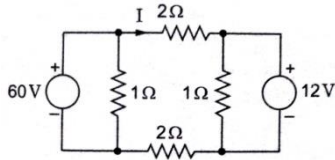


Prep By: Mr.R.K.RAMAN

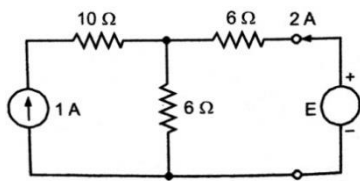
1. For the circuit shown, the value of current, I is



- (a) 2 A (b) 3 A  
(c) 6 A (d) 12 A

Ans-d

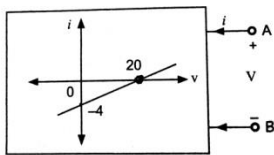
2. In the given figure, the value of the source voltage is



- (a) 12 V (b) 24 V  
(c) 30 V (d) 44 V

Ans-c

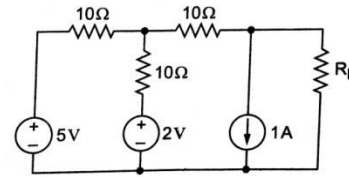
3. The resistance seen from the terminals A and B of the device whose characteristic is shown in the figure is



- (a)  $-5 \Omega$   
(b)  $-\frac{1}{5} \Omega$   
(c)  $\frac{1}{5} \Omega$   
(d)  $5 \Omega$

Ans-d

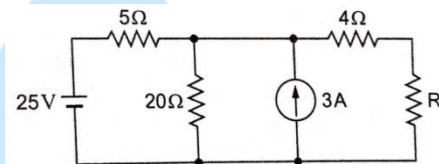
4. In the circuit shown below, the value of  $R_L$  such that the power transferred to  $R_L$  is maximum is



- (a)  $5 \Omega$  (b)  $10 \Omega$   
(c)  $15 \Omega$  (d)  $20 \Omega$

Ans-c

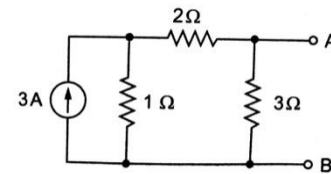
5. What is the value of R required for maximum power transfer in the network shown above?



- (a)  $2 \Omega$  (b)  $4 \Omega$   
(c)  $8 \Omega$  (d)  $16 \Omega$

Ans-c

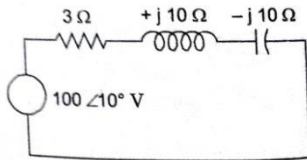
6. The Thevenin's equivalent of the circuit shown in the figure is



- (a) 0.75 V,  $1.5 \Omega$   
(b) 1.5 V,  $1.5 \Omega$   
(c) 1.5 V,  $0.75 \Omega$   
(d) 5.0 V,  $1.5 \Omega$

Ans-b

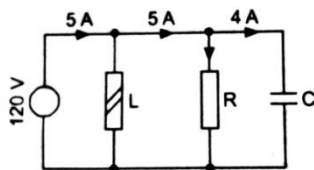
7. The reactive power drawn from the source in the network shown in the given figure is



- (a) 300 VAR.      (b) 200 VAR.  
(c) 100 VAR.      (d) Zero

Ans-d

8. In the circuit shown in the given figure, the current through the inductor L is



- (a) 0 A                      (b) 3 A  
(c) 4 A                      (d) 8 A

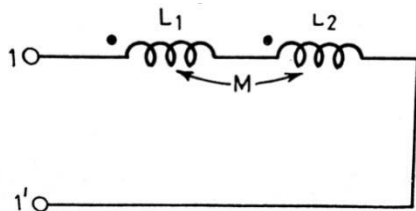
Ans-d

9. The current through a series RLC circuit under resonance condition will be

- (a)  $V/R$                       (b)  $V/X_C$   
(c)  $V/X_L$                       (d) none of these

Ans-a

10. The equivalent inductance of the system at terminal 1-1 is equal to

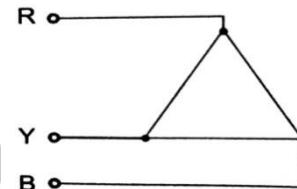


- (a)  $L_1 + L_2$

- (b)  $L_1 + L_2 + 2M$   
(c)  $L_1 + L_2 - 2M$   
(d)  $L_1 - L_2 + 2M$

Ans-b

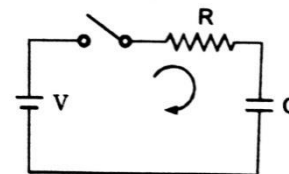
11. The phase sequence of the 3-phase system shown in given figure is



- (a) RYB                      (b) RBY  
(c) BRY                      (d) YBR

Ans-b

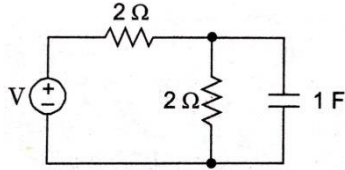
12. The transient response of the initially relaxed network shown in figure is



- (a)  $i = \frac{V}{R} e^{-t/CR}$   
(b)  $i = \frac{V}{R} e^{t/RC}$   
(c)  $i = \frac{V}{R} (1 - e^{-t/RC})$   
(d)  $i = \frac{V}{R} (1 + e^{-t/RC})$

Ans-a

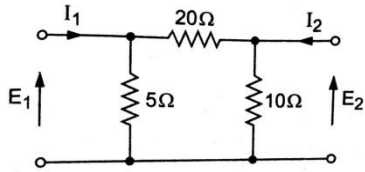
13. What is the time constant of the circuit?



- (a) 0.5 s                      (b) 1 s  
(c) 2 s                         (d) 4 s

Ans-b

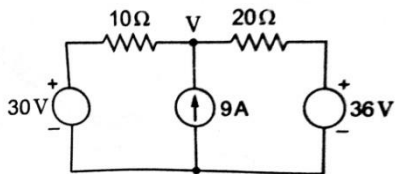
14. The admittance parameter  $Y_{12}$  in the 2-port network in the figure,



- (a) - 0.2 mho                      (b) 0.1 mho  
(c) - 0.05 mho                      (d) 0.05 mho

Ans-c

15. The node voltage V in the circuit is



- (a) 6 V                              (b) 30 V  
(c) 36 V                              (d) 92 V

Ans-d

16. The correct sequence of given devices in the decreasing order of their speeds of operation is

- a) Power BJT, power MOSFET, IGBT ,SCR  
b) IGBT, power MOSFET, power BJT,SCR

- c) SCR, power, BJT, IGBT, MOSFET  
d) MOSFET, IGBT, power, BJT,SCR

Ans-d

17. A modern power semiconductor device that combines the characteristics of BJT and MOSFET is

- a) GTO                      b) FCT  
c) IGBT                      d) MCT

ans-c

18. Thyristor is nothing but a

- a) Controlled switch  
b) Controlled transistor  
c) Amplifier with large current rating  
d) Amplifier with higher gain

Ans-a

19. Thyristor can be termed as

- a) dc switch  
b) ac switch  
c) either (a) or (b)  
d) square -wave switch

ans-a

20. An SCR is considered to be a semi controlled device because

- a) It can be turned OFF but not On with a gate pulse  
b) It conducts only during one half -cycle of an alternating current wave

- c) It can be turned ON but not OFF with a gate pulse  
d) It can be turned ON only during one half –cycle of an alternating voltage wave

Ans-c

21. A thyristor equivalent of a thyatron tube is

- a) SCR      b) UJT  
c) Diac      d) Traic

ans-a

22. Thyristor is a semiconductor switch which is

- a) unilateral and astable  
b) bilateral and astable  
c) unilateral and bistable  
d) bilateral and bistable

ans-c

23. When cathode of a thyristor is made more positive than its anode

- a) all the junction are reverse biased  
b) outer junction are reverse biased and central one is forward biased  
c) outer junction are forward biased and one is reverse biased  
d) all the junction are forward biased

ans-b

24. In the forward blocking region of a silicon controlled rectifier, the SCR is

- a) in the off-state  
b) in the on-state  
c) reverse biased  
d) at the point of breakdown

ans-a

25. SCR turns OFF from conducting state to blocking state on

- a) reducing gate current  
b) reversing gate voltage  
c) reduction anode current below holding current value  
d) applying ac to the gate

ans-c

26. Once an SCR is turned on it remains on until the anode current goes below to the

- a) Trigger current  
b) Breakover current  
c) Threshold current  
d) Holding current

ans-d

27. Turn-on of a thyristor takes place when

- a) Anode to cathode voltage is positive  
b) Anode to cathode voltage is negative  
c) There is a positive current pulse at the gate  
d) The anode to cathode voltage is positive and there is a positive current pulse at the gate

Ans-d

28. After firing an SCR ,the gate pulse is removed .the current in the SCR will

- a) Remain the same
- b) Immediately fall to zero
- c) Rise up
- d) Rise a little and then fall to zero

Ans-a

29. When a thyristor is in ON state ,its gate drive be

- a) Removed to save power
- b) Removed or may not be removed
- c) Not removed as it will turn off the thyristor
- d) Removed to avoid increased losses and higher junction temperature

Ans-d

30. In a thyristor , the holding current  $I_H$  is

- a) more than latching current  $I_L$
- b) less than  $I_L$
- c) equal to  $I_L$
- d) equal to zero

ans-b

31. Turn –on and turn –off times of transistor depend on

- a) Static characteristics
- b) Junction capacitance
- c) Current gain

d) None of the above

Ans-b

32. An SCR can be turned off

- a) By passing a negative pulse to its gate
- b) By removing the gate supply
- c) By reverse biasing it
- d) By forcing the current through gate to become zero

Ans-c

a)

33. Latching current of an SCR is

- a) below 10%
- b) 10-20%
- c) 20-25%
- d) 25-30% of rated current

ans-a

34. The typical ratio of latching current to holding current in a 20 A thyristor is

- a) 5.0
- b) 2.0
- c) 1.0
- d) 0.5

ans-b

35. Current in SCR to turn on transient can be reduced by

- a) Connecting a small inductor in series with the anode
- b) Connecting a small inductor in parallel with the anode
- c) Connecting a capacitor in series with the anode
- d) Connecting a capacitor in parallel with the anode

Ans-a

36. It is preferable to use a train of pulse of high frequency for gate triggering of SCR in order to reduce

- a)  $Dv/dt$  problem
- b)  $Di/dt$  problem
- c) The size of the pulse transformer
- d) The complexity of the firing circuit

Ans-c

37. An SCR can be turned off by

- a) Interrupting its anode current
- b) Reversing the polarity of its anode –cathode voltage
- c) Low –current drop out
- d) All of the above

Ans-a

38. Which of the following does not cause permanent damage to an SCR?

- a) High current
- b) High rate of rise of current
- c) High temperature rise
- d) High rate of ride of voltage

Ans-a

39. In a commutation circuit employed to turn –off an SCR, satisfactory turn –off is obtained when

- a) Circuit turn –off time < device turn –off time
- b) Circuit turn –off time > device turn –off time

- c) Circuit time constant > device turn –off time
- d) Circuit time constant < device turn –off time

Ans-b

40. The  $dv/dt$  effect in SCR can result in

- a) Low capacitive charging current
- b) False triggering
- c) Increased junction capacitance
- d) High rate of rise of anode voltage

Ans-b

41. How many SCR<sub>s</sub> are to be connected in series with 800V rating to be used for a 3 kV circuit using derating factor of 15%?

- a) 3    b) 4    c) 5    d) 6

ans-c

42. The sharing of the voltage between thyristors operating in series is influenced by their

- a)  $Di/dt$  capabilities
- b)  $Dv/dt$  capabilities
- c) Junction temperature
- d) Static v-i characteristics

Ans-d

43. The  $\frac{di}{dt}$  protection for an SCR is achieved through the use of

- a) R in series with SCR
- b) R-L in series with SCR



- c) RL across SCR
- d) L in series with SCR

Ans-d

44. For an SCR , dv/dt protection is achieved through the use of

- a) R-L in series with SCR
- b) R-C across SCR
- c) L in series with SCR
- d) R-C in series with SCR

Ans-b

45. The snubber circuit is used in thyristors circuits for

- a) triggering
- b) dv/dt protection
- c) di/dt protection
- d) phase shifting

ans-b

46. An oscillators whose frequency is changed by a variable dc voltage, is known as

- a) a crystal oscillator
- b) a VCO
- c) an Armstrong oscillator
- d) a piezoelectric device

ans-b

47. Op-amps have become very popular because

- a) they are very cheap
- b) they are extremely small in size
- c) their external characteristics can be altered to suit any application
- d) they are available in different packages

ans-c

48. The ideal op-amp is an ideal

- a) voltage controlled current source
- b) voltage controlled voltage source
- c) current controlled current source
- d) current controlled voltage source

ans-b

49. The ideal op-amp has the following characteristics.

- a)  $R_i = \infty, A = \infty, R_o = 0$
- b)  $R_i = 0, A = \infty, R_o = 0$
- c)  $R_i = \infty, A = \infty, R_o = \infty$
- d)  $R_i = 0, A = \infty, R_o = \infty$

Ans-a

50. An op-amp has a common mode gain of 0.01 and a differential mode gain of  $10^5$ . Its CMRR would be

- a)  $10^{-7}$
- b)  $10^{-3}$
- c)  $10^3$
- d)  $10^7$

ans-d

51. The voltage gain of an ideal voltage follower is

- a) 1
- b)  $< 1$
- c) 0
- d) infinity

ans-a

52. A differential amplifier is invariably used in the input state of all op-amps. This is done basically to provide the op-amps with a very high

- a) CMRR
- b) bandwidth
- c) slew rate
- d) open-loop gain

ans-a

53. The highest frequency stability is achieved by using an oscillator of the type:

- a) Colpitts
- b) Crystal controlled

- c) Hartley  
d) RC oscillator

ans-b

54. The return difference of a feedback amplifier is given by

- a)  $-A\beta$                       b)  $+A\beta$   
c)  $1-A\beta$                       d)  $1+A\beta$

ans-d

55. Which of the following devices is used in the microprocessors?

- a) JFET                      b) BJT  
c) MOSFET                      d) CMOS

ans-d

56. An ideal amplifier

- a) has +ve feedback  
b) gives uniform frequency response  
c) has infinite voltage gain  
d) responds only to signals at its input terminals

ans-d

57. In a class A amplifier, there will be a worst condition when

- a) signal input is zero  
b) signal input is maximum  
c) load reactance is high  
d) there is transformer coupling

ans-a

58. The emitter resistor  $R_E$  is bypassed by a capacitor in order to

- a) stabilize the Q-point  
b) cause thermal run away  
c) increase the voltage gain  
d) reduce the voltage gain

ans-a

59. The action of a JFET in its equivalent circuit can best be represented as a

- a) Current Controlled Current Source  
b) Current Controlled Voltage Source  
c) Voltage Controlled Voltage Source  
d) Voltage Controlled Current Source

Ans-d

60. A FET is a better chopper than a BJT because it has

- a) Lower off-set voltage  
b) Higher series ON resistance  
c) Lower input current  
d) Higher input impedance

Ans-a

61. The materials not having negative temperature coefficient of resistivity are

- a) metals  
b) semiconductors  
c) insulators  
d) none of these

ans-a

62. The bonding forces in compound semiconductors, such as GaAs, arise from

- a) Ionic bonding  
b) Metallic bonding  
c) Covalent bonding  
d) Combination of ionic and covalent bonding

Ans-c

63. In an intrinsic semiconductor, the number of electrons is equal to the



number of holes at which temperature?

- a) 0 K
- b) 0 °C
- c) high temperature
- d) all temperature

ans-a

64. Controlled addition of group III element to an elemental semiconductor results in the formation of

- a) intrinsic semiconductor
- b) n-type semiconductor
- c) p-type semiconductor
- d) degenerate semiconductor

ans-c

65. Atomic number of silicon is

- a) 12      b) 13
- c) 14      d) 15

ans-c

66. The bandgap of Silicon at room temperature is

- a) 1.3 eV      b) 0.7 eV
- c) 1.1 eV      d) 1.4 eV

ans-c

67. A tail race of a hydro power plant

- (a) Connects the dam to power house
- (b) Leads water into the turbine
- (c) Is used for the flow of used water from turbine to canal/river
- (d) Controls the pressure of incoming water

Ans-c

68. In a thermal power plant the type of turbine used is

- (a) Francis Turbine
- (b) Kaplan Turbine
- (c) Pelton Wheel
- (d) Steam Turbine

Ans-d

69. A thermal power plant

- (a) Does not produce any smoke
- (b) Is environmental friendly
- (c) Has a penstock
- (d) Uses a boiler for generation of steam

Ans-d

70. Mechanical energy in a thermal power plant is produced by use of

- (a) Energy of flowing water
- (b) Heat energy of coal
- (c) Nuclear energy
- (d) Combustion of diesel

Ans-b

71. The Rotor of a turbo-alternator is normally manufactured from,

- (a) dynamo sheet steel
- (b) cold rolled silicon steel
- (c) chromium-nickel steel
- (d) Cobalt

Ans-c

72. Under abnormal operation of an alternator, over voltages are reduced by,

- (a) stator winding

- (b) rotor winding
- (c) damper winding
- (d) none of these

ans-c

73. The frequency of generated emf of an alternator in our country is,

- (a) 60 Hz      (b) 50 Hz
- (c) 25 Hz      (d) none of these

Ans-b

74. The stator of an alternator has 4-poles, the speed of the prime-mover of this alternator should be,

- (a) 1500 rpm      (b) 3000 rpm
- (c) 1000 rpm      (d) 750 rpm

Ans-a

75. Alternator driven by hydraulic turbine are built for speeds varying from,

- (a) 600 to 1500 rpm
- (b) 1000 to 2000 rpm
- (c) 100 to 600 rpm
- (d) 1500 to 3000 rpm

Ans-c

