Electrical and Electronic Measurement

1) In a gravity controlled instrument,the deflection angle is proportional to
a) measurand b) square of measurand
c) sine inverse of measurand d) sine of measurand
= Answer (c) sine inverse of measurand

2) In a moving iron meter,the deflection torque is proportional to
a) square of the current through the coil
b) current through the coil
c) sine of measurand
d) square root of the measurand
= Answer (a) square of the current through the coil

3) PMMC type instruments normally used for
a) air friction damping b) fluid friction damping
c) eddy current damping d) None of the above
= Answer (c) eddy current damping

4) Electrostatic instruments are normally used for
a) low current measurements b) high current measurements
c) low voltage measurents d) high voltage measurents
 = Answer (d) high voltage measurents

5) No eddy current and hysteresis losses occur in
a) electrostatic instruments b) PMMC instruments
c) moving iron instruments d) electrodynamometer instruments
= Answer (a) electrostatic instruments

6) A meter has a full scale of 90^0 at current of 1 A.This meter has perfect square law response.What is the current when the deflection angle is 45^0?
a) 0.5 A b) 0.25 A c) 0.707 A d) 0.67 A
= Answer (c) 0.707 A
$\theta \propto I^2$
$=> \theta = KI^2$
$=> K \times 1^2 = 9$
$\therefore K = 90$
$\because \theta = KI^2$
$=> 90 \times I^2 = 45$
$=> I^2 = \frac{45}{90}$
$=> I^2 = \frac{1}{2}$
$=> I = \frac{1}{\sqrt{2}}$
$\therefore I = 0.707$

7) The power of 6-phase circuit can be measured with minimum of
a) one wattmeter b) five wattmeter

c) three wattmeter d) six wattmeter
= Answer (b) five wattmeter
Number of wattmeter = $\phi - 1$
$$= 6 - 1$$
$$= 5$$

8) In the two wattmeter method of measuring power in a balance three-phase circuit,on wattmeter shows zero and the other positive maximum.The load power factor is
a) zero b) 0.5 c) 0.866 d) 1.0
= Answer (b) 0.5

9) The CT supplies current to the current coil of a wattmeter power factor meter,energy meter and an ammeter.These are connected as
a) all coils in parallel b) all coil in series
c) series parallel connection with two in each arm d) None of the above
= Answer (b) all coil in series

10) A PT is a device which is
a) electro-statically coupled b) electrically coupled
c) electromagnetically coupled d) conductively coupled
= Answer (c) electromagnetically coupled

11) Usually a CT has
a) power overload capacity than a PT b) the same overload capacity as a PT
c) a higher overload capacity than a PT d) no overload capacity
= Answer (c) a higher overload capacity than a PT

12) The problem of electro-static coupling in a transformer is acute at
a) low frequency b) power frequency
c) high frequency d) high load on the transformer
= Answer (c) high frequency

13) Two wattmeter method can be used
a) for balanced power
b) for unbalanced power
c) for reactive power measurement
d) for all three purposes mentioned above
= Answer (d) for all three purposes mentioned above

14) In three-phase power measurement the power factor of load will be
a) $\sqrt{3}\frac{(W_1-W_2)}{W_1+W_2}$ b) $W_1 + W_2$ c) $\frac{W_1-W_2}{W_1+W_2}$ d) $\frac{W_1-W_2}{\sqrt{W_1+W_2}}$
= Answer (a) $\sqrt{3}\frac{(W_1-W_2)}{W_1+W_2}$

15) In two wattmeter methodof measuring 3-phase power,power factor is 0.5,then one of the wattmeter will read
a) $\frac{W}{2}$ b) zero c) $\sqrt{2}$W d) $\frac{W}{\sqrt{3}}$

= Answer (b) zero

16) For power measurement of three-phase circuit by two wattmeter method,when the value of power factor is less than 0.5 lagging
a) one of the wattmeter will read zero
b) both give the same readings
c) one of the wattmeter connections will have to be reversed
d) pressure coil of the wattmeter will become ineffective
= Answer (c) one of the wattmeter connections will have to be reversed

17) The current coil of a wattmeter is connected to the CT and R-phase.The potential coil is connected across Y and B phases.The wattmeter measures
a) active power in R-phase
b) active power in Y-phase
c) reactive power in R-phase
d) power proportional to 3-phase power,if the load is balanced.
= Answer (c) reactive power in R-phase

18) Inductance is measured by
a) Wein's bridge b) Schering's bridge
c) Maxwell's bridge d) Owen's bridge
= Answer (c) Maxwell's bridge

19) Schering bridge is used to
a) determine capacitance b) determine the inductance
c) measure lo resistance d) measure mutual inductance
= Answer (a) determine capacitance

20) Which bridge is used to determine frequency ?
a) Anderson bridge b) De-Sauty's bridge
c) Wein's bridge d) Cambell's bridge
= Answer (c) Wein's bridge

21) Ionic wind voltmeter is used for measuring
a) low voltage b) interwinding capacitance
c) leakage inductance d) high voltage
= Answer (d) high voltage

22) The instrument used normally to check the insulation resistance is
a) multimeter b) ohm-meter
c) tong-tester d) Megger
= Answer (d) Megger

23) The absolute measurement of resistance is done by
a) Ohm's law method b) Bridge method
c) Rayleigh method d) Lorenz method
= Answer (d) Lorenz method

24) Low resistance is measured by
a) De-Sauty's bridge b) Maxwell's bridge
c) Kelvin's double bridge d) Wein's bridge
= Answer (c) Kelvin's double bridge

25) The resistance can be measured must accurately by
a) voltmeter-ammeter method b) bridge method
c) multimeter d) megger
= Answer (b) bridge method

26) Wein's bridge is useful for measuring
A) very high frequency b) low frequency
c) medium frequency d) high frequency
= Answer (d) high frequency

27) A megger is usually
a) moving iron type instrument b) electrostatic type instrument
c) hotwire type instrument d) moving coil type instrument
= Answer (d) moving coil type instrument

28) Match List I with List II and select the correct answer using the codes given below the lists.

List I	List II
P. Megger	1. Measurement of loss angle in a dielectric
Q. Spectrum analyser	2. Measurement of frequency
R. Schering bridge	3. Measurement of insulation resistance
S. Digital counter	4. Measurement of harmonics

Codes

	P	Q	R	S
a)	1	2	3	4
b)	1	2	4	3
c)	4	3	2	1
d)	3	4	1	2

	P	Q	R	S
= Answer (d)	3	4	1	2

29) In Wein's bridge,the output frequency is determined by
a) RLC combination b) LC combination
c) RC combination d) RL combination
= Answer (c) RC combination

30) A CRO uses
a) electromagnetic focusing b) electrostatic focusing
c) both focusing techniques d) no focusing technique
= Answer (b) electrostatic focusing

31) To the Y input of a CRO,we feed a signal defined by 10 sin 100 t,to the X-input,we feed signal 10 cos 100 t.The gain for both X channel and Y channel is same,the screen shows
a) sinusoidal signal b) a straight line

c) an ellipse d) a circle
= Answer (d) a circle

32) A CRO can display
a) AC signals b) DC signals
c) both AC and DC signals d) time invariant signals
= Answer (c) both AC and DC signals

33) An Oscilloscope indicates
a) peak to peak value of voltage b) DC value of voltage
c) rms value d) average value
= Answer (a) peak to peak value of voltage

34) X and Y plates of a CRO are connected to unequal voltages of equal requency with phase shift of 90^0.The Lissajaus figure on the screen will be
a) circle b) straight line c) ellipse d) figure of eight
= Answer (c) ellipse

35) The source of emission of electrons in a circle is
a) p-n junction diode
b) a barium nd strontium oxide coated cathode
c) accelerating anode
d) post-accelerating anode
= Answer (d) post-accelerating anode

36) In CRT aquadag carries
a) aqueous solution of graphite b) sweep voltage
c) secondary emmision electrons d) None of the above
= Answer (a) aqueous solution of graphite

37) A recorder
a) is an indicating instrument which displays a time varying signal
b) is a device whose function is to record the value of quantity as it is eing measured
c) records electrical and non-electrical quantities as a function of time or relates two signal to each other
d) Both (b) and (c)
= Answer (d) Both (b) and (c)

38) The bridge shown below is used for measurement of coil inductance having Q factor
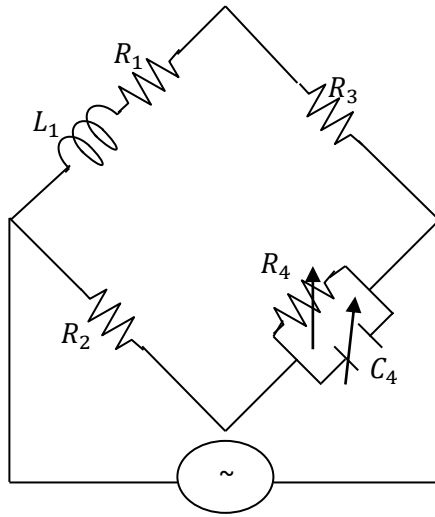
a) 1<Q<10 b) Q<1 c) Q<10 d) None of these
= Answer (a) 1<Q<10

39) The readings of polar type potentiometer are

$$V = 30.5 < 35.6^0$$
$$I = 11.3 < 24.7^0$$

Then,reactance of the coil will be

a) 2.65 Ω b) – 2.65 Ω c) 2.51 Ω d) 2.87 Ω
= Answer (c) 2.51 Ω

$Z = \dfrac{30.5 < 35.6^0}{11.3 < 24.7^0}$

  = 2.69< 10.9^0

Z = R + jX

R = 2.69 $\cos 10.9^0$

X = 2.69 $\sin 10.9^0$

∴Z = 2.64 + j2.51

Reactance X = 2.51

40) Consider the following statements regarding the sources of error in Q meter :
1. If a coil with a resistance R is connected in the direct measurement mode and if the residual resistance of the Q meter is 0.1 R,then the measured Q of the coil would be 1.1 times the actual Q.
2. If the inductance to be measured is less than 0.1 μH,the error due to the presence of residual inductance can not neglected.
3. The presence of distributed capacitance in a coil modifieds the effective Q of the coil.
a) 1,2 and 3 are correct b) 1 and 2 are correct
c) 2 and 3 are correct d) 1 and 3 are correct
 = Answer (c) 2 and 3 are correct

41) Eddy current damping can be used for moving iron instrument because
a) weight of the instrument will increase
b) presence of permanent magnet required for this purpose will affect the deflection and the instrument reading

c) sie of instrument will increase

d) eddy current will pass through the iron and thereby cause loss

= Answer (b) presence of permanent magnet required for this purpose will affect the deflection and the instrument reading

42) The moving iron instruments

a) indicate the same value of measurand for both ascending and descending values

b) indicate higher value of measurand for descending values

c) indicate lower value f measurand for ascending values

d) may indicate any of the higher or lower values of measured for ascending and descending values

= Answer (b) indicate higher value of measurand for descending values

43) For a given frequency,the deflecting torque of an induction ammeter is directly proportional to

a) $(current)^2$ b) $(current)^3$ c) $\sqrt{current}$ d) current

= Answer (a) $(current)^2$

44) The scale of a dynamometer type instrument marked in terms of rms value would be

a) uniform through out

b) non-uniform crowded near full scale

c) non-uniform crowded at the beginning

d) non- uniform crowded around mid scale

= Answer (c) non-uniform crowded at the beginning

45) In PMMC instruments damping is provide by

a) the coil itself

b) separate pair of magnets

c) an aluminium frame on which the coil is wound

d) damping vane in an air tight chamber

= Answer (c) an aluminium frame on which the coil is wound

46) The sensitivity of galvanometer can be improved by

a) increasing the length of potentiometer wire

b) reducing the resistance of the rheostat connected in series with the battery

c) reducing the current flowing through the potentiometer wire

d) reducing the length of otentiometer wire

= Answer (a) increasing the length of potentiometer wire

47) Which statement is incorrect regarding moving iron instruments?

a) It indicates higher value of measurand for descending values when measuring voltage or current

b) It can be used as standard instrument for calibration of other instruments

c) It indicates lower values for AC voltages than for corresponding DC voltage

d) It can be used as indicator type instrument as on panels

= Answer (b) It can be used as standard instrument for calibration of other instruments

48) The MI ammeter is connected in a circuit hown below.What happens,if the terminal connections of the ammeter are interchanged?
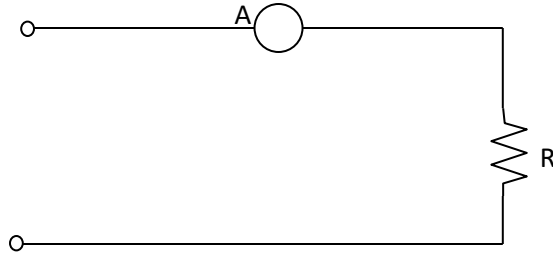
a) It will not indicate the reading
b) It will indicate the same reading
c) The pointer will be deflected in opposite direction
d) It will indicate the full scale reading
= Answer (b) It will indicate the same reading

49) An unshielded MI voltmeter is used to measure the voltage in an AC circuit.If stray DC magnetic field having a component along the axis of the meter coil appears,the meter reading would be
a) unaffected
b) decreased
c) increased
d) either decreased or increased depending upon the direction of DC field
= Answer (c) increased

50) Moving iron instrument can be used as
a) an ammeter for measuring DC as well as AC
b) a voltmeter for measuring DC as well as AC
c) for measuring DC current and voltages only
d) Both (a) and (b)
= Answer (d) Both (a) and (b)

51) A10 mA PMMC ammeter reads 4 mA in a ircuit.Its bottom control spring snaps suddenly.The meter will now nearly
a) 10 mA b) 8 mA c) 2 mA d) zero
= Answer (d) zero

52) An advantage of a permanent magnet moving coil instrument is that it is
a) free from friction error
b) has high (torque/weight of the moving parts) ratio
c) has low (torque/weight of the moving parts) ratio
d) can be used on both AC and DC
= Answer (b) has high (torque/weight of the moving parts) ratio

53) The moving coil in a dynamometer wattmeter is connected
a) in series with the fixed coil
b) across the supply
c) in series with the load
d) across the load
= Answer (b) across the supply

54) Electrodynamic type wattmeters have large errors while measuring power in AC circuits at low power factor conditions,since the voltage across and the current through the
a) current coil are not in phase b) current coil are not in quadrature
c) pressures coil are not in phase d) pressure coil are not in quadrature
= Answer (c) pressures coil are not in phase

55) An analog electronic circuit that measures rms value of the input voltage by averaging the square of the instantaneous voltage level,responds slowly to changes in the input signal due to
a) the square function built into the circuit
b) the square-root function built into the circuit
c) the averaging function built into the circuit
d) None of the above
= Answer (c) the averaging function built into the circuit

56) The minimum number of wattmeter(s) required to measure 3-phase,3 wire balanced or unbalanced power is
a) 1 b) 2 c) 3 d) 4
= Answer (b) 2
The minimum number of wattmeters = $\phi - 1$
$$= 3 - 1$$
$$= 2$$

57) The pressure coil of a dynamometer type wattmeter is
a) highly inductive b) highly resistive
c) purely resistive d) purely inductive
= Answer (b) highly resistive

58) The coil having self inductance of 10 mH and 15 mH have an effective inductance of 40 mH,when connected in series aiding.What will be the equivalent inductance,if we connect them in series opposing?
a) 20 mH b) 10 mH c) 5 mH d) zero
= Answer (b) 10 mH
When connected in series aiding,
$$L_1 + L_2 + 2M = 40$$
$$=>10 + 15 + 2M = 40$$
$$=>2M = 40 - 25$$
$$\therefore 2M = 15$$
When series opposing,
$$L_{eq} = L_1 + L_2 - 2M$$
$$= 10 + 15 - 15$$
$$= 10$$

59) Standarization of potentiometers is done in order that,the become
a) accurate
b) precise
c) accurate and direct reading
d) accurate and precise
= Answer (c) accurate and direct reading

60) The sensitivity of an instrument is the
a) smallest increment in the input that can be detected with certainly
b) largest input change to which the instrument fails to respond
c) ratio of the change in the magnitude of the output to the corresponding change in the magnitude of the input
d) closeness of the output values of repeated applications of a constant input
= Answer (c) ratio of the change in the magnitude of the output to the corresponding change in the magnitude of the input

61) The standardization of AC potentiometer is done by
a) using DC standard source and d' Arsonval galvanometer
b) using AC standard sources and transfer instruments
c) directly using AC standard voltage sources
d) using DC standard sources and transfer instrument
= Answer (d) using DC standard sources and transfer instrument

62) In De-Sauty bridge (unmodified form) balance is obtained when
a) both the capacitors are perfect
b) any one of the capacitor is perfect
c) both the capacitors are imperfect
d) None of the above
= Answer (a) both the capacitors are perfect

63) In Wein's bridge,the output frequency is determined by
a) RLC combination b) LC combination
c) RC combination d) RL combination
= Answer (c) RC combination

64) Match List I with List II and select the correct answer using the codes given below the lists.

List I	List II
P. Schering's bridge	1. Insulation resistance
Q. Anderson's bridge	2. Self inductance
R. Megger	3. Capaciance
S. Compbell's bridge	4. Mutual inductance

Codes

	P	Q	R	S
a)	3	2	1	4
b)	2	3	1	4
c)	3	1	4	2
d)	1	2	4	3

	P	Q	R	S
= Answer (a)	3	2	1	4

65) The disadvantage of Maxwell bridge is
a) inductance cannot be measured over wide range
b) measurement is not independent of frequency
c) number of components is large

d) None of the above

= Answer (a) inductance cannot be measured over wide range

66) Match List I with List II and select the correct answer using the codes given below the lists.

List I	List II
P. Kelvin double bridge	1. Capacitance
Q. Wein's bridge	2. Self inductance
R. Schering's bridge	3. Frequency
S. Maxwell's bridge	4. Low resistance

Codes

	P	Q	R	S
a)	4	1	2	3
b)	1	4	3	2
c)	4	3	1	2
d)	2	4	2	3

	P	Q	R	S
= Answer (c)	4	3	1	2

67) A Kelvin double bridge is best suited for the measurement of
a) inductance b) capacitance
c) low resistance d) high resistance
= Answer (c) low resistance

68) In the single-phase induction meter,in order to obtain true value of energy,the shunt magnetic flux should lag behind the applied voltage by
a) 90^0 b) 0^0 c) 45^0 d) None of these
= Answer (a) 90^0

69) Fluid friction damping can be used in
a) horizontally mounted instrument
b) vertically mounted instrument
c) both in horizontally and vertically mounted instrument
d) none of the above
= Answer (b) vertically mounted instrument

70) A compensated wattmeter has its reading corrected for error due to the
a) frequency
b) friction
c) power consumed in current coil
d) power consumed in potential coil
= Answer (d) power consumed in potential coil

71) Creeping n energy meter implies
a) slow rotation of rotor with only voltage coil excited
b) slow rotation of rotor with current coil excited
c) fast rotation of rotor with current coil excited
d) None of the above
= Answer (a) slow rotation of rotor with only voltage coil excited

72) In this measurement of 3-phase power by 2-wattmeter method,if the 2 wattmeter reading are equal,the power factor of the circuit is
a) 0.8 lagging b) 0.8 leading c) zero d) unity
= Answer (d) unity

73) An instrument will have uniform scale only when
a) damping torque varies directly as the deflection angle
b) controlling torque varies directly as the deflection angle
c) deflecting torque varies directly as the magnitude of the quantity under measurement
d) Both (b) and (c)
= Answer (d) Both (b) and (c)

74) The shunt type ohmmeter is not suitable for high resistance measurements because
a) a very low resistance of the meter would short the high unknown resistance
b) scale is highly cramped for high resistance values
c) fuul scale value of the meter may be exceeded
d) battery cannot supply the necessary current for proper meter deflection
= Answer (b) scale is highly cramped for high resistance values

75) Choose the correct statement regarding two wattmeter method for power measurements in 3-phase circuit.
a) When power factor is unity,one of the wattmeter reads zero
b) When the readings of the two wattmeters are equal but opposite sign,the power factor is zero
c) Power can be measured using two wattmeter method only for star connected 3-phase circuit
d) When two wattmeters show identical readings,the power factor is 0.5
= Answer (b) When the readings of the two wattmeters are equal but opposite sign,the power factor is zero

76) The ratio of the reading of 2wattmeters connected to measure power in a balanced 3-phase load is 2 : 1 and he load is inductive.The power factor of load is
a) 0.866 lag b) 0.615 lead c) 0.866 lead d) 0.625 lag
= Answer (a) 0.866 lag

Power factor = $\cos tan^{-1}\sqrt{3}(\frac{W_1-W_2}{W_1+W_2})$

Given,

$$\frac{W_1}{W_2} = \frac{2}{1}$$

P.F. = $\cos tan^{-1}\sqrt{3}(\frac{W_1-W_2}{W_1+W_2})$

= $\cos tan^{-1}\sqrt{3}(\frac{\frac{W_1}{W_2}-1}{\frac{W_1}{W_2}+1})$

= $\cos tan^{-1}\sqrt{3}(\frac{2-1}{2+1})$

= $\cos tan^{-1}(\frac{1}{\sqrt{3}})$

= $\cos 30^0$

= 0.866 lag

77) Choose the correct statement regarding electrodynamometer type of wattmeters.

a) Its current coil carrying igh current use standard conductors to reduce eddy current losses in conductors
b) The current wire is made fixed
c) The error produced by pressure coil is higher at low power factor
d) All of the above
= Answer (a) Its current coil carrying igh current use standard conductors to reduce eddy current losses in conductors

78) In DC potentiometer measurements,a second reading is often taken after reversing the polarities of the DC supply and the unknown voltage and the average of the two readings is taken.This is with a view to eliminate the effect of
a) ripples in the DC supply b) stray magnetic fields
c) stray thermal emf's d) erroneous standardization
= Answer (c) stray thermal emf's

79) …………... torque is not provided in an electromagnetic fluxmeter.
a) Damping b) Eddy current c) Controlling d) None of these
= Answer (c) Controlling

80) Fringing in a capacitive type transducer can be minimized by providing a
a) guard ring b) plate area c) dielectric d) None of these
= Answer (a) guard ring

81) The scale of a voltmeter is uniform.Its type is
a) moving iron
b) induction
c) moving coil permanent magnet
d) moving coil dynamometer
= Answer (b) induction

82) A dynamometer type wattmeter responds to the
a) average value of active power
b) average value of reactive power
c) peak value of active power
d) peak value of reactive power
= Answer (a) average value of active power

83) A transfer instrument employed in the standardization of a polar type AC potentiometer is
a) an electrostatic instrument b) a thermal instrument
c) a dynamometer instrument d) a moving coil instrument
= Answer (b) a thermal instrument

84) In a LVDT,the two secondary voltages
a) are independent of the core position
b) vary unequally depending on the core position
c) vary equally depending on the core position
d) are always in the phase quadrature
= Answer (b) vary unequally depending on the core position

85) A moving coil galvanometer is made into a DC ammeter by connecting
a) a low resistance across the meter
b) a high resistance in series wih the meter
c) a pure inductance across the meter
d) a capacitor in series with the meter
= Answer (a) a low resistance across the meter

86) A manganin swamp resistance is connected in series with a moving coil ammeter consisting of a mili-ammeter and a suitable shunt in order to
a) minimize the effect of temperature variation
b) obtain large deflecting torque
c) reduce the size of the meter
d) minimize he effect of stray magnetic field
= Answer (a) minimize the effect of temperature variation

87) The effect of stray magnetic fields on the actuating torque of a portable instrument is maximum when the operating field of the instrument and the stray fields are
a) perpendicular b) parallel
c) inclined at 60^0 d) inclined at 30^0
= Answer (b) parallel

88) The two input of a CRO are fed with two stationary periodic signals.In the X-Y mode,the screen shows a figure which changes from ellipse to circle and back to ellipse with its mazor axis changing orientation slowly and repeatedly.The following inference can be made from this.
a) The signals are not sinusoidal
b) The amplitude of the signals are very close but not equal
c) The signalsare sinusoidal with their frequencies very close but not equal
d) There is a constant but small phase difference between the signals
= Answer (d) There is a constant but small phase difference between the signals

89) A null type of instrument as compared to a deflection type instrument has
a) a higher accuracy b) a lower sensitivity
c) a faster response d) All of these
= Answer (a)) a higher accuracy

90) Kelvin's double bridge is used for the measurement of
a) high resistance b) medium resistance
c) low resistance d) All of these
= Answer (c) low resistance

91) In Wheatstone bridge all resistances are of RΩ and the battery has zero internal resistance.Then,the value of galvanometer resistance for maximum sensitivity of bridge will be
a) RΩ b) 4RΩ c) 2RΩ d) 1.5RΩ
= Answer (a) RΩ

92) The operation of megger is based on
a) dynamometer b) electrostatic meter

c) moving coil meter d) moving iron meter
= Answer (c) moving coil meter

93) Swamping resistance is connected
a) in series with a voltmeter coil and have the high temperature coefficient in order to reduce the temperature error
b) in series with a voltmeter coil and have the lowest temperature coefficient of resistance in order to reduce the temperature error
c) in series with ammeter to increase its range
d) in series with an ammeter coil to reduce temperature error
= Answer (b) in series with a voltmeter coil and have the lowest temperature coefficient of resistance in order to reduce the temperature error

94) The bridge shown in the below figure is
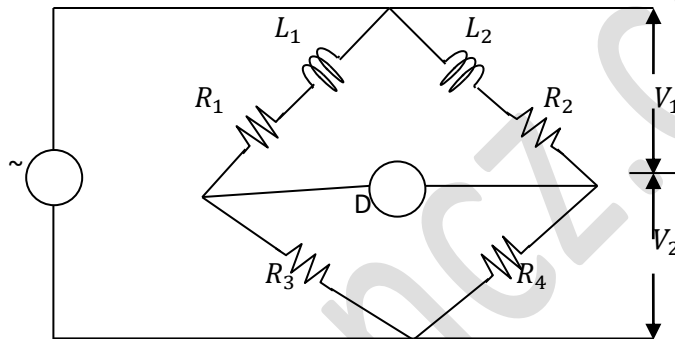
a) Maxwell's bridge b) Wien's bridge
c) Anderson's bridge d) Hay's bridge
= Answer (a) Maxwell's bridge

95) A digital voltmeter measures
a) peak value b) peak to peak value
c) rms value d) average value
= Answer (d) average value

96) Which of the following is/are advantage of instrument transformer?
a) The readings of instruments used in conjuction with them,do not depend upon their resisType equation here.tance,inductance etc.
b) The readings of instruments transformer have been standardized and the rating of instruments used in conjuction used with them also get standardized.Therefore,there is reduction of cost and case in replacements
c) The metering circuit is electrically isolated from the power circuit thereby providing safety to operating personnel
d) All of the above
= Answer (d) All of the above

97) When the secondary winding of a current transformer is open-circuited with the primary winding energized.

a) the whole of the primary current produces large value of flux in the core (limited only saturation) there by producing a large voltage in the secondary winding
b) the large voltage may act as safety hazard for the operators and many even repture the insulation.
c) when the large magnetizing force is taken-Off,it leaves a large value of residual magnetism
d) All of the above
= Answer (b) the large voltage may act as safety hazard for the operators and many even repture the insulation.

98) In a Q meter,distributed capacitance of coil is measured by changing the capacitance of the tuning capacitor.The values of tuning capacitor are C_1 and C_2 for resonant frequencies f_1 and $2f_2$ respectively.The value of distributed capacitance is
a) $\frac{C_1 - C_2}{2}$ b) $\frac{C_1 - 2C_2}{3}$ c) $\frac{C_1 - 4C_2}{3}$ d) $\frac{C_1 - 3C_2}{2}$
= Answer (c) $\frac{C_1 - 4C_2}{3}$

99) The source of emission of electrons in a CRT is
a) p-n junction diode
b) a barium and strontium oxide coated cathode
c) accelerating anodes
d) post-accelerating anodes
= Answer (d) post-accelerating anodes

100) The advantages of instrument transformers over ammeter shunts and voltage multiplies are
a) the metering circuit is electrically isolated from the power circuit thereby providing safety in use to both the instrument and the operator
b) small power losses in comparison to those in ammeter shunt and voltmeter multiplier
c) the instrument transformers can be used for both DC as well as AC measurements
d) Both (a) and (b)
= Answer (a) the metering circuit is electrically isolated from the power circuit thereby providing safety in use to both the instrument and the operator

101) Q factor of a coil measured by the Q meter is …………… the actual Q of the coil.
a) equal to
b) same what lesser than
c) same what higher than
d) not equal to
= Answer (b) same what lesser than

102) Q meter operator is the principle of
a) series resonance b) current resonance
c) self inductance d) eddy currents
= Answer (a) series resonance

103) The primary current in a current transformer is directed by
a) the secondary burden b) the core of the transformer
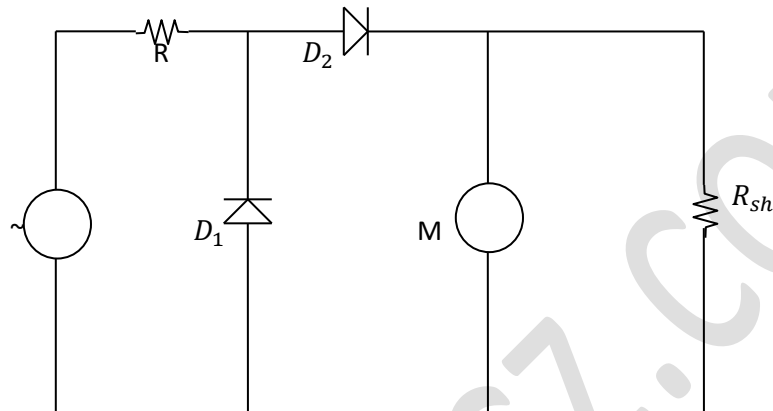c) the load current d) None of the above
= Answer (c) the load current

104) Q meter is used to measure
a) Q factor of an inductive coil
b) inductance,effective resistance and self capacitance
c) bandwidth
d) All of the above
= Answer (d) All of the above

105) In the multimeter shown in the figure for AC voltage measurement,the function of diode D_1 is to

a) provide half wave rectification
b) make the rectifier D_2 perform full-wave rectification
c) by-pass reverse leakage current of D_2 in the negative cycle of the input
d) short-circuit over range voltages
= Answer (c) by-pass reverse leakage current of D_2 in the negative cycle of the input

106) The ratio and phase angle errors in a well designed Current Transformer (CT) are kept within specified limits by using
a) ferrite core
b) strip would core
c) some fractional turns
d) in-built compensating capacitors
= Answer (a) ferrite core

107) Precautions are essential for ensuring that the secondary of a CT is not open-circuited when the primary circuit carries a current because
a) dangerously high voltage might develop across the secondary
b) the ferromagnetic core may develop residual magnetism
c) the reflected impedance may prevent the flow of current in the primary circuit
d) None of the above
= Answer (b) the ferromagnetic core may develop residual magnetism

108) The two-wattmeter method is used to measure active power on a three-phase,three wire system.If the phase voltage is unbalanced,then the power reading is
a) affected by both negative sequence and zero sequence voltages

b) affected by negative sequence voltages but not by zero sequence voltages

c) affected by zero sequence voltages but not by negative sequence voltages

d) not affected by negative or zero sequence voltages

= Answer (d) not affected by negative or zero sequence voltages