What is the importance of braking system in energy meter?	Understand	2
11	Give the arrangement to provide braking torque.	Understand	3
12	Suggest the type of connection of energy meter into circuit under different conditions.	Analyze	3
13	Define the static and running frictions in energy meter.	Remember	1
14	Give the expression for braking torque in energy meter.	Understand	2
15	Define double element.	Remember	1
UNIT –V **(POTENTIOMETER)**			
1	Define potentiometer.	Remember	1
2	What are the different types of potentiometer?	Remember	3
3	Draw the DC Crompton potentiometer.	Remember	1
4	What is the importance standard cell in DC Crompton potentiometer?	Understand	1
5	What is the importance of volt-ratio box in collaboration with DC Crompton potentiometer?	Understand	1
6	Draw the circuit diagram for calibration of ammeter using DC Crompton potentiometer.	Remember	1
7	Draw the circuit diagram for calibration of voltmeter using DC Crompton potentiometer.	Remember	1
8	Draw the circuit diagram for measurement of resistance using DC Crompton potentiometer.	Remember	1
9	Draw the circuit diagram for measurement of power using DC Crompton potentiometer.	Remember	1
10	Write the classification of AC potentiometer.	Remember	3
11	Define polar type potentiometer.	Remember	1
12	Define co-ordinate type potentiometer.	Remember	1
13	Name the polar type potentiometer.	Remember	1
14	Name the co-ordinate type potentiometer	Remember	1
15	Draw the drysdale type potentiometer.	Remember	1
UNIT –VI **(RESISTANCE MEASUREMENTS)**			
1	Define the resistance.	Remember	1
2	What are different ranges of unknown resistance?	Remember	3
3	Draw the wheat stone bridge for measurement of unknown resistance.	Remember	1
4	Draw the volt-amp method circuit for measurement of unknown resistance.	Remember	1
5	Draw the amp-volt method circuit for measurement of unknown resistance.	Remember	1
6	Define the sensitivity of wheat stone bridge.	Remember	1
7	Define the sensitivity galvanometer.	Remember	1

S. No	Question	Blooms Taxonomy Level	Course Outcome
8	What is the importance of carey foster bridge?	Evaluate	2
9	What is the importance of kelvin's double bridge?	Evaluate	2
10	Draw the Kelvin's double bridge.	Remember	1
11	Compare wheat stone bridge and substitution method to measure unknown resistance.	Evaluate	2
12	Write the expression for sensitivity of wheat stone bridge.	Understand	2
13	Write the expression for sensitivity of galvanometer.	Understand	2
14	What is the importance of meggar circuit?	Evaluate	2
15	Draw the circuit of substitution method.	Remember	1
UNIT –VII **A.C BRIDGES**		
1	What are the main classifications of bridge?	Remember	3
2	What is the condition for balance of bridge in DC bridges?	Analyze	4
3	What is the condition for balance of bridge in AC bridges?	Analyze	4
4	Write the condition for balance in terms of magnitude and phase for AC bridges.	Analyze	4
5	Draw the circuit diagram of wheat stone bridge.	Remember	1
6	Draw the circuit diagram of Maxwell's inductance bridge.	Remember	1
7	Draw the circuit diagram of Maxwell's inductance-capacitance bridge.	Remember	1
8	Draw the circuit diagram of Anderson bridge.	Remember	1
9	Draw the circuit diagram of Owen bridge.	Remember	1
10	Draw the circuit diagram of Campbell bridge.	Remember	1
11	Draw the circuit diagram of de-sauté's bridge.	Remember	1
12	Draw the circuit diagram of Schering bridge.	Remember	1
13	What are the different types of sources for AC bridges?	Remember	3
14	What are the different types of detectors in AC bridges?	Remember	3
15	Write the advantages and disadvantages of wheat stone bridge.	Understand	2
UNIT –VIII **MAGNETIC MEASUREMENTS**		
1	State the principle on which ballistic galvanometer.	Remember	2
2	State the principle on which flux meter.	Remember	2
3	What is the importance of ballistic galvanometer?	Understand	2
4	What is the importance of flux meter?	Understand	2
5	Draw the ballistic galvanometer.	Remember	1
6	Draw the flux meter.	Remember	1
7	Write the expression for torque governing ballistic galvanometer.	Understand	2
8	Write the expression for torque governing flux meter.	Understand	2
9	Write the applications of ballistic galvanometer.	Understand	3
10	Write the applications of flux meter.	Understand	3
11	Write the expression for equation of motion.	Understand	2
12	Write the advantage and disadvantages of ballistic galvanometer.	Understand	2
13	Write the advantage and disadvantages of flux meter.	Understand	2
14	Compare the ballistic galvanometer and flux meter.	Evaluate	3

S. No	Question	Blooms Taxonomy Level	Course Outcome
15	Define ballistic galvanometer.	Remember	1

Group – II LONG ASNWERS QUASTIONS

S. No	Question	Blooms Taxonomy Level	Course Outcome
	UNIT -1 **MEASURING INSTRUMENTS**		
1	Draw and explain the PMMC instrument construction along with operation	Remember	1
2	Draw and explain the MI attraction instrument construction along with operation.	Remember	1
3	Derive the expression for value of shunt in the universal aryton ammeter.	Create	2
4	Derive the expression for value of multiplier in the universal aryton voltmeter.	Create	2
5	Draw and explain the idio static instrument construction along with operation.	Remember	1
6	Derive the torque equation of MI instruments.	Create	2
7	What is loading effect? Explain with an example.	Remember	3
8	Give the main classifications of electrical instruments along with the definitions with relevant examples.	Understand	3
9	Define magnetic effect, electro-static effect, heat effect, chemical effect, induction effect.	Remember	2
10	Derive the expression for value of multiplier in the multi-range voltmeter.	Create	2
	UNIT –II **(INSTRUMENT TRANSFORMER)**		
1	Give the construction of current transformer and explain its operation.	Understand	1
2	Give the construction of potential transformer and explain its operation.	Understand	1
3	Draw and explain the construction and operation of 1-phase power factor meter.	Remember	1,2
4	Draw and explain the construction and operation of 3-phase power factor meter.	Remember	1,2
5	Draw and explain the construction and operation of weston type frequency meter.	Remember	1,2
6	Draw and explain the construction and operation of resonant type frequency meter.	Remember	1,2
7	Draw and explain the construction and operation of Weston type synchroscope.	Remember	1,2
8	Draw and explain the construction and operation of moving iron type frequency meter.	Remember	1,2
9	Draw and explain the construction and operation of moving iron type suynchroscopes.	Remember	1,2
10	Explain the difference between construction of 1-phase and 3-phase power factor meter and why?	Create	3
	UNIT –III **(MEASUREMENT OF POWER)**		
1	Draw and explain the construction and operation of electro-dynamometer wattmeter.	Remember	1,2
2	Derive the expression for correction factor of wattmeter.	Create	2

S. No	Question	Blooms Taxonomy Level	Course Outcome
3	Draw and explain the construction and operation of ferrodynamic wattmeter.	Remember	1,2
4	State the blondel's theorem and explain with an example.	Remember	2
5	Derive the expression for power factor angle in two wattmeter method for measurement of power.	Create	2
6	Draw and explain the construction and operation of 2 element wattmeter.	Remember	1,2
7	Draw and explain the construction and operation of var meter.	Remember	1,2
8	Explain the procedure to test whether the wattmeter measures exact power or not.	Understand	4
9	Prove the power statement in three-phase circuits using two wattmeter methods for unbalanced load.	Create	4
10	Prove the power statement in three-phase circuits using two wattmeter method.	Create	Iv
UNIT –IV (MESUREMENT OF ENERGY)			
1	Draw and explain the operation induction type energy meter.	Remember	1,2
2	What is phantom loading, explain with an example?	Remember	2
3	Explain the test-A procedure for testing of energy-meter.	Understand	4
4	Explain the test-B procedure for testing of energy-meter.	Understand	4
5	Explain the test-C procedure for testing of energy-meter.	Understand	4
6	Draw and explain the operation of maximum demand meter.	Remember	1,2
7	Explain the different type adjustments made for smooth working of energy-meter.	Understand	3
8	Draw and explain the two element energy-meter	Remember	1
9	Suggest the different methods to reduce the errors which effect the measurement of energy.	Understand	3
10	Compare the 1-phase and 3-phase induction type energy meter.	Understand	2
UNIT –V (POTENTIOMETER)			
1	Define potentiometer and explain the operation of DC Crompton potentiometer with neat sketch.	Remember	1
2	Draw and explain the operation of drysdale potentiometer.	Remember	1,2
3	Draw and explain the operation of gal tinsley potentiometer.	Remember	1,2
4	Give and explain the applications of DC Crompton potentiometer.	Understand	2
5	Give and explain the applications of AC Crompton potentiometer.	Understand	2
6	Distinguish between DC and AC potentiometer.	Understand	3
7	Explain the process of standardization for DC Crompton potentiometer.	Understand	2
8	Write different types of errors effecting the operation of DC Crompton potentiometer.	Understand	4
9	Explain the measurement of resistance and power using DC Crompton potentiometer.	Understand	2
10	Explain the measurement of voltage and current using DC Crompton potentiometer.	Understand	2
UNIT –VI (RESISTANCE MEASUREMENTS)			
1	Explain the method of volt-amp for measurement of resistance.	Understand	2
2	Explain the method of substitution method for measurement of resistance	Understand	2

S. No	Question	Blooms Taxonomy Level	Course Outcome
3	Draw and derive the expressions for unknown resistance using wheat stone bridge.	Remember	1,2
4	In the wheatstonebridge p= 1000 ohms, q = 100 ohms, r = 2005 ohms and s = 200 ohms.the battery has an emf of 5v. The galvanometer has a current sensitivity of 100mm/ micro amp andinternal resistanec of 100 ohms. Calculate the current through galvanometer and sensitivity of bridge	Apply	3
5	Draw and derive the expression for unknown resistance using Kelvin double bridge	Remember	1,2
6	Draw and explain the operation of megger circuit.	Remember	1,2
7	In a carey foster bridge a resistance of 1.0125 ohms is compared with standard resistance of 1.0000 ohms, the slide wire has a resistance of 0.250 ohms in 100 divisions. the ratio arms nominally each 10 ohms, are actually 10.05 and 9.95 ohms. Slide wire is of 100 cm. find the position of balance.	Apply	3
8	Draw and explain loss of charge method.	Remember	2
9	Compare the advantages and disadvantages of carey foster bridge, Kelvin's double bridge and wheat stone bridge.	Evaluate	3
10	Give the classifications of different ranges of resistance suggesting the best methods to measure.	Understand	3
UNIT –VII **(A.C BRIDGES)**		
1	Explain the basic construction of bridge.	Understand	1,2
2	Draw and derive the known parameters from Maxwell's inductance-capacitance bridge.	Remember	1,2
3	Draw and derive the known parameters from HAY'S bridge.	Remember	1,2
4	Draw and derive the known parameters from ANDERSON'S bridge.	Remember	1,2
5	Draw and derive the known parameters from OWEN'S bridge.	Remember	1,2
6	Draw and derive the known parameters from DE-SAUTY'S bridge.	Remember	1,2
7	Draw and derive the known parameters from CAMPBELL'S bridge.	Remember	1,2
8	Draw and derive the known parameters from WEIN'S bridge.	Remember	1,2
9	Draw and derive the known parameters from SCHERING bridge.	Remember	1,2
10	Draw and derive the known parameters from MAXWELL'S INDUCTANCE bridge.	Remember	1,2
UNIT –VIII **(MAGNETIC MEASUREMENTS)**		
1	Distinguish between d'arsonal and ballistic galvanometer.	Understand	3
2	Derive the expression for torque equation of galvanometer.	Create	2
3	Draw the construction and explain the operation of ballistic galvanometer.	Remember	1,2
4	Write the advantages and disadvantages of ballistic galvanometer.	Understand	3
5	What are the different types of errors effecting measurement by ballistic galvanometer and how?	Understand	3
6	Suggest the different methods for reducing the errors effecting measurement by galvanometer.	Analyse	iii
7	Derive the expression for torque equation of flux meter.	Create	3
8	Draw the construction and explain the operation of flux meter.	Remember	1,2
9	Write the advantages and disadvantages of flux meter.	Understanfd	3

S. No	Question	Blooms Taxonomy Level	Course Outcome
10	What are the different types of errors effecting measurement by flux meter and how?	Understand	3
11	Suggest the different methods for reducing the errors effecting measurement by flux meter.	Analyse	3
12	Derive the expression for equation of motion flux meter.	Create	2
13	Compare the ballastic galvanometer and flux meter.	Evaluate	3

GROUP – III ANALYTICAL QUESTIONS

S. No	Question	Blooms Taxonomy Level	Course Outcome
	UNIT -1 **MEASURING INSTRUMENTS**		
1	A moving-coil instrument gives a full scale deflection. When the current is 40 mA and its resistance is 25. Calculate the value of the shunt to be connected in parallel with the meter to enable it to be used as an ammeter for measuring currents up to 50 A.	Apply	3
2	A moving-coil instrument having a resistance of 10 ohms, gives a full scale deflection. When the current is 8 mA. Calculate the value of the multiplier to be connected in series with the instrument so that it can be used as a voltmeter for measuring full scale deflection up to 100 V	Apply	3
3	A moving-coil instrument gives full.scale.deflection. For a current of 10 mA. Neglecting the resistance of the instrument, calculate the approximate value of series resistance needed to enable the instrument to measure up to (a) 20 V (b) 100 V(c) 250 V	Apply	3
4	A meter of resistance 50 ohms has a full scale deflection of 4 mA. Determine the value of shunt resistance required in order that full scale deflection should be (a) 15 mA (b) 20 A (c) 100 A	Apply	3
5	A moving-coil instrument having a resistance of 20, gives af.s.d. when the current is5 mA. Calculate the value of the multiplier to be connected in series with the instrument so that it can be used as a voltmeter for measuring full. Scale. deflection up to 200 V	Apply	3
6	A moving-coil instrument has a full scale deflection of 20 mA and a resistance of 25 . Calculate the values of resistance required to enable the instrument to be used (a) as a 0–10 A ammeter and (b) as a 0–100 V voltmeter. State the mode of resistance connection in each case.	Apply	3
7	A meter has a resistance of 40 and registers a maximum deflection when a current of 15 mA flows. Calculate the value of resistance that converts the movement into(a) an ammeter with a maximum deflection of50 A (b) a voltmeter with a range 0–250 V	Apply	3
8	An ammeter has a full. Scale deflection. Of100 mA and a resistance of 50. The ammeter is used to measure the current in a load of resistance 500 when the supply voltage is 10 V. Calculate (a) the ammeter reading expected (neglecting its resistance)(b) the actual current in the circuit, (c) the power dissipated in the ammeter, and (d) the power dissipated in the load.	Apply	3
9	A voltage of 240 V is applied to a circuit consisting of an 800 resistor in series with a 1.6 k resistor. What is the voltage across the 1.6 k resistor? The potential differences across the 1.6k resistor is measured by a voltmeter of f.s.d.250 V and sensitivity 100 /V. Determine the voltage indicated	Apply	3

S. No	Question	Blooms Taxonomy Level	Course Outcome
10	A 0–1 A ammeter having a resistance of 50is used to measure the current flowing in 1 k resistor when the supply voltage is 250 V.Calculate: (a) the approximate value of current (neglecting the ammeter resistance), (b) the actual current in the circuit, (c) the power dissipated in the ammeter, (d) the power dissipated in the 1 k resistor.	Apply	3
11	(a) A current of 15 A flows through a load having a resistance of 4. Determine the power dissipated in the load. (b) A wattmeter, whose current coil has a resistance of 0.02 is connected (as shown in Fig. 10.13) to measure the power in the load. Determine the wattmeter reading assuming the current in the load is still15 A.	Apply	3
12	A PMMC instrument has a coil dimensions 15mm*12mm. the flux density in the air gap is 1.8 mWb/m*m and the spring constant 0.14micro N-m/rad. Determine the number of turns required to produce an angular deflection of 90degrees when a current of 5mA is flowing through the coil.	Apply	3
13	A PMMC instrument has a coil dimensions 15mm*12mm. the flux density in the air gap is 1.8 mWb/m*m and the spring constant 0.14micro N-m/rad. Determine the number of turns required to produce an angular deflection of 90degrees when a current of 5mA is flowing through the coil.	Apply	3
UNIT – II **INSTRUMENT TRANSFORMER**		
1	A current transformer has a single turn primary and a 200 turn's secondary winding. The secondary winding supplies a current of 5a to a non-inductive burden of 1 ohm resistance. The requisite flux set up in the core by an mmf of 80a.the frequency is 50hz and the net cross-section of the core is 1000mm2.calculate the ratio and phase angle error.	Apply	3
2	The exciting current of a ring core current transformer, of ratio 1000/5a when operating at full primmary.current and with a secondary burden of non-inductive resistance of 1ohm is 1a, at a power factor of 0.4.calculate phase and ratio error.	Apply	3
3	a 1000/5a 50 hz current transformer has a secondary burden comprising of non-inductive impedance of 1.6 ohms .the primary winding has one turn .calculate the flux in the core and ratio error at full load. Neglect leakage reactance and assume the iron loss in core to be 105w at full load. the magnetizing mmf is 100	Apply	3
4	a potential transformer ratio 1000/100v has the following constants: Primary resistance = 945 ohms, secondary resistance = 0.86 ohm, primary reactance = 66.2 ohms, total equivalent reactance = 110 ohms, no-load current at 0.4 power factor. calculate phase and ratio error	Apply	3
UNIT – III **(MEASUREMENT OF POWER)**		
1	the indication on a110v, 5a wattmeter used in conjunction with potential and current transformer of nominal ratio 100/1 and 20/1 respectively 350w.if the resistance and reactance of pressure coil is 362ohms and 100mh and the ratio and phase angle error of pt and ct are 0.8%, -45 deg and -0.2%, 90deg.what is the actual power measured, the load phase angle is 50deg and 500 hz.	Apply	3
2	In the two wattmeter method readings are 2000w and 500w respectively. Find the power factor of circuit. → when the both the readings are positive → If one of the wattmeter is obtained by interchanging terminals.	Apply	3
3	In the two wattmeter method readings are 7500w and-1500w	Apply	3

S. No	Question	Blooms Taxonomy Level	Course Outcome
	respectively. Find the power factor of circuit. → find the power factor of the circuit → If the voltage is 400v, what is the capacitance must be added such that only one wattmeter reads total power.		
4	A 3-ph motor load has power factor of 0.4. The reading of total input is 3-kw. Hence calculate reading of each wattmeter.	Apply	3
5	A wattmeter has a cc of 0.1ohm resistance resistance and pc of 6500 ohms resistance. Calculate the percentage in measurement. → 12a, 250v with unity power factor. → 12a, 250v with 0.4 power factor.	Apply	3
6	The cc of wattmeter connected in series with ammeter and inductive load .An voltmeter and pc are connected in parallel with 100hz supply. The readings are 4.5a, 240v and 23w.pc is of r = 2000 ohms and l = 10mh. What is the error in the measurement?	Apply	3
7	A wattmeter is rated at 10a 25v the cc is of (0.06+0.02j). The pc is purely resistive of 6250 ohms. Find the error due to two different types of connections. The load is 10a at apower factor of 0.174 lagging. the voltage across load is 25v	Apply	3
8	The cc of wattmeter connected in series with ammeter and inductive load. A voltmeter and pc are connected in parallel with 100hz supply. the readings are 4.5a, 240v and 23w.pc is of r = 2000 ohms and l = 10mh	Apply	3
	UNIT –IV **(MESUREMENT OF ENERGY)**		
1	Explain the phantom loading for the wattmeter with cc of 0.1 ohm and pc of 8800 ohms and dc source of 6v and 5A.	Apply	iii
2	The readings from the TEST A are RX = 10 RS = 10 KX= 1000 KS= 1200 find the error in the measurements.	Apply	3
3	The readings from the TEST B are nx = 10o within time of 10 sec rs = 10 kx= 150 within tome of 15 sec ks= 1200 Find the error in the Measurements.	Apply	3
4	The readings from the TEST C are RX = 5 T = 100 SEC KX= 100 V = 230 V I = 2A Find the error in the measurements.	Apply	3
5	The readings from the TEST C are RX = 5 T = 90 SEC KX= 1000 V = 230 V I = 4A Find the error in the measurements.	Apply	3
6	The readings from the TEST C are RX = 5 T = 60 SEC KX= 1000 V = 230 V I = 6A Find the error in the measurements.	Apply	3
7	The readings from the TEST C are RX = 5 T = 300 SEC KX= 1000 V = 230 V I = 8A find the error in the measurements	Apply	3
8	The readings from the TEST C are RX = 5 T = 20 SEC KX= 1000 V = 230 V I = 10A find the error in the measurements.	Apply	3
	UNIT –V **(POTENTIOMETER)**		
1	The potentiometer is operated in conjunction with volt-ratio box; the voltage measured by potentiometer is 0.86 with full scale deflection of 1.6 v. Determine the reading of potentiometer for the range of 75v, 150v, 300v.	Apply	3

S. No	Question	Blooms Taxonomy Level	Course Outcome
2	A simple slide wire is used for measurement of current in the circuit. the voltage across standard resistor of 0.1 ohm is at 75cm. Find the magnitude of current if the standard cell emf if 1.45v is balanced at 50 cm.	Apply	3
3	For the volt-ratio the input and output voltages are 100v and 2v. If the volt-ratio box is of (r1+r2) with 10m ohms. Determine the r1 and r2 values.	Apply	3
4	Calculate the inductance of coil from the following measurement of ac potentiometer. Voltage across 0.1 ohm standard resistor in series with coil is 0.613 with 12.6 deg. Voltage drop across test coil through 100/1 volt-ratio box is 0.718 with 50.48 deg.	Apply	3
5	Calculate the impedance of the coil voltage across 1 ohm standard resistor in series with coil is 0.238v and -0.085 v are in phase and quadrature voltage respectively Voltage drop across test coil through 10/1 volt-ratio box is 0.3375 and 0.232v are in phase and quadrature voltage respectively	Apply	3
UNIT –VI (RESISTANCE MEASUREMENTS)		
1	In the volt-ampere method the voltmeter and ammeter readings are 180V and 2A for the second type of connections. Find the error in the measurement.	Apply	3
2	A resistance of approximately 3000 ohms needed to balance the bridge. It is obtain on the 5 dial resistance box of 1000, 100, 10, 1, 0.1 ohms. The measuring is to be guaranteed to 0.1%.	Apply	3
3	In the Wheatstone bridge p= 1000 ohms, q = 100 ohms, r = 2005 ohms and s = 200 ohms. The battery has an emf of 5v. the galvanometer has a current sensitivity of 100mm/ micro amp and internal resistance of 100 ohms. Calculate the current through galvanometer and sensitivity of bridge.	Apply	3
4	A wheat stone bridge has ratio arm of 1000/100 ohms. to measure unknown resistance of 25 ohms. Two galvanometers are used – ➔ Galvanometer A - resistance of 50 ohms and sensitivity of 200 ➔ Galvanometer B - resistance of 600 ohms and sensitivity of 500	Apply	3
5	The values of resistors in wheat stone bridge are P = R = 1k ohms, S == 5k ohms, G = 100 ohms, derive the bridge	Apply	3
6	In a carey foster bridge a resistance of 1.0125 ohms is compared with standard resistance of 1.0000 ohms, the slide wire has a resistance of 0.250 ohms in 100 divisions. the ratio arms nominally each 10 ohms, are actually 10.05 and 9.95 ohms. Slide wire is of 100 cm. find the position of balance.	Apply	3
UNIT –VII (A.C BRIDGES)		

1	In the given bridge
	    ARM AB = L1 WITH r1 IN SERIES WITH R1
	    ARM AD = 47.8 Mh in series with 32.7 ohms
	    ARM BC = 100 OHMS
	    ARM CD = 100 OHMS
	    IF BALANCE IS OBTAINED FOR R1 = 1.36 OHMS
	    CALCULATE L1 AND r1.
		Apply	3

2	In the given bridge	Apply	3

S. No	Question	Blooms Taxonomy Level	Course Outcome
	ARM AB = L1 IN SERIES WITH R1 ARM AD = 2410 OHMS ARM BC = 750 OHMS ARM CD = 0.35 MICRO F WITH 64.5 OHMS FIND THE UNKNOWN PARAMETERS.		
3	In the given bridge ARM AB = L1 WITH r1= 43.1 OHMS IN SERIES WITH R1 ARM AD = 250 OHMS ARM BC = 100 OHMS ARM CD = 200 OHMS ARM DE = 229.7 OHMS ARM CE = 1 MICRO F. THE UNKNOWN PARAMETERS.	Apply	3
4	In the given bridge ARM AB = 200 OHMS IN PARALLEL 1 MICRO F ARM AD = R2 IN SERIES WITH 2 MICRO F. ARM BC = 400 OHMS ARM CD = 1000 OHMS FIND THE UNKNOWN PARAMETERS.	Apply	3
5	In the given bridge ARM AB = C1 IN SERIES WITH R1 ARM AD = 5.2 OHMS IN SERIES WITH 0.5 MICRO F ARM BC = 2000 OHMS ARM CD = 2850 OHMS FIND THE UNKNOWN PARAMETERS.	Apply	3