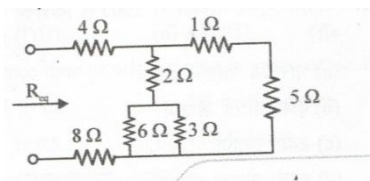


Name: Question bank

Q1. 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

Q2. The Req for the circuit shown in figure is:-(fig)

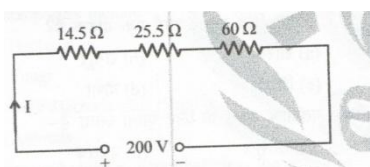


- a) 14.4 Ω                      b) 14.57 Ω                      c) 15.27 Ω    d) 15.88 Ω

Q3. The unit of conductivity is:-

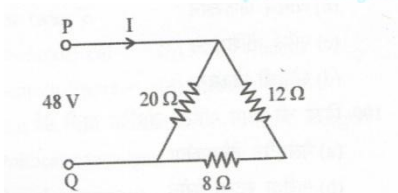
- a) Ohm-m                      b) ohm/m                      c) mho-m    d) mho/m

Q4. Calculate the voltage drop across 14.5 Ω resistance:



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

Q5. For the network shown in the figure, the value of current in 8Ω resistor is:



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

Q6. 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) Increases    b) decreases    c) remain unaltered    d) become zero

Q7. 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                      c) greater than                      d) double

Q8. Tesla is same as:-

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

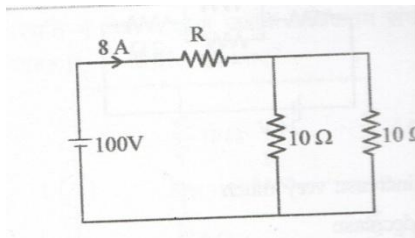
Q9. The unit of volume resistivity is:-

- a) Ohm-m<sup>3</sup>/m<sup>2</sup>    b) ohm-m<sup>2</sup>/m                      c) ohm-gram-m/gram                      d) ohm-m<sup>4</sup>/m<sup>3</sup>

Q10. Four resistance 2Ω, 4Ω, 5Ω, 20Ω are connected in parallel. Their combined resistance is:

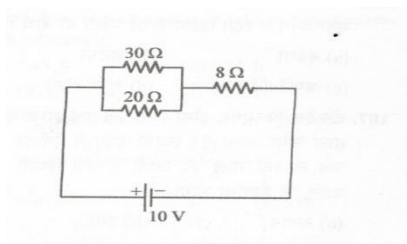
- a) 1  b) 2  c) 4  d) 5

Q11. In the figure the value of R is:- (fig)



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

Q12. Power consumed in the given circuit is:-(fig)

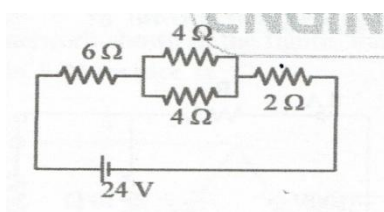


- a) 100 Watts  b) 5 Watts  c) 20 Watts  d) 40 Watts

Q13. 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 :-

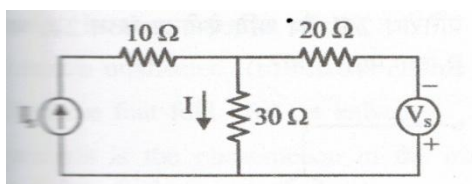
- a) 100 W bulb will be brighter than 200 W bulb   
 b) 200 W bulb will be brighter than 100 W bulb   
 c) Both the bulbs will have equal brightness   
 d) Both the bulbs will be darker than when they are connected across rated voltage

Q14. In the net work shown, if one the 4  resistances is disconnected when the circuit is active, the current flowing now will:- fig



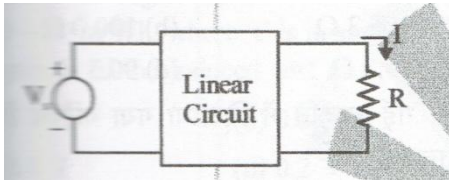
- a) Increases very much  b) decreases  c) be zero  d) increases very slightly

Q15. For the circuit shown in figure when  $V_s = 0$ ,  $I = 3A$ . when  $V_s = 200V$ , what will be the value of  $I$ ?



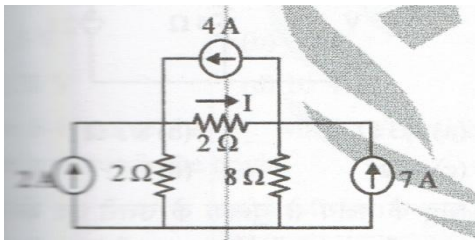
- a) -4a  B) -1a  C) 1 A  d) 7A

Q16. For the linear circuit shown in figure, when  $R = \square$ ,  $V = 20V$ ; when  $R = 0$ ,  $V = 4A$ ; when  $R = 5 \square$  the current  $I$  is fig



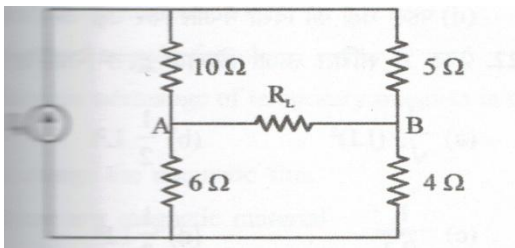
- a) 1 A                      b) 2 A                      c) 3 A                      d) 4 A

Q17. The current  $I$  in the circuit shown in the figure is:- fig



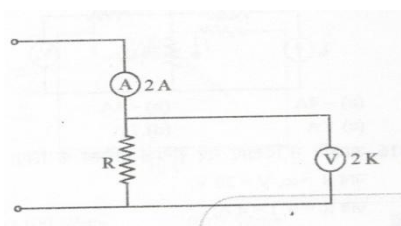
- a) -3.67 A                      b) -1 A                      c) 4 A                      d) 6 A

Q18. In the network shown in the figure, the value of  $R_L$  such that maximum possible power will be transferred to  $R_L$  is :-



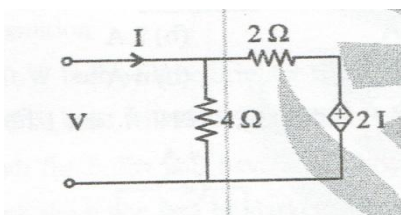
- a) 5.76  $\Omega$                       b) 6.0  $\Omega$                       c) 10.0  $\Omega$                       d) 15.0  $\Omega$

Q19. A resistance  $R$  is measured by ammeter-voltage method. The voltage reading is 20 V and its internal resistance is 2K. If the ammeter reading is found to be 2 A, then value of  $R$  is:-



- a) 105.3  $\Omega$                       b) 100.0  $\Omega$                       c) 95.3  $\Omega$                       d) 90.3  $\Omega$

Q20. The circuit shown in the given figure is equivalent to a load of :-



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

Q21. The north pole of a magnet is moved away from a metallic ring. The induced current in the ring flows:-

- a) Clockwise                      b) anticlockwise                      c) first anticlockwise and then clockwise  
 d) first clockwise and then anticlockwise

Q22. Energy stored in an inductor is given by:-

- a)  $1/\sqrt{2} (LI)^2$                       b)  $\frac{1}{2} L^2 I$                       c)  $1/\sqrt{LI}$                       d)  $\frac{1}{2} LI^2$

Q23. A coil with a certain number of turns has a specified time constant. If the number of turns is doubled, its time constant would:-

- a) Remain unaffected    b) become double    c) become four-fold                      d) get halved

Q24. 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

Q25. The flux through each turn of 100-turn coil is  $(t^3 - 2t)$  mWb, where 't' is in second. Find the magnitude of the induced emf at  $t = 2$  s?

- a) 1 V                      b) 0.8 V                      c) 0.4 V                      d) 0.2 V

Q26. A circuit has inductance of 2H. If the circuit current changes at the rate of 10 A/sec, then self-induced emf is:-

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

Q27. 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

Q28. 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

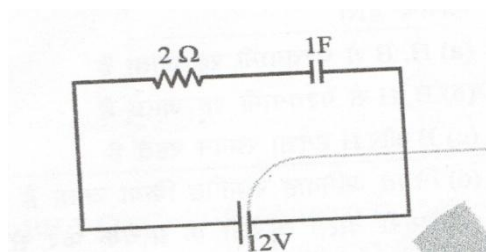
Q29. The main advantage of temporary magnets is that we can:-

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

Q30. The magnetic used in permanent magnets is:-

- a) Iron                      b) soft steel                      c) nickel    d) hardened steel

Q31. For the circuit shown in figure, the voltage across the capacitor during steady state condition is:-

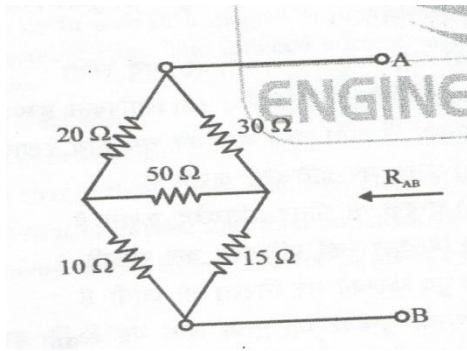


- a) 0V                      b) 4 V                      c) 6 V                      d) 12 V

Q32. A current of 5 mA in a resistanceless choke from a 200 V alternating source. The energy consumed in the choke is:-

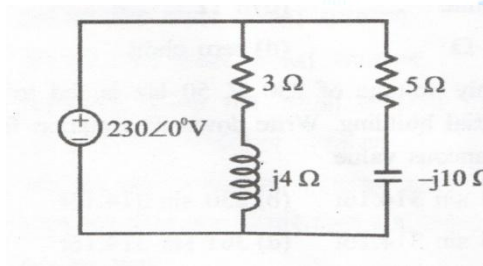
- a) 0 J      b) 4.4 J      c) 500 J      d) 1000 J

Q33. Find  $R_{AB}$  for the circuit shown in figure :-



- a) 18 Ω      b) 30 Ω      c) 45 Ω      d) 68 Ω

Q34. Calculate the total susceptance of the circuit shown in figure :-



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- a) 6.67 S      b) 1.87 S      c) 0.16 S      d) 0.08 S

Q35. The Q-factor of a parallel resonant circuit is given by:-

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

Q36. 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 increase      c)  $X_L$  is decreased      d) supply frequency

Q37. 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

Q38. Two sinusoidal current are given by the equations  $i_1 = 50 \sin(\omega t + \pi/4)$  and  $i_2 = 25 \sin(\omega t + \pi/6)$ . the phase difference between them is.....degrees:-

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

Q39. The reactance of 1 farad capacitance when connected to a DC circuit is:-

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

Q40. A supply of 230 V, 50 Hz is fed to a residential building, write down its equation for instantaneous value :-

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

Q41. The Ac bridge used for measurement of dielectric loss of capacitor is:-

- a) Anderson bridge                      b) Schering bridge    c) Wien bridge                      d) Hay's bridge

Q42. In electro-dynamometer ammeter, the deflection of the pointer is proportional to:-

- a) Mean of current in fixed coil and moving coil  
b) Square of the current in moving coil  
c) RMS value of current in fixed coil  
d) Mean-square of current in fixed coil and moving coil

Q43. In which of the following transformers, is the secondary winding always kept closed:-

- a) Current transformer    b) potential transformer  
c) power transformer    d) Distribution transformer

Q44. Two holes are drilled in the disc on a diameter of energy-meter to:-

- a) Increases ventilation                      b) reduce the weight  
c) eliminate creeping on no-load    d) increase deflecting torque

Q45. Which of the following instruments has the highest torque/ weight ratio among the given instrument?

- a) Attraction type MI instrument  
b) Repulsion type MI instrument  
c) Permanent magnet moving coil instrument  
d) Electro-dynamometer instrument

Q46. If current through the operating coil of moving iron instrument is doubled the operating force becomes:-

- a) One and a Half times                      b) 2 times                      c) 3 times    d) 4 times

Q47. In moving iron instrument the iron moves in direction to cause:-

- a) Coil inductance to be constant    b) Mutual inductance to be minimum  
c) Minimum reluctance path                      d) Decreases in the flux passing through is

Q48. A moving coil instrument has a resistance of  $10 \Omega$  and gives full scale deflection at 0.5 V potential difference across it. How can it be adapted to measure a current upto 100 A?

- a) By connecting shunt resistance of  $0.005 \Omega$  across the meter  
b) By connecting shunt resistance of  $5 \Omega$  across the meter  
c) By connecting shunt resistance of  $0.05 \Omega$  across the meter  
d) By connecting shunt resistance of  $10 \Omega$  across the meter

Q49. The multiplying power of the shunt of a milliammeter is 8. If the circuit current is 200 mA then current through the meter is:-

- a) 25 mA                      b) 200 mA                      c) 1600 mA                      d) 3200 mA

Q50. The material to be used in the manufacture a standard resistor should be of:-

- a) Low resistivity  
b) High resistivity and low temperature co-efficiency  
c) High temperature co-efficient  
d) Low resistivity and high temperature co-efficiency

Q51. In a 3-phase induction motor crawling happens at :-

- a) Any speed    b) no- load speed  
c) odd multiples of fundamental    d) even multiples of fundamental

Q52. A 4-pole, 3 phase induction motor runs at 1440 rpm on a 50 Hz supply. Find the slip speed:-

- a) 2940 rpm                      b) 1500 rpm                      c) 1440 rpm                      d) 60 rpm

Q53. Low voltage windings are placed nearer to the core in the case of concentric windings because :-

- a) It reduces hysteresis loss  
b) It reduces eddy current loss  
c) It reduces insulation requirement  
d) It reduces leakage fluxes

Q54. If  $K$  is the phase-to-phase voltage ratio, then the line-to-line voltage ratio in a 3-phase Y-A transformer is:-

- a)  $K\sqrt{3}$                       b)  $K/3$                       c)  $\sqrt{3} K$                       d)  $\sqrt{3}/K$

Q55. In an autotransformer of voltage ratio  $V_1/V_2$ ,  $V_1 > V_2$ , the fraction of power transfer inductively is proportional to:-

- a)  $V_1/(V_1 + V_2)$                       b)  $V_2 / V_1$                       c)  $(V_1 - V_2) / (V_1 + V_2)$                       d)  $(V_1 - V_2)/V_1$

Q56. Stepped core is used in transformers in order to reduce:-

- a) Volume of iron                      b) volume of copper                      c) iron loss                      d) reluctance of core

Q57. Commutation conditions at full load for large DC machines can be improved by the:-

- a) Brake test                      b) Swinburne's test                      c) Hopkinson's test                      d) Field test

Q58. The emf induced in a DC shunt generator is 230 V, the armature resistance is 0.1  $\Omega$  if the armature current is 200 A, the terminal voltage will be:-

- a) 200 V                      b) 210 V                      c) 230 V                      d) 250 V

Q59. The commutator of a DC generator acts as:-

- a) An amplifier                      b) a rectifier                      c) a load                      d) a multiplier

Q60. Fleming's left hand rule is applicable to:-

- a) DC generator                      b) DC motor                      c) Alternator                      d) transformer

Q61. A vacuum cleaner employs .....motor?

- a) Resistance split phase                      b) capacitor start                      c) shaded pole                      d) single phase series

Q62. Which of the following single phase motor is available with speed as low as one revolution per minute?

- a) Shaded pole                      b) reluctance                      c) hysteresis                      d) universal

Q63. In capacitor start single phase induction motor, the current in the :-

- a) Supply lines lead the voltage  
b) Starting winding lags the voltage  
c) Main winding leads the voltage  
d) Starting winding leads the voltage

Q64. In a single phase induction motor speed sensitive centrifugal switch is connected in.....winding.

- a) Parallel with main                      b) series with main                      c) parallel with starting                      d) series with starting

Q65. At starting the current through the starting winding ( $I_s$ ) of single phase induction motor:-

- a) Lags 'V' by 90°                      b) leads 'V' by 90°                      c) is nearly in phase with 'V'                      d) leads 'V' by 75°

Q66. In a single phase induction motor at start, the two revolving fields produce:-

- a) Unequal torques in the rotor conductors
- b) No torque in the rotor conductor
- c) Equal and opposite torques in the rotor conductors
- d) Equal torques in same direction in the rotor conductors

Q67. A synchronous motor can be used as synchronous condenser when it is:-

- a) Over excited
- b) over loaded
- c) under excited
- d) under loaded

Q68. Which of the following method given a higher than actual value of regulation of an alternator ?

- a) ZPF method
- b) MMF method
- c) EMF loaded
- d) under loaded

Q69. If the excitation an alternator operating in parallel with other alternator is increase above the normal value of excitation its:-

- a) Power factor become more lagging
- b) power factor become more leading
- c) output current decreases
- d) output kW decrease

Q70. In an alternator, the effect of armature reaction is minimum at power factor of:-

- a) 0.5 lagging
- b) 0.866 lagging
- c) 0.866 leading
- d) unity

Q71. Damper winding in synchronous motors is used to:-

- a) Suppress hunting
- b) improve power factor
- c) develop reluctance torque
- d) improve the efficiency

Q72. Turbo alternators have rotors of :-

- a) Small diameter and long axial length
- b) large diameter and long axial length
- c) large diameter and small axial length
- d) small diameter and axial length

Q73. Which of the following equipment is used to limit short-circuit current level in sub-station:-

- a) Isolators
- b) lightning switch
- c) coupling capacitor
- d) series reactor

Q74. Power distribution by cable is generally adopted for line length:-

- a) Less than 10 km
- b) above 10 km
- c) less than 50 km
- d) above 50 km

Q75. The leakage resistance of a 50 km long cable is  $1M\Omega$  . for a 100 km long cable is will be:

- a)  $0.5 M\Omega$
- b)  $2 M\Omega$
- c)  $0.66 M\Omega$
- d) None

Q76. If voltage is increased by 'n' times, the size of the conductor would:-

- a) Increases by 'n' times
- b) reduce by '1/n' times
- c) increase by 'n<sup>2</sup>' times
- d) reduced by '1/n<sup>2</sup>'

Q77. The maximum demand of a consumer is 2 kW and his daily energy consumption is 24 units. His load factor is.....%

- a) 24
- b) 41.6
- c) 50
- d) 80

Q78. A wire placed on the top of a transmission line acts as:-

- a) A phase wire
- b) neutral
- c) a transmission wire
- d) ground wire



Q79. The conductor, by means of which the metal body of an equipment or application is connected to the earth is known as:-

- a) Neutral continuity conductor    b) earth discontinuity conductor
- c) earth continuity conductor        d) neutral discontinuity conductor

Q80. Which insulation is most widely used for covering wires/cables used in internal wiring ?

- a) Paper        b) wood    c) Glass        d) PVC

Q81. Which of the following type of wiring preferred for workshop lighting?

- a) Paper        b) wood    c) Glass    d) PVC

Q82. The earthing electrodes should be placed within what distance in meter form the building whose installation system is being earthed:-

- a) 4            b) 2.5        c) 1.5        d) 0.5

Q83. Supplier's fuse which is provide in domestic wiring system is:-

- a) After the energy meter            b) before the energy
- c) before distribution board        d) after main switch

Q84. As per recommendation of ISI, the maximum number of point of lights, fans and socket outlets that can be connected in one sub-Circuit is:-

- a) 8            b) 10        c) 15        d) 20

Q85. In a 3-pin plug:-

- a) All the three pins are of the same size
- b) Two pins are of the same size but third one is thicker
- c) Two pins are of the same size but third one is thicker and longer
- d) All the three pins are of different sizes

Q86. The acceptable value of grounding resistance to domestic application is:-

- a) 0.1Ω        b) 1Ω        c) 10Ω        d) 100Ω

Q87. Inside the earths pit, the earthing electrode should be placed:-

- a) Vertical    b) horizontal        c) inclined at 45°    d) inclined at any angle other than 45°

Q88. To reduce the cost of the electricity generated:-

- a) The load factor and diversity factor must be low
- b) The load factor must be low but diversity factor
- c) The load factor must be high but diversity
- d) The load factor and diversity factor must be high

Q89. The colour of the light given out by a sodium vapour discharge lamp is:-

- a) Pink        b) bluish green        c) yellow    d) blue

Q90. The transformer used in a welding set is :-

- a) Step-up transformer    b) step-down transformer
- c) constant current transformer    d) booster transformer

Q91. The domestic load that has UPF is :-

- a) Fan      b) mixer    c) tube      d) Filament lamp

Q92. An industrial consumer has a daily load pattern of 2000 kW, 0.8 lag 12 hours and 1000 kW UPF for 12 hours. The load factor is:-

- a) 0.5    b) 0.75      c) 0.6      d) 2.0

Q93. Dielectric loss is proportional to:-

- a) [frequency]<sup>½</sup>      b) frequency      c) frequency<sup>2</sup>      d) frequency<sup>3</sup>

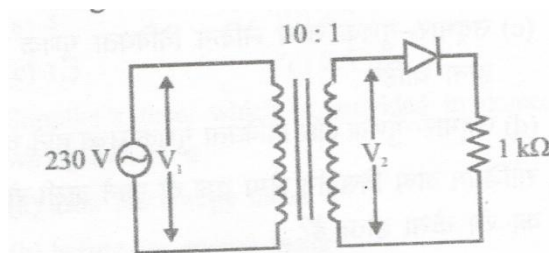
Q94. Which of the following applications needs frequent starting and stopping of electric motor?

- a) Air-conditioner      b) lifts and hoists    c) Grinding mill      d) paper mill

Q95. In a CE (common emitter) transistor  $V_{cc} = 12V$  and the zero signal current is 1 mA. Determine the operating point when collector load ( $R_c$ ) is  $6\text{ k}\Omega$  :

- a) 6 V, 1 mA      b) 6 V, 2mA      c) 12 V, 1 mA      d) 12 V, 2 mA

Q96. An AC supply of 230 V is applied to half wave rectifier through transformer of turns ratio 10 : 1 as shown in figure. Determine the peak inverse voltage across the diode:- ( fig)



- a) 37.6 V      b) 32.5 V    c) 23.0 V    d) 14.54

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Q97. The potential barrier existing across Pn junction:-

- a) Prevents flow of minority carriers  
b) prevents flow of majority carriers  
c) prevents total recombination of holes and electrons  
d) prevents neutralisation of acceptor and donor ions

Q98. The technique of adding a precise amount time between the trigger point beginning of the scope sweep in a CRO is known as:-

- a) Free running sweep    b) Delayed sweep  
c) triggered sweep      d) Non-sawtooth sweep

Q99. In a CRO, a sinusoidal waveform of a certain frequency is displayed. The value of the quantity that can be made out by observation is:-

- a) RMS value of the sine wave      b) average value of the sine wave  
c) Form factor of the sine wave      d) peak-peak value of the sine wave

Q100. In a cathode ray tube, the focussing anode is located:-

- a) After accelerating and accelerating
- b) Between pre-accelerating and accelerating
- c) Before pre-accelerating anode
- d) Just after electron-gun



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