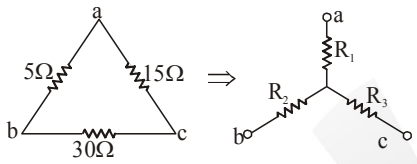
CONTENTS

BASICS OF CIRCUIT AND CIRCUIT LAW

CHAPTER 1

OBJECTIVE QUESTIONS

1. A delta connected network with its Y-equivalent is shown in figure. The resistances R_1, R_2 and R_3 (in ohms) are respectively



(a) 1.5, 3 and 9 (b) 3, 9 and 1.5

(c) 9, 3 and 1.5 (d) 3, 1.5 and 9

2. A network contains linear resistors and ideal voltage sources. If values of all the resistors are doubled then the voltage across each resistor is

(a) Halved (b) Doubled

(c) Increased by four times (d) Not changed

3. A 3 H inductor has 2000 turns. How many turns must be added to increase the inductance to 5H?

(a) 1000 turns (b) 2500 turns

(c) 2582 turns (d) 582 turns

4. An electric circuit with 10 branches and 7 nodes will have

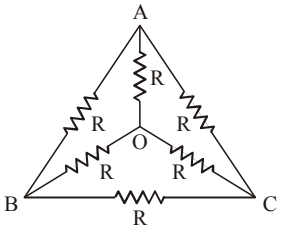
(a) 3 loop equations (b) 4 loop equations

(c) 7 loop equations (d) 10 loop equations

5. The response of network is $i(t) = Kt\, e^{-\alpha t}$ for $t \geq 0$ where α is real positive. The value of 't' at which the i(t) will become maximum, is

(a) α (b) 2α (c) $\frac{1}{\alpha}$ (d) α^2

6. The effective resistance between the terminals A and B in the circuit shown in the figure is



(a) R (b) R–1 (c) $\frac{R}{2}$ (d) $\frac{6}{11}R$

7. If the length of a wire of resistance R is uniformly stretched to n times its original value, its new resistance is

(a) nR (b) $\frac{R}{n}$ (c) n^2R (d) $\frac{R}{n^2}$

8. Two wires A and B of the same material and length L and 2L have radius r and 2r respectively. The ratio of their specific resistance will be

(a) 1 : 1 (b) 2 : 1 (c) 1 : 4 (d) 1 : 8

9. Two incandescent light bulbs of 40 W and 60 W rating are connected in series across the mains. Then

(a) The bulbs together consume 100 W

(b) The bulbs together consume 50 W

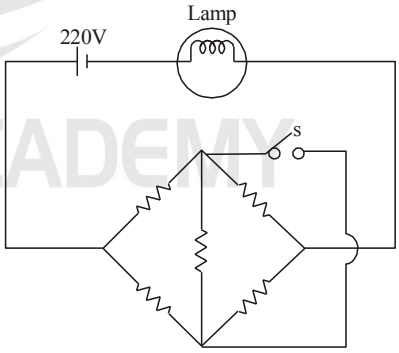
(c) The 60 W bulb glows brighter

(d) The 40 W bulb glows brighter

10. Twelve 1 Ω resistances are used as edges to form a cube. The resistance between the two diagonally opposite corners of the cube is

(a) $\frac{5}{6}\Omega$ (b) 1 Ω (c) $\frac{6}{5}\Omega$ (d) $\frac{3}{2}\Omega$

11. All resistance in the given circuit are at R Ω each. The switch is initially open. What happens to the lamp's intensity when the switch is closed?



(a) Increases (b) Decreases

(c) Remains the same (d) Depends on the value of R

12. If each branch of a delta circuit has impedance $\sqrt{3}$ Z, then each branch of equivalent star circuit has impedance would be

(a) $\frac{Z}{\sqrt{3}}$ (b) Z (c) $2\sqrt{3}$ Z (d) $\frac{Z}{3}$

13. The dual of parallel RC circuit is a

(a) Series RC circuit (b) Series RL circuit

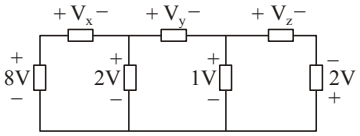
(c) Parallel RC circuit (d) Parallel RL circuit

14. Two resistances are connected in parallel and each dissipates 40 W. The total power supplied by the source is equals to

(a) 80 W (b) 40 W (c) 160 W (d) 20 W

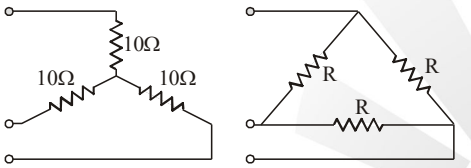
[TNPSC AE - 2018]

15. The value of V_x, V_y and V_z in figure shown are



(a) –6, 3, –3 (b) –6, –3, 1 (c) 6, 3, 3 (d) 6, 1, 3

16. Star connected load is shown in the figure. The equivalent delta connection has a value of R in Ω is



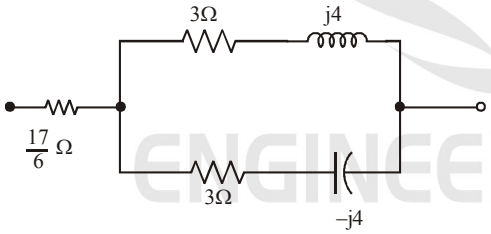
(a) 10 (b) 30 (c) $\frac{10}{3}$ (d) $\frac{20}{3}$

17. A lamp rated at 10 watt, 50 volts is proposed to be used in 110 volts, system. The wattage and resistance of the resistor to be connected in series with the lamp should be

(a) 15 W, 350 Ω (b) 10 W, 250 Ω

(c) 12 W, 300 Ω (d) 15 W, 250 Ω

18. For the circuit shown below the total impedance is



(a) (7 + j0) (b) (5 + j0) (c) (0 + j8) (d) (7 + j10)

19. ***Assertion (A):*** Two wires of same length with different cross sectional areas are connected in series. The heat produced by the current is more in the thicker wire.

Reason (R): The thicker wire has low resistance.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

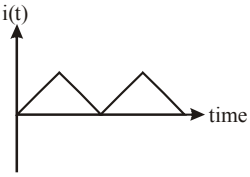
(d) A is false but R is true.

20. What is the power absorbed by a 3-phase load?

(a) $3 V_L I_L \cos\phi$ (b) $\sqrt{3}\ V_L I_L \cos\phi$

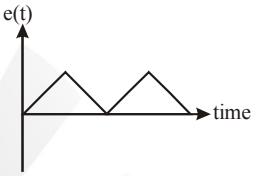
(c) $3\ V_L I_L \sin\phi$ (d) $\sqrt{3}\ V_L I_L \tan\phi$

21. The waveform of current flowing in a pure inductor is shown in the given figure.

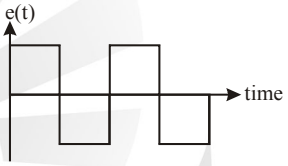


The wave form of the induced voltage in the inductor will be.

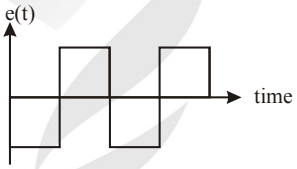
(a)



(b)



(c)



(d)

22. In a balanced delta connected resistive load when one resistor is open-circuited, then the power drawn by the load would be

(a) Is reduced by $\frac{1}{3}$ (b) Is increased by $\frac{1}{3}$

(c) Remains same (d) Is reduced by $\frac{1}{2}$

23. A cylindrical block of certain material has a resistance R as measured between its circular faces. To half the resistance, all the dimensions of the block must be

(a) Doubled (b) Halved

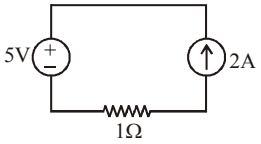
(c) Decreased by $\sqrt{2\pi}$ (d) Increased by $\sqrt{2\pi}$

24. The time rate of change of a current passed through a 1mH inductor is 2 mA/s. This means that the voltage across the inductor is.

(a) 0.5×10^{-6} V (b) 0.5 V

(c) 2×10^{-6} V (d) 2 V

25. For the circuit shown in figure



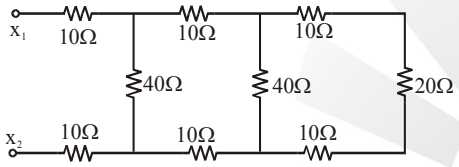
(a) The current depends on the resistor

(b) The Voltage across the current source depends on the resistor.

(c) The current depends on the voltage source

(d) If the resistor were zero, the current would tend to infinity.

26. The approximate equivalent resistance at the points x_1 and x_2 in the circuit shown below



(a) 60 Ω (b) 40 Ω (c) 80 Ω (d) 20 Ω

27. Two identical resistive loads consumes W watts each when connected in parallel across an ideal current source of I amperes. If, instead, they were connected in series with the same source, their total consumption

(a) Would half

(b) Would double

(c) Would remain the same

(d) Would increase by a factor of 4

28. In a three-phase delta-connected balanced load

(a) Line current is equal to the phase current

(b) Line current is three times the phase current

(c) Line current is $\sqrt{3}$ times the phase current

(d) Line current is the sum of the three phases current

29. Which of the following statement is true?

(a) Thevenin reduction can be used only if there are no current sources

(b) In ac circuits, KCL holds only for average current and not for instantaneous currents.

(c) Capacitors are generally less lossy than inductors

(d) Linear networks can have dependent sources.

30. Two lights bulb of 40W and 80W are connected in series. Which one of the following statement is false?

(a) The current drawn is lesser than what either bulb would draw alone

(b) The voltage across a 80W bulb is lesser than that across the 40W bulb.

(c) The power dissipated by the 80W bulb is lesser than that by the 40W bulb.

(d) The current drawn in the average of what of either bulb would draw alone

31. A house served by a 220V supply light and is protected by a 9 Ampere fuse. The maximum number of 60W bulbs in parallel that can be turned on is

(a) 11 (b) 33 (c) 22 (d) 44

32. The secondary coil of an ideal 2:1 transformer has a 1F capacitor connected across its terminals. The referred impedance on the primary side is of an element

(a) L = 4H (b) C = 0.25 F

(c) L = 0.25 H (d) C = 4F

33. A parallel combination of N resistances is connected an ideal current source of I Amperes. The expression of the current in the k^{th} resistor R_k is

(a) $\left(\frac{R_k}{R_1+R_2+\ldots+R_N}\right)I$ (b) $\left(\frac{\frac{1}{R_k}}{\frac{1}{R_1}+\frac{1}{R_2}+\ldots+\frac{1}{R_N}}\right)I$

(c) $\left(\frac{R_k}{\frac{1}{R_1}+\frac{1}{R_2}+\ldots+\frac{1}{R_n}}\right)I$ (d) $\left(\frac{1}{\frac{R_k}{R_1+R_2+\ldots+R_N}}\right)I$

34. Consider two metallic wires W_1 and W_2 they are made up of same material and each has a circular cross-section. The diameter of W_2 is twice that of W_1 and the length of W_2 is four times that of W_1. Which one of the following statement is TRUE?

(a) Resistance of W_1 is half that of W_2

(b) Resistance of W_1 is equal to that of W_2

(c) Resistance of W_1 is twice that of W_2

(d) Resistance of W_1 is eight times that of W_2

35. Consider the following statements.

1. All the reciprocal networks are always symmetrical

2. All the passive networks are always reciprocal

3. All the non-linear networks are always non-reciprocal

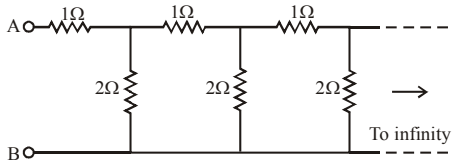
Which of the above statements are TRUE.

(a) 1 and 2 (b) 2 and 3 (c) 3 and 1 (d) 1, 2 and 3

36. The resistance of a parallel circuit consisting of two resistors is 12Ω. One of the resistance wires breaks and the effective resistance becomes 18Ω. The resistance of the broken wire is

(a) 48 Ω (b) 18 Ω (c) 36 Ω (d) 24 Ω

37. The approximate equivalent resistance between terminals A and B for the following infinite ladder network comprising of 1 Ω and 2 Ω resistors is



(a) 1 Ω (b) 2 Ω (c) 4 Ω (d) 0.5 Ω

38. A practical current source is usually represented by

(a) A resistance in series with an ideal current source

(b) A resistance in parallel with an ideal current source

(c) A resistance in parallel with an ideal voltage source

(d) None of the above

39. Two bulbs marked 200 watt, 250 volts and 100 watt, 250 volts are joined in series to 250 volts supply. Power consumed in circuits is

(a) 33 Watt (b) 67 Watt (c) 100 Watt(d) 300 Watt

40. Two resistance R_1 and R_2 give combined resistance of 4.5 ohms when in series and 1 ohm when in parallel. The resistances R_1 and R_2 are respectively.

(a) 3 ohms and 6 ohms (b) 3 ohms and 9 ohms

(c) 1.5 ohms and 3 ohms (d) 1.5 ohms and 0.5 ohms

41. Which of the following bulbs will have the least resistance?

(a) 220V, 60W (b) 220V, 100W

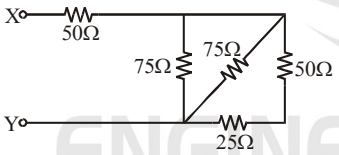
(c) 115V, 60W (d) 115V, 100W

42. A resistance of 5 ohms is further drawn so that its length becomes double. Its resistance will now be.

(a) 5 ohms (b) 7.5 ohms

(c) 10 ohms (d) 20 ohms

43. Equivalent resistance between X and Y is



(a) 75 Ω (b) 50 Ω

(c) 275 Ω (d) None of above

44. Three equal resistors, connected in series across a source of emf, dissipated 10W of power. What would be the power dissipated in the same resistor when they are connected in parallel across the same source?

(a) 10W (b) 30W (c) 90W (d) 270W

[DMRC JE - 2016]

45. A 10Ω resistor is connected in parallel with a 15Ω resistor and the combination in series with a 12Ω resistor. The equivalent resistance of the circuit is:

(a) 37Ω (b) 27Ω (c) 18Ω (d) None

[DMRC JE - 2016]

46. The energy used by a 1.5kW heater in 5 minutes is:

(a) 450 000 J (b) 450 J

(c) 7500 J (d) None of these

[DMRC JE - 2016]

47. What is called the Electro-Motive Force (EMF) of a voltage source?

(a) Terminal voltage when load is applied

(b) Internal voltage when no load is applied

(c) Product of internal resistance and load current

(d) Electric pressure provided to the load

[DMRC JE - 2016]

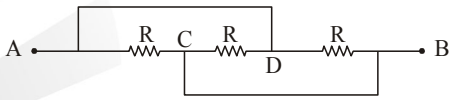
48. One coulomb of electrical charge is contributed by how many electrons?

(a) 0.625×10^{19} (b) 1.6×10^{19}

(c) 10^{19} (d) None of these

[DMRC JE - 2016]

49. Three equal resistors each equal to R ohm are connected as shown in fig. The equivalent resistance between points A and B is:



(a) R (b) 3R (c) R/3 (d) 2R/3

[DMRC JE - 2016]

50. Two resisters R_1 and R_2 give combined resistance of 6 ohm when in series and 0.83 ohm when in parallel. The resistances R_1 and R_2 are respectively

(a) 3 ohm and 3 ohm (b) 4 ohm and 2 ohm

(c) 5 ohm and 1 ohm (d) 4.5 ohm and 1.5 ohm

51. A wire having resistance R_1 is stretched to double its length. The new resistance R_2 is :

(a) R_L (b) $2R_1$ (c) $4R_1$ (d) $\frac{R_1}{2}$

52. How many coulombs of charge move through a filament of a light bulb in 1.3 s If there is 8 A of current through the filament?

(a) 9.3 (b) 10.4 (c) 6.15 (d) None

53. What is the current, in amperes, when 0.95 coulombs pass a point in 5 s?

(a) 1.00 (b) 0.19 (c) 4.75 (d) None

54. It was found that the current was 60 mA when a circuit with a particular resistance is connected to a 20 V battery. The current has dropped to 30 mA after sometime. How much has the voltage changed?

(a) l0V (b) 20V (c) OV (d) None

55. What is the power consumed by the circuit when a bulb of 60 watts and another of 120 watts are joined in a series?

(a) 180 W (b) 40W (c) 120 W (d) None

56. What is the resistance of a 440 cm long wire of 0.28 cm diameter, with specific resistance 0.56 ohm-cm?

(a) 900 Ω (b) 90 Ω (c) 9 Ω (d) None

57. Three resistors of equal resistance connected in series across a power source together dissipate 15 watts of power. What would be the power dissipated when the same resistors are connected in parallel?

(a) 150W (b) l00W (c) 135W (d) None

58. Which of the following is the unit for measuring specific resistance of a material?

(a) Ohm-meter (b) Ohm

(c) Siemens (d) Ohm/meter

59. It is desired to have a total resistance of 7Ω. There are 3 resistances of values 3Ω, 12Ω and 6Ω available. What will be the combination of these three resistances in order to achieve the required objective of 7Ω?

(a) All the three in series

(b) 3Ω in series with the parallel combination of 12Ω and 6Ω

(c) 6Ω in series with the parallel combination of 12Ω and 3Ω.

(d) None of these

60. There are 3 registers in parallel in a circuit. What happens to the total resistance if one of them is removed?

(a) Total resistance decreases

(b) Total resistance increases

(c) Total resistance will not change

(d) Total resistance will decrease by one-third

61. There are five parallel resistors and a total of 600 mA of current into these resistors. The currents through four of the resistors are 30 mA, 60 mA, 70 mA and 100 mA. What is the current through the fifth resistor?

(a) 260 mA (b) 340 mA (c) 600 mA (d) None

62. Consider a circuit having four parallel branches with a power dissipation of 1.6 W in each. What is the total power dissipation?

(a) 1.6 W (b) 6.4W (c) 0.4W (d) None

63. If two light bulbs that are parallel-connected dissipate 60 watts and 100 watts of power, then what is the total power loss?

(a) 160 W (b) 80 W (c) 40W (d) None

64. The total resistance of circuit with two resisters connected parallel is 6 ohms. What are the individual values of these two parallel resistors when one has 50% more resistance than the resistance of the other?

(a) 10 ohms and 15 ohms (b) 16 ohms and 24 ohms

(c) 6 ohms and 9 ohms (d) None of these

65. Which of the following can be a use of a parallel circuit?

(a) Voltage (b) Current

(c) Magnetic flux (d) None of these

66. Which of the following can be used to measure the strength of a battery?

(a) Henry (b) Tesla (c) Volt (d) None

67. What is Electrical impedance?

(a) It is the measure of the opposition that a circuit presents to a current when a resistance is added or remove

(b) It is the measure of the opposition that a circuit presents to a current when there is a change in the cycles.

(c) It is the measure of the opposition that a circuit presents to a current when a voltage is applied

(d) None of these.

68. What is the peak-to-peak value when the peak of a sine wave is 13 V?

(a) 26 V (b) 13 V (c) 260V (d) None

69. What is the equivalent negative angle of 30° positive angle?

(a) –30° (b) –330° (c) 3000 (d) None

70. What is the rating of a particular source if it is capable of supplying 8 A for 6 hours?

(a) 1.33 Ah (b) 48 Ah (c) 0.75 Ah (d) None

71. If an oven consumes 500 watts for 25 hours, then the total energy used is

(a) 12.5 kWh (b) 12500 kWh

(c) 12500 mWh (d) None of these

72. A server uses 350 W and is allowed to run continuously for 30 days. What is the amount of kilowatt hours of energy is consumed?

(a) 252,000 kWh (b) 252 kWh

(c) 0.252 kWh (d) None of these

73. In purely resistive circuits, the _____ and the ____ applied are _____ phase with each other.

(a) Current, voltage, out of

(b) Frequency, voltage, in

(c) Frequency, voltage, out of

(d) Current, voltage, in

[UPPCL JE - 2014]

74. Following data is known about a resultant current wave which is made-up of two components:

1. A direct current of 10A

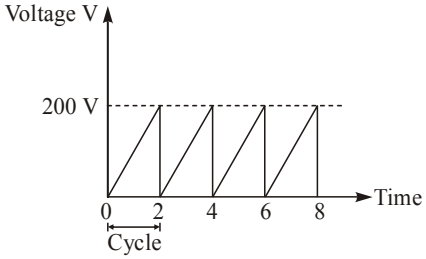
2. A sinusoidal alternating current of 50 Hz with a peak value of 10 A.

Calculate the r.m.s. value of the resultant wave.

(a) 24.12 A (b) 12.24 A (c) 1.24 A (d) 2.14 A

[UPPCL JE - 2014]

75. What will be the average value of the sawtooth waveform shown below?



(a) 150 V (b) 100 V (c) 200 V (d) 250 V

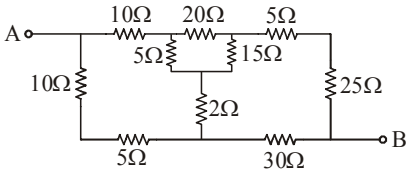
[UPPCL JE - 2014]

76. It is known that two 2Ω, 2W resistors are connected in parallel. Find the combined resistance and wattage rating.

(a) 2Ω, 4W (b) 1Ω, 4W (c) 1Ω, 2W (d) 2Ω, 2W

[UPPCL JE - 2014]

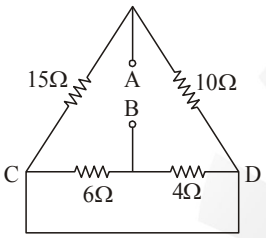
77. Consider the following circuit and determine the equivalent resistance between A and B.



(a) 15.76 Ω (b) 1.63 Ω (c) 23.52 Ω (d) 2.04 Ω

[UPPCL JE - 2014]

78. In the following circuit, determine the equivalent resistance between points A and B.



(a) 8.4 Ω (b) 4 Ω (c) 2.5 Ω (d) 6.8 Ω

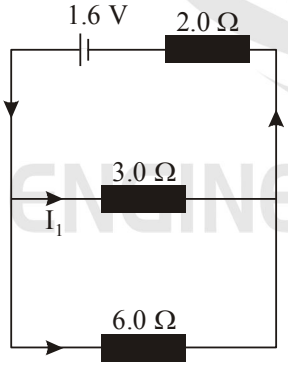
[UPPCL JE - 2014]

79. If 10 lamps are connected in series across a power supply, then determine the voltage of the supply when it is given that the voltage across each lamp is 6.0 V.

(a) 60 V (b) 20 V (c) 35 V (d) 42 V

[UPPCL JE - 2014]

80. Consider the following given circuit and find the value of total current drawn from the cell and the potential difference across the 3Ω resistor respectively.



(a) 0.4 A, 0.8 V (b) 0.85 A, 0.6 V

(c) 0.56 A, 0.8 V (d) 0.9 A, 0.8 V

[UPPCL JE - 2014]

81. Current in a circuit is measured using a simple slide wire. What will be the voltage drop per unit length. If the standard cell is of emf 2.38 V balanced at length of 35 cm.

(a) 0.68 V/cm (b) 0.068 V/cm

(c) 68 V/cm (d) 6.8 V/cm

[UPPCL JE - 2014]

82. The element which is capable of delivering energy by its own is known as :

(a) Non-linear element (b) Unilateral element

(c) Active element (d) Passive element

[NMRC JE - 2017]

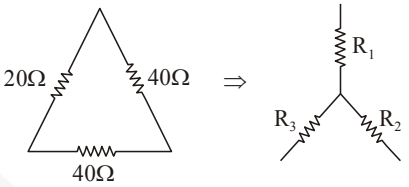
83. _____ remains same in all parts of a series circuit.

(a) Current (b) Resistance

(c) Voltage (d) Power

[NMRC - JE-2017]

84. Convert the Delta network into equivalent Star network:



(a) $R_1 = 8\Omega, R_2 = 8\Omega, R_3 = 8\Omega$

(b) $R_1 = 8\Omega, R_2 = 16\Omega, R_3 = 16\Omega$

(c) $R_1 = 8\Omega, R_2 = 8\Omega, R_3 = 16\Omega$

(d) $R_1 = 8\Omega, R_2 = 16\Omega, R_3 = 8\Omega$

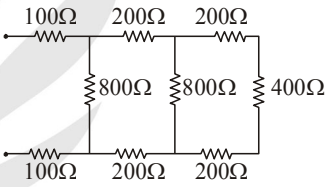
[NMRC JE - 2017]

85. Unit of reactive power is:

(a) Watt (b) Kilo Watt

(c) VAR (d) Volt Ampere

86. The equivalent resistance of the given circuit is:



(a) 200 Ω (b) 400 Ω (c) 600 Ω (d) 1600 Ω

87. With the increase in the cross sectional area of the conductor, the value of resistance:

(a) Increase (b) Remain same

(c) Decrease (d) None of these

88. To neglect a current source, the terminal across the sources are:

(a) Open-circuited

(b) Short-circuited

(c) Replaced by some resistance

(d) Replaced by capacitance

89. An electric current is the

(a) Random movement of electrons in a conductor

(b) Movement of free electrons predominately in one direction

(c) Pressure difference between two poles

(d) The power that causes drift of electrons

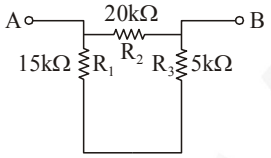
90. A current is said to be alternating when it changes in
(a) Magnitude only
(b) Direction only
(c) Both magnitude and direction
(d) None

91. Which of the following material has least specific Resistance
(a) Copper (b) Silver
(c) Aluminum (d) Iron

92. Resistivity of a wire depends upon
(a) Material (b) Area
(c) Length (d) All of these

[UPPCL JE - 2007]

93. In the following figure, the resistance measured across A and B will be



(a) 5 kΩ (b) 10 kΩ (c) 15kΩ (d) 20 kΩ

[UPPCL JE - 2007]

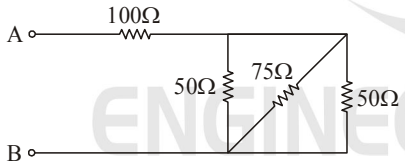
94. A charge of 0.1 coulomb moves through a given point in every 0.05 seconds. The current flowing through the point is
(a) 2 mA (b) 5 mA (c) 2 A (d) 5 A

[UPPCL JE - 2007]

95. A 220 V, 200 W bulb and a 220 V, 100 W bulb are connected in series across a 220 V supply, the power consumed by them will be
(a) 33.3 W (b) 66.6 W (c) 100 W (d) 300 W

[UPPCL JE - 2007]

96. In the following figure, the equivalent resistance at terminals A and B will be



(a) 275 Ω (b) 180 Ω
(c) 118.75 Ω (d) None of these

[UPPCL JE - 2007]

97. A 2.2 m long conductor has a cross sectional area of 0.025 m^2 and resistance of 5 ohms, find its resistivity.
(a) 0.072 ohm m (b) 0.057 ohm m
(c) 0.58 ohm m (d) 0.67 ohm m

[UPPCL JE - 2016]

98. Power dissipated in a pure capacitor is
(a) Equals to I^2R (b) Minimum
(c) Zero (d) Equals to heat loss

[UPPCL AE - 2016]

99. What will be the largest number of 100 W electric light bulbs which can be operated from a 200V supply fitted with a 13A fuse?
(a) 16 (b) 26 (c) 31 (d) 32

[UPPCL AE - 2016]

100. _____ is the property of conductor which is opposite to the property that opposes flow of current.
(a) Conductance (b) Resistance
(c) Reluctance (d) Inductance

[UPPCL AE - 2016]

101. If the diameter D of a conductor is doubled, its resistance R will be reduced to
(a) 1/4 R (b) 16 R (c) 1/16 R (d) No change

[UPPCL AE - 2016]

102. A nickel coil has a resistance of 16Ω at 50°C. If the temperature coefficient of resistance at 0°C is 0.003/°C, the resistance at 0°C is: (approx)
(a) 16.9 Ω (b) 14 Ω (c) 23.3 Ω (d) 15.5 Ω

[UPPCL AE - 2016]

103. One coulomb-per-second is equal to one ____.
(a) Watt (b) Joule (c) Volt (d) Ampere

[UPPCL AE - 2016]

104. The capacitance of a variable air capacitor is maximum when
(a) The movable plates half overlap the fixed plates
(b) The movable plates are most widely separated from the fixed plates
(c) Both sets of plates are exactly meshed.
(d) The movable plates are closer to one side of the fixed plate than to the other.

[UPPCL AE - 2016]

105. Electrical voltage is also known as :
(a) Electric pressure (b) Energy
(c) Watt (d) Unit

[UPPCL AE - 2016]

106. The length of wire having resistance of 1 ohm/m in a heater rated at 1000 W and 250 V will be
(a) 62.8 mm (b) 26.5 m (c) 62.5 m (d) 1.5 m

[UPPCL AE - 2016]

107. Calculate the resistance of 1 km long copper wire of radius 1 mm. (If resistivity of copper = 1.72×10^{-8})
(a) 5.5 Ω (b) 6.5 Ω (c) 4.5 Ω (d) 6.75 Ω

[UPPCL AE - 2016]

108. How is the voltage determined when the current and resistance are given?
(a) Divide the current by the resistance
(b) Subtract the current from the resistance
(c) Multiply the current and resistance
(d) Add the current and the resistance

[UPPCL JE - 2018]

109. Here are two threads B and C have the same cross-section and are made of the same material. R_b = 500 Ω and R_c =100 Ω. The number of times B is longer than C is _____.

(a) 1 (b) 5 (c) 4 (d) 3

[UPPCL JE - 2018]

110. The number of nodal equation in the nodal analysis of a linear circuit having 4 nodes will be

(a) 6 (b) 5 (c) 3 (d) 4

[UPPCL JE - 2018]

111. What is the total resistance of a series circuit and parallel circuit respectively for resistors R_1 = 2 ohms, R_2 = 4 ohms and R_3 = 1 ohm?

(a) 1.75, 7 (b) 7, 1.5 (c) 7, 0.571 (d) 7, 7

[UPPCL JE - 2018]

112. The average power consumed in purely inductive circuit is:-

(a) 0.25 (b) 0 (c) 0.5 (d) 1

[UPPCL JE - 2018]

113. Find the odd one out regarding Ohm's Law.

(a) Vacuum tubes (b) Conductor

(c) DC circuit (d) High Voltage Circuit

[UPPCL JE - 2018]

114. In DC circuit, which of the following components is used to reduce the voltage?

(a) Resistor (b) Inductor (c) Reactor (d) Capacitor

[UPPCL JE - 2018]

115. The law of electromagnetic induction is also called

(a) Joule's law (b) Faraday's law

(c) Coulomb's law (d) Ohm's law

[UPPCL JE - 2018]

116. Which of the following correctly defines Power?

(a) Energy

(b) kWh

(c) The rate at which energy is used

(d) The rate at which energy is generated

[UPPCL JE - 2018]

117. What is the SI unit of conductivity?

(a) $\Omega^{-1}m$ (b) $\Omega^{-1}m^{-1}$ (c) Ω (d) Ωm

[UPPCL JE - 2018]

118. The property of a substance which oppose the flow of current is known as

(a) Conductance (b) Reluctance

(c) Resistance (d) Admittance

[DSSSB JE - 2014]

119 Three equal resistances when combined in series total power loss is 90 W. Their power loss when combined in parallel will be

(a) 270 W (b) 30 W (c) 810 W (d) 10 W

[DSSSB JE - 2014]

120. The property of a conductor due to which it passes current is called

(a) Resistance (b) Reluctance

(c) Conductance (d) Inductance

[DSSSB JE - 2015]

121. The resistance of a conductor varies inversely as

(a) Length (b) Area of cross-section

(c) Temperature (d) Resistivity

[DSSSB JE - 2015]

122. With rise in temperature the resistance of pure metals

(a) Increases

(b) Decreases

(c) First increases and then decreases

(d) Remains constant

[DSSSB JE - 2015]

123. Three resistances of 10 Ohms, 15 Ohms and 30 Ohms are connected in parallel. The total resistance of the combination is

(a) 5 ohms (b) 10 ohms (c) 15 ohms (d) 55 ohms

[DSSSB JE - 2015]

124. In a circuit a 33 Ohm resistor carries a current of 2A. The voltage across the resistor is

(a) 33 V (b) 66 V (c) 80 V (d) 132 V

[DSSSB JE - 2015]

125. A light bulb draws 300 mA when the voltage across it is 240 V. The resistance of the light bulb is

(a) 400 Ohms (b) 600 Ohms

(c) 800 Ohms (d) 1000 Ohms

[DSSSB JE - 2015]

126. Two resistors are not said to be connected in series when

(a) Same current passes in turn through both

(b) Both carry the same value of current

(c) Total current equals the sum of branch currents

(d) Sum of IR drops equals the applied e.m.f.

[DSSSB JE - 2015]

127. Which of the following statements is true both for a series and a parallel D.C. circuit?

(a) Elements have individual currents

(b) Currents are additive

(c) Voltages are additive

(d) Powers are additive

[DSSSB JE - 2015]

128. If the energy is supplied from a source, whose resistance is 1 Ohm, to a load of 100 Ohms the source will be

(a) A voltage source (b) A current source

(c) Both of above (d) None of the above

[DSSSB JE - 2015]

129. The circuit whose properties are same in either direction is known as

(a) Unilateral circuit (b) Bilateral circuit

(c) Irreversible circuit (d) Reversible circuit

[DSSSB JE - 2015]

130. The number of independent equations to solve a network is equal to

(a) The number of chords

(b) The number of branches

(c) Sum of the number of branches and chords

(d) Sum of number of branches, chords and nodes

[DSSSB JE - 2015]

131. Siemens is a unit for measuring

(a) Resistance (b) Flux density

(c) Conductance (d) Electric field

[TNPSC AE - 2018]

132. "The mass of an ion liberated at an electrode is directly proportional to the quantity of electricity".

The above statement is associated with

(a) Newton's law

(b) Faraday's law of electromagnetics

(c) Faraday's law of electrolysis

(d) Gauss's law

[TNPSC AE - 2018]

133. What is the equivalent resistance of one limb A when delta connection is transformed into star?

(a) $R_1 R_3 / R_1 + R_2 + R_3$ (b) $R_2 R_3 / R_1 - R_2 + R_3$

(c) $R_1 R_2 R_3 / R_1 + R_2 + R_3$ (d) $R_1 + R_2 + R_3$

[Jammu & Kashmir JE - 2016]

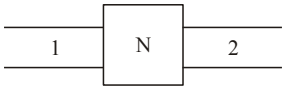
134. A linear circuit contains ideal resistors and ideal voltage source. If values of all the resistors are halved then voltage across each resistor becomes.

(a) Halved (b) Doubled

(c) Remained unchanged (d) Decreased by 4 times

[UPRVUNL JE - 2016]

135. In two-port network N has the transmission parameter $\begin{bmatrix} A & B \\ C & D \end{bmatrix}$. The open circuit input impedance of the network at port-1 will be–



(a) AD/BC (b) D/C (c) AB/DC (d) A/C

[Coal India ltd. - 2017]

136. For a two port network to be reciprocal :

(a) $Z_{11} = Z_{22}$ (b) $Y_{12} = Y_{21}$

(c) $H_{21} = H_{22}$ (d) $AD - BC = 0$

[Jammu & Kashmir JE - 2016]

137. Select the correct statement from the following

(a) An electrical network and electrical circuit are same

(b) An electrical network has no relation to electrical circuit

(c) An electrical circuit should have at least one closed loop

(d) An electrical circuit need not have any closed loop

[UPRVUNAL - 2014]

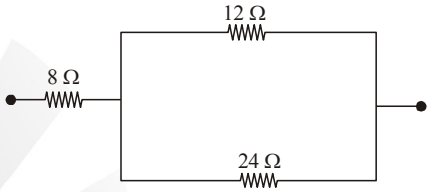
138. The laws used in tie set and cut set of a network are –

(a) Ohms law (b) Kirchhoff's laws

(c) Biot Savart's law (d) Lorentz's law

[UPRVUNAL AE - 2014]

139. The equivalent resistance of a series parallel circuit shown in the figure is :



(a) 8 ohms (b) 10 ohms (c) 12 ohms (d) 16 ohms

[ESIC JE - 2016]

140. A star circuit has Each branch resistance of R/2. The equivalent delta each branch resistance will be :

(a) R/6 (b) 3 R/2 (c) 2 R (d) 4 R

[ESIC JE - 2016]

141. An electric circuit with 10 branches and 7 nodes will have :

(a) 4 loop equation (b) 7 loop equation

(c) 10 loop equations (d) 5 loop equations

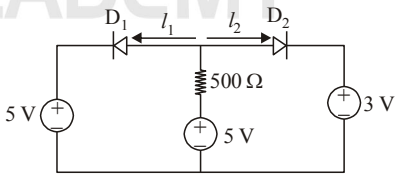
[FCI - 2015]

142. In terms of ABCD parameters, a two port network is symmetrical if and only if

(a) A = B (b) B = C (c) C = D (d) D = A

[Uttrakhand AE - 2013]

143. In the circuit shown below, D_1 and D_2 are ideal diodes. The current I_1 and I_2 are :



(a) Zero, 4 mA (b) 4 mA, Zero

(c) Zero, 8 mA (d) 8 mA, Zero

[UPRVUNL AE - 2016]

144. Network which contain one or more than one source of emf is known as

(a) Active Network (b) Passive Network

(c) Electric network (d) None of these

[BSNL TTA - 2016]