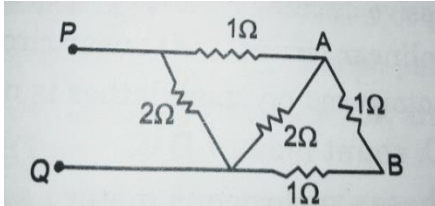


1. How much energy is stored by a 100 mH inductance when a current of 1A is flowing through it?

- a) 0.005 J b) 0.5 J
c) 5.0 J d) 0.05 J

2. For the circuit shown below, find the resistance between points P & Q.

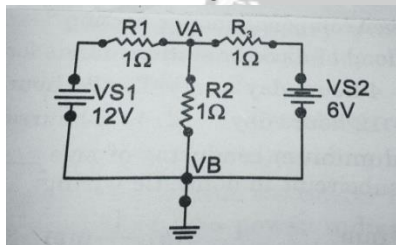


- a) 1Ω b) 2Ω c) 3Ω d) 4Ω

3. The rate of change of current in a 4 H inductor is 2 Amps/sec. Find the voltage across inductor.

- a) 16V b) 8V c) 2V d) 0.8V

4. Find the node voltage V_A .



- a) 6V b) 5.66V c) 6.66V d) 5V

5. In a pure inductive circuit if the supply frequency is reduced to 1/2, the current will?

- a) be four times as high
b) be doubled
c) be reduced by half
d) be reduced to one fourth

6. When a source is delivering maximum power to the load, the efficiency will be?

- a) below 50% b) above 50%
c) 50% d) maximum

7. The internal resistance of a voltage source is 10Ω and has 10 volts at its terminals. Find the maximum power that can be transferred to the load

- a) 25 W b) 5 W c) 0.25 W d) 2.5 W

8. A node in a circuit is defined as a

- a) closed path
b) group of interconnected elements
c) open terminal of an elements
d) junction of two or more elements

9. The area of the hysteresis loop will be least for one of the following materials. It is?

- a) wrought iron
b) silicon steel
c) hard steel
d) soft iron

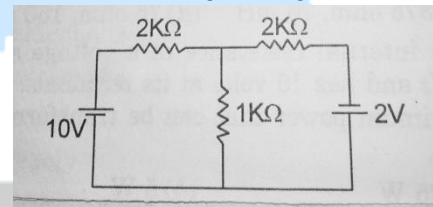
10. The magnitude of AT required establishing a given value of flux in the air gap will be much greater than that required for Iron part of a magnetic circuit, because:

- a) air is a gas
b) air is a good conductor of magnetic flux
c) air has the lowest relative permeability
d) iron has the lowest permeability

11. The unit of luminous flux is

- a) candela b) lumen
c) lux d) steradian

12. The voltage across the 1kΩ resistor of the network shown in the given figure is



- a) 1 V b) 4 V c) 2 V d) 6 V

13. For painful shock, what is the range of electric shock current at 50 Hz?

- a) 0 – 1 mA b) 3 – 5 mA
c) 0 – 3 mA d) 5 – 10 mA

14. What is the power consumed by the resistor of 20Ω connected across 100 V source?

- a) 300 W b) 100 W c) 500 W d) 50 W

15. The latching current of SCR is 18 mA. Its holding current will be

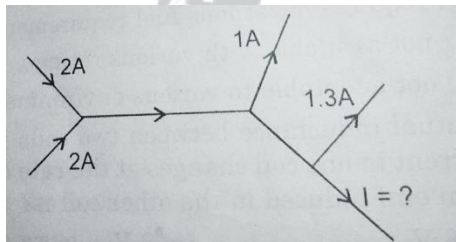
- a) 6 mA b) 18 mA
c) 54 mA d) 12 mA

16. Thevenin's theorem cannot be applied to:

- a) passive circuit b) active circuit

- c) nonlinear circuit d) linear circuit
17. There are 3 lamps 40 W, 100 W and 60 W. To realise the full rated power of the lamps they are to be connected in:
- a) Parallel only b) Series or parallel
c) Series only d) Series-parallel
18. In a three-phase system, the volt ampere rating is given by?
- a) $3V_L I_L$ b) $V_{ph} I_{ph}$
c) $V_L I_L$ d) $\sqrt{3}V_L I_L$
19. A linear circuit is one whose parameters:
- a) None of the options
b) change with change in current
c) change with change in voltage
d) do not change with voltage and current
20. The unit for permeability is:
- a) H / m b) $\frac{At}{m}$
c) Wb d) $\frac{At}{Wb}$
21. The Superposition theorem is used when the circuit contains:
- a) a single voltage source
b) passive elements only
c) active elements only
d) a number of voltage sources
22. One sine wave has a period of 2 ms, another has a period of 5 ms, and other has a period of 10 ms. Which sine wave is changing at a faster rate?
- a) all are at the same rate
b) sine wave with period 2 ms
c) sine wave with period of 10 msec
d) sine wave with period 5 ms
23. An active elements in a circuit is one which:
- a) dissipates energy
b) receives energy
c) both receives and supplies
d) supplies energy
24. If in an R-L-C series circuit, the frequency is below the resonant frequency, then
- a) $X_C < X_L$ b) $X_C > X_L$
c) $X_C = X_L$ d) None of the options
25. If the power factor is high, then the consumer maximum KVA demand:
- a) increases
b) remains constant
c) becomes Zero
d) decreases
26. During the resistance welding, the heat produced at the joint is proportional to?
- a) Current b) Volt-Ampere
c) I^2R d) Voltage
27. Which of the following PNP device has a terminal for synchronizing purpose?
- a) SUS b) Diac
c) Triac d) Schmitt trigger
28. A primary cell has an emf of 1.5 V. When short circuited, it gives a current of 3 A. The internal resistance of cell is?
- a) 0.5Ω b) 0.2Ω c) 2Ω d) 4.5Ω
29. Electrical Resistivity ρ is :
- a) High for copper as well as for alloy
b) Low for copper and high for alloy
c) High for copper and low for alloy
d) Low for copper as well as for alloy
30. In dc operation of fluorescent tube, the life of the tube
- a) Remain same
b) Decreased by about 80% as that with ac operation
c) May increase or decrease
d) Increases by about 80% as that with ac operation
31. If the number of turns of a coil is increased, its inductance.
- a) none of the options
b) increased
c) decreased
d) remains the same
32. A resistor is connected across a 50 V source. The current in the resistor if the colour code is red, orange, orange, silver is?

- a) 21.4 mA b) 2 mA
c) 2.2 mA d) 214 mA
33. Mutual inductance between two coils is 4 H. If current in one coil changes at the rate of 2A/sec, then emf induced in the other coil is?
a) 8 V b) 2 V c) 0.5 V d) 5.0 V
34. The e.m.f. induced in a coil of N turns is given by: (according to Lenz Law)
a) $N \frac{d\phi}{dt}$ b) $-N \frac{d\phi}{dt}$
c) $\frac{d\phi}{dt}$ d) $N \frac{dt}{d\phi}$
35. The device which cannot be triggered by voltage of either polarity is
a) Diac b) Traic
c) Schotkey diode d) SUS
36. An electric heater draws 3.5 A from a 110 V source. The resistance of the heating elements is approximately?
a) 31Ω b) 3.1Ω c) 385Ω d) 38.5Ω
37. The current "I" in the electric circuit shown below is?



- a) 3.7 A b) 1 A c) 2.7 A d) 1.7 A
38. In a Parallel RLC circuit if the lower cut-off frequency is 2400 Hz and the upper cut off frequency is 2800 Hz. What is the band width?
a) 2800 Hz b) 2400 Hz
c) 400 Hz d) 5200 Hz
39. If $750 \mu\text{A}$ is flowing through $11 \text{ k}\Omega$ of resistance, what is the voltage drop across the resistor?
a) 14.6 V b) 146 V
c) 82.5 V d) 8.25 V

40. If two capacitance C_1 and C_2 are connected in parallel then the equivalent capacitance is given by

- a) $C_1 C_2$ b) $\frac{C_1 C_2}{C_1 + C_2}$
c) $C_1 + C_2$ d) $C_1 | C_2$

41. If the co-efficient of coupling between two coils is increased, mutual inductance between the coils

- a) changes depends on current only
b) is increased
c) is decreased
d) remains unchanged

42. When a series RL circuit is connected to a voltage source V at $t = 0$, the current passing through the inductor L at $t = 0^+$ is

- a) infinite b) $\frac{V}{L}$
c) zero d) $\frac{V}{R}$

43. In an R-L series circuit, the phase difference between applied voltage and circuit current will increase if

- a) X_L is increased
b) R is increased
c) X_L is decreased
d) supply frequency is decreased
44. A series circuit has $R = 4\Omega$, $X_L = 12\Omega$ and $X_C = 9\Omega$ and is supplied with 200 V, 50 Hz. Calculate the power.

- a) 6400 W b) 8000 W
c) 14,400 W d) 19,200 W

45. Two sinusoidal currents are given by the equations $i_1 = 50\sin(\omega t + \frac{\pi}{4})$ and

$i_2 = 25\sin(\omega t + \frac{\pi}{6})$. The phase difference

between them is _____ degrees.

- a) 15 b) 30 c) 45 d) 75

46. The reactance of 1 farad capacitance when connected to a DC circuit is

- a) infinite b) 1Ω
c) 0.5Ω d) zero ohms

47. A supply voltage of 230 V, 50 Hz is fed to a residential building. Write down its equation for instantaneous value.

- a) $163 \sin 314.16 t$
b) $230 \sin 314.16 t$
c) $325 \sin 314.16 t$
d) $361 \sin 314.16 t$

48. Magnetic lines of force coming from a magnet

- a) intersect at infinity
b) intersect within the magnet
c) cannot intersect at all
d) cancel at pole faces

49. The main advantage of temporary magnets is that we can

- a) change the magnetic flux
b) use any magnetic material
c) decrease the hysteresis loss
d) magnetize without any source

50. The magnetic material used in permanent magnets is

- a) iron b) soft steel
c) nickel d) alnico

51. Hysteresis is the phenomenon in the magnetic circuit by which

- a) H lags behind B
b) B lags behind H
c) B and H are always same
d) setting up a constant flux is done

52. In an SCR

- a) Gate current is directly proportional to forward break over voltage
b) as Gate current is raised, forward breakover voltage reduces
c) Gate current has to be kept on continuously for conduction
d) Forward break over voltage is low in the forward blocking state

53. A circuit has inductance of 2 H. If the circuit current changes at the rate of 10 A/sec, then self-induced emf is

- a) 5 V b) 0.2 V c) 20 V d) 10 V

54. The B – H curve for _____ will be a straight line passing through the origin.

- a) air b) soft iron
c) hardened steel d) silicon steel

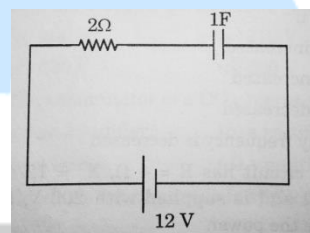
55. A current of 5mA flows in a resistance less choke from a 200 V alternating source. The energy consumed in the choke is

- a) 0 J b) 4.4 J c) 500 J d) 1000 J

56. The Q-factor of a series resonant circuit is given by

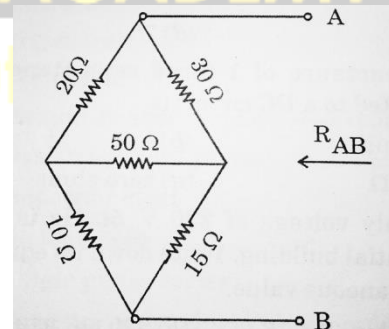
- a) $\frac{1}{R} \sqrt{\frac{L}{C}}$ b) $\frac{1}{R} \sqrt{\frac{C}{L}}$
c) $\frac{1}{R} \sqrt{1/LC}$ d) $\frac{R}{\sqrt{LC}}$

57. For the circuit shown in figure, the voltage across the capacitor during steady state condition is



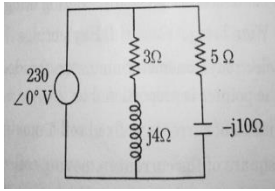
- a) 0 V b) 4 V c) 6 V d) 12 V

58. Find R_{AB} for the circuit shown in figure.



- a) 18Ω b) 30Ω c) 45Ω d) 68Ω

59. Calculate the total susceptance of the circuit shown in figure.

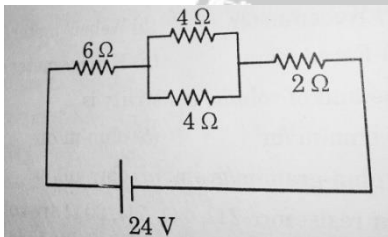


- a) 6.67 \bar{U} b) 1.87 \bar{U}
c) 0.16 \bar{U} d) 0.08 \bar{U}

60. A 200 W, 200 V bulb and a 100 W, 200 V bulb are connected in series and the voltage of 400 V is applied across the series connected bulbs, Under this condition

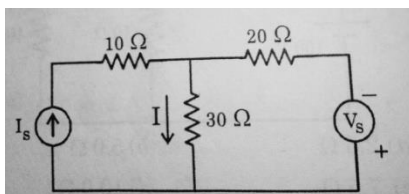
- a) 100 W bulb will be brighter than 200 W bulb
b) 200 W bulb will be brighter than 100 W bulb
c) Both the bulbs will have equal brightness
d) Both the bulbs will be darker than when they are connected across rated voltage

61. In the network shown, if one of the 4Ω resistance is disconnected, when the circuit is active, the current flowing now will



- a) increase very much
b) decrease
c) be zero
d) increase very slightly

62. For the circuit shown in figure, when $V_s = 0$, $I = 3A$. When $V_s = 200V$, what will be the value of I ?



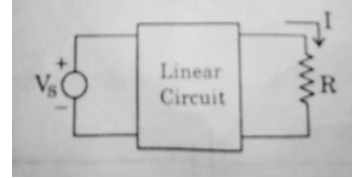
- a) -4A b) -1A
c) 1A d) 7A

63. For the linear circuit shown in figure,

when $R = \infty, V = 20V$;

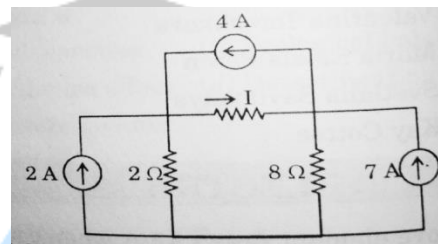
when $R = 0, I = 4A$;

when, $R = 5\Omega$, the current I is



- a) 1 A b) 2 A c) 3 A d) 4 A

64. The current I in the circuit shown in the figure is



- a) -3.67A b) -1A c) 4A d) 6A

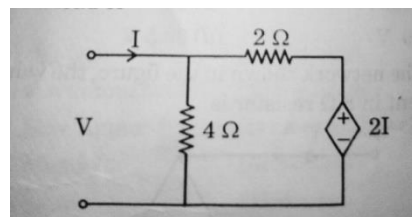
65. In a thyristor, the magnitude of anode current will

- a) increase if gate current is increased
b) decrease if gate current is decreased
c) increase if gate current is decreased
d) not change with any variation in gate current

66. For an SCR, di/dt protection is achieved through the use of

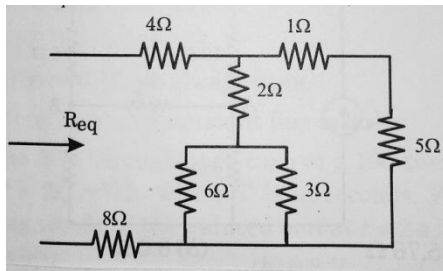
- a) R in series with SCR
b) L in series with SCR
c) RL in series with SCR
d) RLC in series with SCR

67. The circuit shown in the given figure is equivalent to a load of



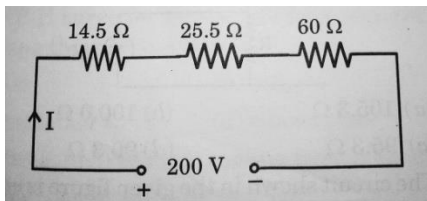
- a) $4/3 \Omega$ b) $8/3 \Omega$ c) 4Ω d) 2Ω

68. The R_{eq} for the circuit shown in figure is



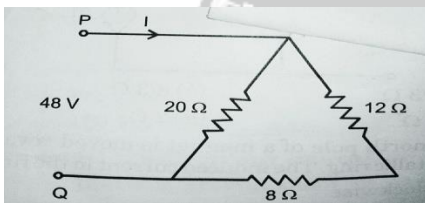
- a) 14.4 Ω b) 14.57 Ω
c) 15.27 Ω d) 15.88 Ω

69. Calculate the voltage drop across 14.5 Ω resistance.



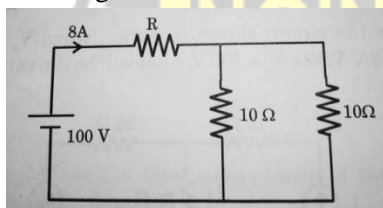
- a) 14.5 V b) 18 V
c) 29 V d) 30.5 V

70. For the network shown in the figure, the value of current in 8 Ω resistor is



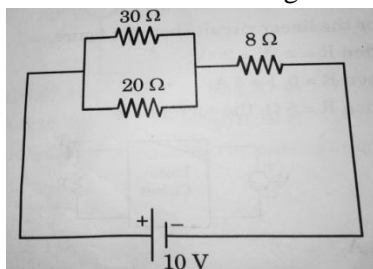
- a) 4.8 A b) 2.4 A
c) 1.5 d) 1.2 A

71. In the figure, the value of R is



- a) 2.5 Ω b) 5.0 Ω c) 7.5 Ω d) 10.0 Ω

72. Power consumed in the given circuit is



- a) 100 watts b) 5 watts
c) 20 watts d) 40 watts

73. A stove element draws 15 A when connected to 230 V line. How long does it take to consume one unit of energy?

- a) 3.45 h b) 2.16 h c) 1.0 h d) 0.29 h

74. The SI unit of conductivity is

- a) ohm-m b) ohm/m
c) mho-m d) mho/m

75. A piece of oil soaked paper has been inserted between the plates of a parallel plate capacitor. Then the potential difference between the plates will

- a) increase b) decrease
c) remain unaltered d) become zero

76. The current drawn by a tungsten filament lamp is measured by an ammeter. The ammeter reading under steady state condition will be _____ the ammeter reading when the supply is switched on.

- a) same as b) less than
d) greater than d) double

77. Tesla is same as

- a) Weber/meter b) Weber/(meter)²
c) Farad/meter d) Henry/(meter)²

78. The unit of volume resistivity is

- a) ohm-m³/m² b) ohm-m²/m
c) ohm-gram-m/gram d) ohm-m⁴/m³

79. Four resistance 2Ω, 4Ω, 5 Ω , 20 Ω are connected in parallel. Their combined resistance is

- a) 1 Ω b) 2 Ω c) 4 Ω d) 5 Ω

80. Two wires A and B have the same cross-section and are made of the same materials. R_A = 100 Ω and R_B = 20 Ω The number of times A is longer than B is:

- a) 5 b) 6 c) 2 d) 4

81. The power factor of an a.c. circuit is given by:

- a) $\frac{R}{Z}$ b) $\frac{X_L}{R}$ c) $\frac{Z}{R}$ d) $\frac{R}{X_L}$

82. Two 100 W, 200 V lamps are connected in series across a 200 V supply. The total power consumed in watts:

- a) 200 b) 25 c) 50 d) 100

83. The Biot-Savart's law is a general modification of:

- a) Faraday's laws b) Kirchhoff's law
c) Lenz's law d) Ampere's law

84. The active and reactive power of an inductive circuit are 60 W and 80 VAR respectively. The power factor of the circuit is:

- a) 0.8 lag b) 0.5 lag
c) 0.6 lag d) 0.75 lag

85. The terminal where three or more branches meet is known as:

- a) mesh b) node
c) terminus d) loop

86. In dc choppers, the waveform for input and output voltages are respectively

- a) discontinuous, continuous
b) continuous, discontinuous
c) both continuous
d) both discontinuous

87. A step-up chopper has V_s as the source voltage and α as the duty cycle. The output voltage for this chopper is given by

- a) $V_s(1+\alpha)$ b) $V_s/(1-\alpha)$
c) $V_s(1-\alpha)$ d) $V_s/(1+\alpha)$

88. If resistance is 20Ω and inductance is 2 H in a RL series circuit, then time constant of this circuit will be:

- a) 100 s b) 0.001 s
c) 0.1 s d) 10 s

89. The mutual inductance between two unity coupled coils of 9 H and 4 H will be:

- a) 36 H b) 2.2 H c) 6 H d) 13H

90. The efficiency normally obtained in a circuit under the conditions of maximum power transfer is:

- a) 100% b) 25%
c) 50% d) 75%

91. Three resistors, each of 'R' are connected in star. What is the value of equivalent delta connected resistors?

- a) $3R\Omega$ b) $\frac{R}{2}\Omega$
c) $2R\Omega$ d) $\frac{R}{3}\Omega$

92. If $10\mu F$ capacitor is connected to a voltage source with $v(t) = 50\sin 2000tV$, then the current through the capacitor is _____

- A.
a) $10^6 \cos 2000t$ b) $5 \times 10^{-4} \cos 2000t$
c) $\cos 2000t$ d) $500 \cos 2000t$

93. In a series resonance circuit, the impedance at half power frequencies is:

- a) $2R$ b) $\frac{R}{\sqrt{2}}$ c) $\sqrt{2}R$ d) $\frac{R}{2}$

94. A circuit with a resistor, inductor and capacitor in series is resonant of f_o Hz. If all the component values are now doubled the new resonant frequency is:

- a) $\frac{f_o}{4}$ b) $2f_o$
c) f_o d) $\frac{f_o}{2}$

95. A 2 cm long coil has 10 turns and carries a current of 750 mA. The magnetising force of the coil is:

- a) 375 AT/m b) 225 AT/m
c) 675 AT/m d) 450 AT/m

96. The rated voltage of a 3-phase power system is given as:

- a) peak line to line voltage
b) rms phase voltage
c) peak phase voltage
d) rms line to line voltage

97. The voltage wave $v = V_m \sin(\omega t - 15^\circ)$ volts is applied across an ac circuit. If the current leads the voltage by 10° and the maximum value of current is I_m , then the equation of current is

- a) $i = I_m \sin(\omega t + 5^\circ)$ amps
- b) $i = I_m \sin(\omega t - 25^\circ)$ amps
- c) $i = I_m \sin(\omega t + 25^\circ)$ amps
- d) $i = I_m \sin(\omega t - 5^\circ)$ amps

98. The average value of current (I_{av}) of a sinusoidal wave of peak value (I_m) is

- a) $I_{av} = \frac{I_m}{2}$
- b) $I_{av} = \frac{\pi}{2} I_m$
- c) $I_{av} = \frac{2}{\pi} I_m$
- d) $I_{av} = \frac{I_m}{\sqrt{2}}$

99. The emf induced in a coil is given by

$$e = -N \frac{d\phi}{dt}$$

Where e is the emf induced, N is the number of turns and $d\phi$ is the instantaneous flux linkage with the coil in time dt . The negative sign in the expression is due to

- a) Hans Christian Oersted
- b) Andre-Marie Ampere
- c) Michale Faraday
- d) Emil Lenz

100. The mutual inductance between two coils having self inductances 3 henry and coupling coefficient 0.85 is

- a) 12.75 henry
- b) 2.55 henry
- c) 0.425 henry
- d) 1.7 henry



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1. b	26. d	51. c	76. c
2. b	27. c	52. b	77. a
3. d	28. b	53. d	78. c
4. a	29. b	54. a	79. b
5. c	30. c	55. c	80. c
6. b	31. c	56. d	81. c
7. c	32. a	57. a	82. b
8. d	33. b	58. b	83. b
9. d	34. b	59. b	84. c
10. b	35. c	60. d	85. d
11. c	36. d	61. b	86. a
12. c	37. b	62. a	87. b
13. a	38. c	63. b	88. c
14. b	39. a	64. b	89. a
15. a	40. b	65. b	90. a
16. b	41. d	66. c	91. a
17. c	42. b	67. d	92. d
18. c	43. c	68. a	93. b
19. c	44. d	69. d	94. a
20. a	45. b	70. c	95. c
21. c	46. d	71. c	96. b
22. b	47. c	72. c	97. a
23. a	48. a	73. c	98. c
24. d	49. b	74. b	99. a
25. a	50. c	75. d	100.d

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