

1. The efficiency for maximum power transfer to the load is

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

ans-b

2. A circuit component that opposes the change in circuit voltage is

- a) Resistance
b) Capacitance
c) Inductance
d) All the above

Ans-b

3. A series resonant circuit implies

- a) zero power factor and maximum current
b) unity power factor and maximum current
c) unity power factor and minimum current
d) zero power factor and minimum current

ans-b

4. A current $i = (10 + 10\sin t)$ amperes is passed through moving iron type ammeter. Its reading will be

- a) zero b) 10 A
c) $\sqrt{150}$ A d) $\sqrt{2}$ A

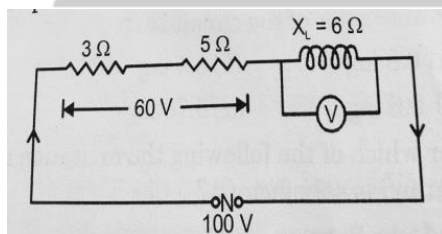
ans-c

5. An SCR has _____ PN junctions.

- a) two b) four
c) three d) one

ans-c

6. The power factor of the circuit shown in figure:



- a) 0.75 lagging
b) 0.6 lagging
c) 0.3 lagging
d) 0.8 lagging

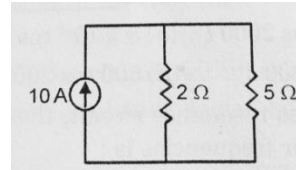
Ans-d

7. A conducting SCR can be opened by reducing to zero

- a) supply voltage
b) grid voltage
c) grid current
d) anode current

ans-d

8. Find the current through 5Ω resistor:



- a) 3.5 A
b) 7.15 A
c) 5 A
d) 2.85 A

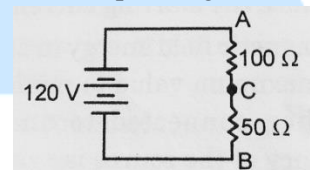
Ans-d

9. If firing angle in an SCR rectifier is increased, output is

- a) increased b) maximum
c) decreased d) unaffected

ans-c

10. Determine the voltage at point C shown below with respect to ground:



- a) 80 V b) 120 V c) 40 V d) 70 V

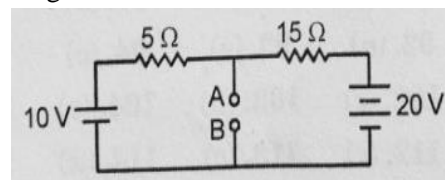
ans-c

11. An SCR is a switch

- a) two directional
b) unidirectional
c) three directional
d) four directional

ans-b

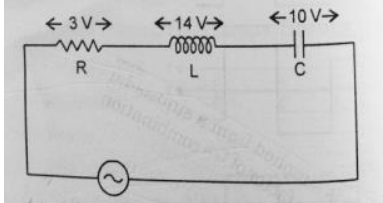
12. Thevenin's equivalent voltage and resistance between the terminal A and B for network of given figure is:



- a) 2.5 V, 12.5Ω
- b) 2.5 V, 3.75 Ω
- c) 12.5 V, 3.75 Ω
- d) 12.5 V, 2.5 Ω

Ans-c

13. The voltage across R, L and C are 3 V, 14 V and 10 V respectively as in the figure. If the voltage source is sinusoidal, then the input voltage (r.m.s.) is



- a) 10 V
- b) 5 V
- c) 2.5 V
- d) 15 V

ans-b

14. Snubber circuit is used to limit the rate of

- a) rise of current
- b) conduction period
- c) rise of voltage across SCR
- d) none of these

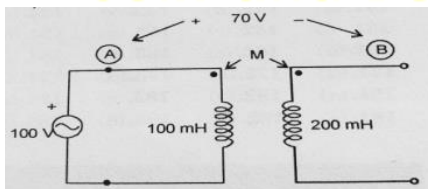
ans-c

15. In an SCR,

- a) holding current is less than latching current
- b) holding current is greater than latching current
- c) both a) and b)
- d) latching current is about 3 times the holding current

ans-a

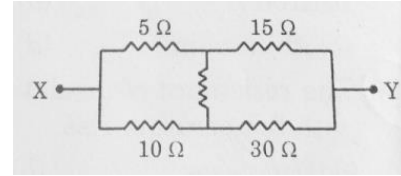
16. In the circuit as shown, voltage measured between A, B is found to be 70 V. Value of M is



- a) 30 mH
- b) 100 mH
- c) 200 mH
- d) 70 mH

Ans-d

17. The equivalent resistance between terminals X and Y of the network shown is



- a) 8Ω
- b) $\frac{100}{3}$ Ω
- c) $\frac{40}{3}$ Ω
- d) $\frac{20}{9}$ Ω

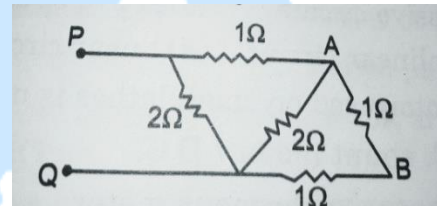
ans-c

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

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

ans-d

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



- a) 1Ω
- b) 2 Ω
- c) 3 Ω
- d) 4 Ω

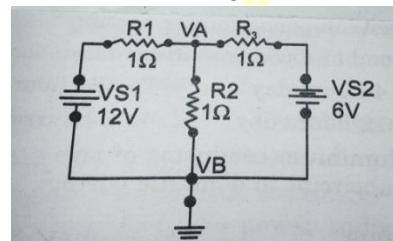
ans-a

20. 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

ans-b

21. Find the node voltage V_A .



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

ans-a

22. 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

ans-b

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

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

ans-c

24. 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

ans-d

25. 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

ans-d

26. 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

ans-b

27. 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

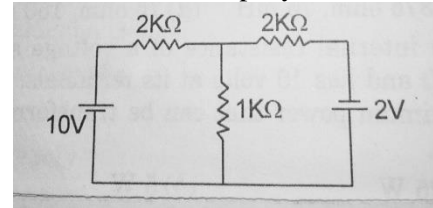
ans-c

28. The unit of luminous flux is

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

ans-a

29. The voltage across the $1k\Omega$ resistor of the network shown in the given figure is



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

ans-c

30. 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

ans-c

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

- a) 6 mA
- b) 18 mA
- c) 54 mA
- d) 20 mA

ans-6

32. Thevenin's theorem cannot be applied to:

- a) passive circuit
- b) active circuit
- c) nonlinear circuit
- d) linear circuit

ans-a

33. 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) $\sqrt{3}V_L I_L$

ans-d

34. The unit for permeability is:

- a) H / m
- b) $\frac{At}{m}$
- c) Wb
- d) $\frac{At}{Wb}$

ans-a

35. 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

ans-b

36. An active elements in a circuit is one which:

- a) dissipates energy
- b) receives energy
- c) both receives and supplies
- d) supplies energy

ans-d

37. 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

ans-a

38. If the power factor is high, then the consumer maximum KVA demand:

- a) increases
- b) remains constant
- c) becomes Zero
- d) decreases

ans-d

39. During the resistance welding, the heat produced at the joint is proportional to?

- a) Current
- b) Volt-Ampere
- c) I^2R
- d) Voltage

ans-c

40. Which of the following PNP device has a terminal for synchronizing purpose?

- a) SUS
- b) Diac
- c) Triac
- d) Schmitt trigger

ans-a

41. 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) 0.5 Ω
- b) 0.2 Ω
- c) 2 Ω
- d) 4.5 Ω

ans-a

42. 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

Ans-b

43. If the number of turns of a coil is increased, its inductance.

- a) none of the options
- b) is increased
- c) is decreased

d) remains the same

ans-c

44. 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

ans-a

45. 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) $N \frac{d\phi}{dt}$

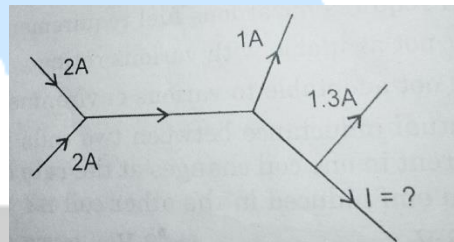
ans-b

46. An electric heater draws 3.5 A from a 110 V source. The resistance of the heating elements is approximately?

- a) 31 Ω
- b) 3.1 Ω
- c) 385 Ω
- d) 38.5 Ω

ans-a

47. 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

ans-c

48. 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

ans-c

49. If 750 μA is flowing through 11 k Ω 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

ans-d

50. 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) $C_1 | C_2$

ans-c

51. 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

ans-b

52. 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) $\frac{V}{R}$

ans-c

53. 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

ans-a

54. 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

ans-a

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

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

ans-a

56. 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) $361 \sin 314.16 t$

Ans-c

57. 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

ans-c

58. 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

ans-a

59. The magnetic material used in permanent magnets is

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

ans-d

60. 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

ans-b

61. 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

Ans-b

Prep By: Mr.R.K.RAMAN

62. 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

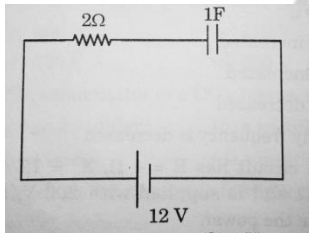
ans-c

63. 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

ans-a

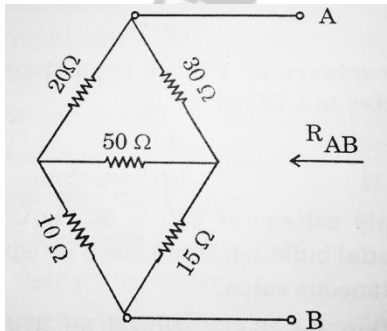
64. For the circuit shown in figure, the voltage across the capacitor during steady state condition is



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

ans-d

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



- a) 18 Ω b) 30 Ω c) 45 Ω d) 68 Ω

ans-a

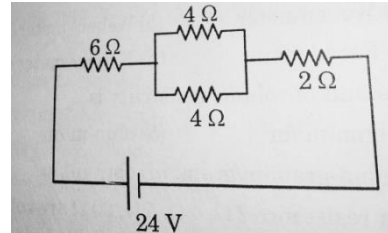
66. A 200 W, 200 V bulb and a 100 W, 200 V bulb are connected in series and the voltage of 400 V is applied across the series connected bulbs, Under this condition

- 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

Ans-a

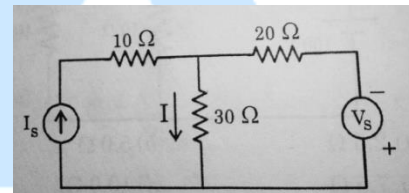
67. In the network shown, if one of the 4 Ω resistance is disconnected, when the circuit is active, the current flowing now will



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

ans-b

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

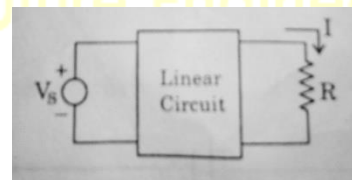


- a) -4A b) -1A
c) 1A d) 7 A

ans-d

69. For the linear circuit shown in figure, when $R = \infty, V = 20V$;
when $R = 0, I = 4A$;

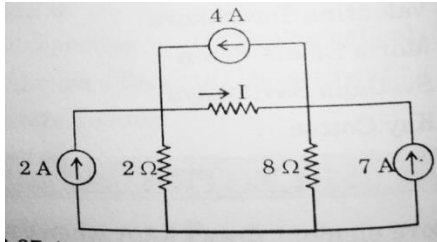
when , $R = 5\Omega$, the current I is



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

ans-b

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



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

ans-b

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

- increase if gate current is increased
- decrease if gate current is decreased
- increase if gate current is decreased
- not change with any variation in gate current

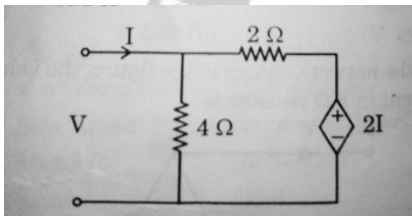
ans-d

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

- R in series with SCR
- L in series with SCR
- RL in series with SCR
- RLC in series with SCR

Ans-b

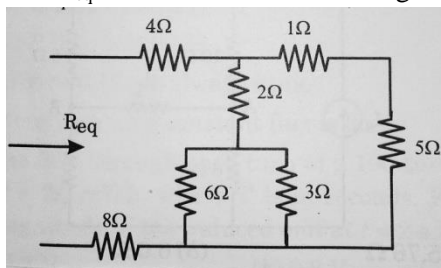
73. The circuit shown in the given figure is equivalent to a load of



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

ans-b

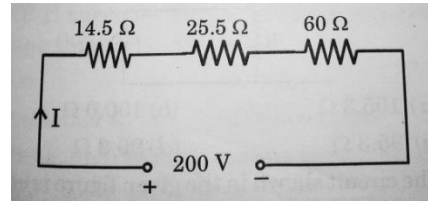
74. The R_{eq} for the circuit shown in figure is



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

ans-a

75. Calculate the voltage drop across 14.5Ω resistance.



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

ans-c

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