Course   :   - Science
Name   :   ....
Roll No.   :   ....

PART - 1

SECTION - 1   Marks: 108.0

Q 1. In a series RLC circuit, the condition for resonance is: *1.0 Mark*
- a. R=L=C
- b. ωL=1 / ωC
- c. ω2LC=R
- d. .ωRC=1

Q 2. Electric current is said to be passed through a wire when   *1.0 Mark*
- a. No particle passes through it
- b. Both electron and neutron pass through it
- c. Only proton pass through it
- d. Only electrons pass through it

Q 3. In an electric circuit, fire may occur due to   *1.0 Mark*
- a. Excessive power
- b. Overloading and short-circuit
- c. Only short circuit
- d. Only overloading

Q 4. On applying a potential difference of V across a conductor A of resistance R, a current I flows through it. If the same potential difference is applied across conductor B of resistance 3R, the current flowing through it is: *2.0 Mark*
- a. 3I
- b. 2I
- c. I/3
- d. I/2

Q 5. If the potential difference across a conductor increases from V to 3V, then which of the following statement is correct regarding the current through the conductor?   *2.0 Mark*
- a. Current becomes 4 times its initial value
- b. Current becomes 2 times its initial value
- c. Current becomes 3 times its initial value
- d. Current remains the same as that of its initial value

Q 6. What is the number of electrons flowing across the cross-section of the conductor in 2 seconds, if one-ampere current flows through a conductor?   *2.0 Mark*
- a. 1.25×10^{18}
- b. 1.25×10^{19}
- c. 1.5×10^{19}
- d. 1.25×10^{19}

Q 7. The diagram below at the right shows a light bulb connected by wires to the + and - terminals of a car battery. Use the diagram in answering the next four questions. Compared to point D, point A is _____ electric potential.   *1.0 Mark*
- a. 12 V higher in
- b. 12 V lower in
- c. exactly the same
- d. impossible to tell

Q 8. _____ is the material used to make heating elements.   *1.0 Mark*
- a. Copper
- b. Mercury
- c. Nichrome
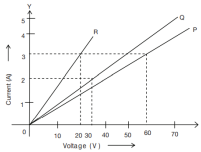- d. Any of the above can be used

Q 9. An electric current produces -   *1.0 Mark*
- a. Magnetic effect
- b. Chemical effect
- c. Heating effect
- d. All of the above

Q 10. What is the resistance offered by 4 HP water pump which runs on 220 V supply?   *1.0 Mark*
- a. 42.58 Ohms
- b. 21.63 Ohms
- c. 16.22 Ohms
- d. 44.87 Ohms

Q 11. The graph of current versus voltage drop across the three resistors P, Q, R is as shown above. What is the ratio of their resistances?   *1.0 Mark*

- a. $R_P : R_Q : R_R = 15 : 7 : 4$
- b. $R_P : R_Q : R_R = 15 : 9 : 4$
- c. $R_P : R_Q : R_R = 12 : 9 : 7$
- d. $R_P : R_Q : R_R = 12 : 9 : 4$

Q 12. An electric current passing through a conductor is 10 A. What is the number of electrons that pass through a given cross-section of the conductor in 3.2 μs ?The charge of an electron, e = 1.6 × 10⁻¹⁹ C   *1.0 Mark*
- a. 4×10^{12} electrons
- b. 2×10^{12} electrons
- c. 2×10^{14} electrons
- d. 4×10^{14} electrons

Q 13. What is the power of an electric bulb which consumes 3600 J in a minute?   *1.0 Mark*
- a. 100 W
- b. 80 W
- c. 60 W
- d. 40 W

Q 14. The ratio of the resistances of two resistors connected in parallel is 2 : 3. What is the ratio of the currents flowing through them, when this parallel combination is connected to a cell ?   *1.0 Mark*
- a. 1 : 1
- b. 2 : 3
- c. 3 : 2
- d. 3 : 4

Q 15. If two resistors of resistance 30 Ω and 40 Ω are connected in parallel across a battery, then the ratio of potential difference across them is   *1.0 Mark*
- a. 3 : 4
- b. 4 : 3
- c. 1 : 1
- d. 1 : 2

Q 16. If i is the current flowing through a conductor of resistance R for time t, then the heat produced (Q) is given by _____.   *1.0 Mark*
- a. $i^2 R / t$
- b. iR^2 / t
- c. $i^2 Rt$
- d. iRt^2

Q 17. An electric bulb marked 20 V is connected to a battery of 20 V which has a negligible resistance. If the resistance offered by the bulb is 5 Ω the power of the bulb is _____W   *1.0 Mark*
- a. 20 W
- b. 40 W
- c. 60 W
- d. 80 W

Q 18. Arrange the following steps to determine the resistivity of a material in proper sequence.   *1.0 Mark*
(a) Switch on the circuit and take the voltmeter and ammeter readings.
(b) Determine the resistance of the wire as resistance R = V/I
(c) Connect the wire, battery and ammeter in series.
(d) Determine the length (l) and area of cross-section (A) of the wire
(e) Connect a voltmeter across the wire.
(f) The resistivity of the material is ρ = RA/l
- a. a c b e d f
- b. e b c d f a
- c. c e a b d f
- d. b c a d f e

Q 19. Two bulbs A and B are connected to a 220 V supply. The maximum current that can flow through A and B is 0.5 A and 1.2 A, respectively. The effective resistance of the two bulbs in series and parallel is 280.0 Ω and 60.0 Ω respectively. When connected in parellel, _____   *1.0 Mark*
- a. Bulb A will fuse
- b. Bulb B will fuse
- c. Both bulbs will fuse
- d. None of the bulbs will fuse

Q 20. Two bulbs A and B are connected to a 220 V supply. The maximum current that can flow through A and B is 0.5 A and 1.2 A, respectively. The effective resistance of the two bulbs in series and parallel is 280.0 Ω and 60.0 Ω respectively. Then _____   *1.0 Mark*
- a. Bulb A will fuse
- b. Bulb B will fuse
- c. Both bulbs will fuse
- d. None of the bulbs will fuse

Q 21. The resistance across any opposite sides of a conductor in the shape of cube is _____   *1.0 Mark*
- a. directly proportional to the length of its side
- b. inversely proportional to the length of its side
- c. inversely proportional to the root of length of its side
- d. directly proportional to the square of length of its side

Q 22. A resistor of 10 Ω resistance is taken, if 10^{20} electrons pass through it in one second. What is the potential difference across the resistor ?   *1.0 Mark*
- a. 20 V
- b. 60 V
- c. 120 V
- d. 160 V

Q 23. Three resistors each of 2 Ω are connected in series to a battery of potential difference 60 V. The current flowing through it is _____ A.   *1.0 Mark*
- a. 2 A
- b. 4 A
- c. 5 A
- d. 10 A

Q 24. Resistance of a metallic conductor depends on _____.   *1.0 Mark*
- a. its length
- b. its area of cross section
- c. temperature
- d. all the above

Q 25. In a parallel circuit of bulbs,   *1.0 Mark*
- a. same current exists in all the bulbs
- b. voltage across each bulb remains the same
- c. failure of any bulb leads to a break in the circuit
- d. All the above

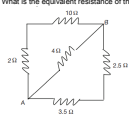**Q 26.** _____ is independent of size and shape of a conductor.   *1.0 Mark*
- a. Resistance
- b. Conductance
- c. Resistivity
- d. all the above

Q 27. Among identical spheres A and B having charges as –5 C and –16 C, *1.0 Mark*
  a. –5C is at higher potential   b. –16C is at higher potential
  c. both are at equal potential   d. can't be determined

Q 28. Which of the following graphs represents a ohmic conductor? *1.0 Mark*

Q 29. The quantity of heat produced by a current in a conductor is directly proportional to *1.0 Mark*
_____ in the conductor.
  a. the time of current flow   b. the square of magnitude of current
  c. the resistance   d. All the above

Q 30. In a series circuit, *1.0 Mark*
  a. potential difference across each resistor in the circuit is same.   b. current flow is same in all the resistors of the circuit
  c. Both (a) and (b)   d. None of these

Q 31. What is the equivalent resistance of the following circuit, between junction A and B ? *1.0 Mark*

  a. 8 Ω   b. 4 Ω
  c. 2 Ω   d. 16 Ω

Q 32. Three resistors of 5 Ω, 3 Ω and 4 Ω are connected in series across a battery of *1.0 Mark*
potential difference 3 V.
What is the current flowing through 3 Ω and 4 Ω resistors respectively ?
  a. 0.75 A, 1.00 A   b. 0.25 A, 0.25 A
  c. 0.25 A, 0.75 A   d. 0.5 A, 0.5 A

Q 33. Electric potential is measured in _____ . *1.0 Mark*
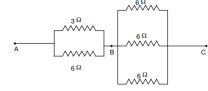 a. coulumb   b. volt
  c. ampere   d. watt

Q 34. Unit of electric charge is _____ . *1.0 Mark*
  a. ampere   b. volt
  c. coulumb   d. watt

Q 35. The net charge flowing through a cross-section of conductor in unit time is called *1.0 Mark*
_____ .
  a. voltage   b. conductance
  c. current   d. power

Q 36. The resistance of an electric heater is 200 Ω and it draws a current of 1A. *1.0 Mark*
What is its power and potential difference at its ends ?
  a. 200 W , 200 V   b. 100 W, 100 V
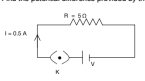 c. 100 W, 200 V   d. 200 W, 100 V

Q 37. Two resistors of 15 Ω and 4 Ω in series are connected to a cell of EMF 2 V and *1.0 Mark*
internal resistance 1 Ω.
i) What is the voltage drop across each resistor
ii) What is terminal voltage of the cell
iii) What is the lost voltage
  a. i) 1.5 V, 0.4 V   b. i) 1.5 V, 0.4 V
    ii) 3.8 V   ii) 1.9 V
    iii) 0.1 V   iii) 1 V
  c. i) 1.5 V, 2.4 V   d. i) 1.5 V, 0.4 V
    ii) 3.8 V   ii) 1.9 V
    iii) 1 V   iii) 0.1 V

Q 38. For the given circuit, find the effective resistance between *1.0 Mark*
i) A and B
ii) B and C
iii) A and C

  a. 1 Ω   b. 2 Ω
  c. 3 Ω   d. 4 Ω

Q 39. Find the equivalent resistance when 4 ohm and 8 ohm resistances are connected in *1.0 Mark*
parallel.
  a. 3.74 Ω   b. 2.66 Ω
  c. 1.44 Ω   d. 4.43 Ω

Q 40. What is the effective resistance, when 1Ω, 5 Ω and 2 Ω resistances are connected in *1.0 Mark*
series ?
  a. 2 Ω   b. 4 Ω
  c. 8 Ω   d. 12 Ω

Q 41. Find the potential difference provided by the cell in the given circuit *1.0 Mark*
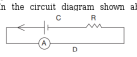

  a. 1 V   b. 1.5 V
  c. 2 V   d. 2.5 V

Q 42. An electric bulb whose resistance is 60 Ω is connected to a source of potential *1.0 Mark*
difference of 230 V.
What is the current flowing through it ?
  a. 2.54 A   b. 3.83 A
  c. 4.42 A   d. 5.23 A

Q 43. Two wires made of German-silver are taken such that the length and area of cross- *1.0 Mark*
section of the second wire are twice and thrice respectively those of the first wire.
If the resistance of the second wire is 12 Ω, find the resistance of the first wire.
  a. 12 Ω   b. 18 Ω
  c. 15 Ω   d. 21 Ω

Q 44. The resistance of 1 m of nichrome wire is 6 Ω. *1.0 Mark*
Calculate its resistance if its length is 140 cm.
  a. 4.2 Ω   b. 8.4 Ω
  c. 3.6 Ω   d. 7.4 Ω

Q 45. *1.0 Mark*
The length of copper wire is 200 m and its radius is 1 mm. Calculate its resistance if resistivity of copper is $1.72 \times 10^{-8}\ \Omega\ m$.
  a. 2 Ω   b. 4.96 Ω
  c. 1.096 Ω   d. 0.544 Ω

Q 46. *1.0 Mark*
A current of 5 A flows through a conductor. What is the number of electrons flowing through the conductor in 2 s. [Take charge of electron as 1.6×10^{19} C]
  a. 6.25×10^{19} electrons   b. 1.25×10^{19} electrons
  c. 2.25×10^{19} electrons   d. 5.25×10^{19} electrons

Q 47. *1.0 Mark*
In the circuit diagram shown above, explain what happens if a wire is connected between the points C and D.

  a. the ammeter reading falls suddenly and shows zero   b. the ammeter reading decreases slowly
  c. the ammeter reading rises suddenly   d. None of the above

Q 48. *1.0 Mark*
When a body is rubbed with another body a certain number of electrons are transferred. If the same number of electrons are allowed to flow through the cross section of a conductor in 2 s, 10 A electric current can flow through it. What is the number of electrons transferred ?
  a. 1.25×10^{20} electrons   b. 2.25×10^{20} electrons
  c. 3.25×10^{20} electrons   d. 2.25×10^{10} electrons

Q 49. *1.0 Mark*
A technician has two resistance coils. By using them individually, in series or in parallel, he is able to obtain resistances of 3Ω, 4Ω, 12Ω and 16Ω (not in the same order). What is the resistance of the two coils?
  a. 3Ω, 4Ω   b. 4Ω, 12Ω
  c. 12Ω , 16Ω   d. 4Ω and 16Ω

Q 50. *1.0 Mark*
Two bulbs 60 W, 220 V and 100 W, 220 V are connected in parellel to a 440 V supply.What is the total current flowing through the combination ?
  a. 1.45 Ω   b. 2.45 Ω
  c. 3.48 Ω   d. 2.67 Ω

Q 51. *1.0 Mark*
Two bulbs 60 W, 220 V and 100 W, 220 V are connected in series to a 440 V supply.What is the current flowing through the bulb ?
  a. 0.68 A   b. 0.34 A
  c. 0.25 A   d. 0.53 A

Q 52.
Two conducting wires A and B (made of same material) of lengths 1 m and 2 m and area of cross sections 1 cm² and 100 mm², respectively, are taken. If the resistance of a wire of length 5 m and thickness 2 cm made of same material as A and B is 5 Ω, then find the resistance of the new wire of length 5 m formed by melting A and B

a. 29 Ω
b. 52 Ω
c. 26 Ω
d. 41 Ω

Q 53. A conductor of length 'l' is stretched to thrice the initial length.   *1.0 Mark*
Find the ratio of currents flowing through it, before and after stretching if it is maintained at the same potential difference.

a. 1 : 9
b. 9 : 1
c. 3 : 1
d. 1 : 3

Q 54. Two identical spheres, one positively charged and the other negatively charged are   *1.0 Mark*
held 4 cm apart.
If the magnitude of the charges on the two spheres are equal to 6 C,
find the electric potential at a point midway on the line joining the centres of the two spheres.

a. 122 V
b. 22.6 V
c. 0 v
d. 45.2 V

Q 55. A charge of 10 C is brought from infinity to a point P near a   *1.0 Mark*
charged body and in this process, 50 J of work is done.
What is the electric potential at point P ?

a. 10 V
b. 5 V
c. 2.5 V
d. 7.5 V

Q 56. Which of the following is true about combination of resistors ?   *1.0 Mark*

a. When resistances are connected in parellel, the resultant resistance is always less than the lowest resistance in the combination
b. When resistances are connected in series, the resultant resistance is always greater than the largest resistance in the combination
c. In parellel combination, the current is divided among the resistances and in series combination, the voltage is divided among the resistances
d. All of the above

Q 57. Which of the following is true about factors affecting the resistance of a conductor ?   *1.0 Mark*

a. Resistance of a conductor increases with length of the conductor
b. Resistance of a conductor decreases with area of cross section of conductor
c. Resistance of a conductor decreases with increase in temperature
d. Resistance of a conductor depends on the nature of material

Q 58. If current passing through a resistor of resistance 2 Ω is 10 A. What is the voltage   *1.0 Mark*
across the resistance ?

a. 5 V
b. 2 V
c. 20 V
d. 10 V

Q 59.   *1.0 Mark*
An electric current passing through a conductor is 10 A. Calculate the number of electrons that pass through a given cross-section of the conductor in 10 μs ?(charge of an electron e = 1.6 × 10⁻¹⁹ C)

a. 6.25×10^{14} electrons
b. 1.60×10^{14} electrons
c. 6.25×10^{12} electrons
d. 1.60×10^{12} electrons

Q 60. The work done to carry a charge of −5.0 C from A to B is 10 Joule. The relation of   *1.0 Mark*
potential between the two points and potential difference will be

a. A is at higher potential than B by 2 volt
b. B is at higher potential than A by 2 volt
c. A has potential 50 volts greater than that of B
d. B has potential 50 volts greater than that of A

Q 61. When a negative charge is released and moves in electric field, it moves toward a   *1.0 Mark*
position of ____

a. lower electric potential and lower potential energy
b. lower electric potential and higher potential energy
c. higher electric potential and lower potential energy
d. higher electric potential and higher potential energy

Q 62. The resistance of a good conductor _____ when its temperature increases   *1.0 Mark*

a. decreases
b. increases
c. remains same
d. none of the above

Q 63. Three wires of resistances 15 Ω, 10 Ω and 5 Ω are connected in series. The   *1.0 Mark*
effective resistances is

a. 10 Ω
b. 0 Ω
c. 33.33 Ω
d. 30 Ω

Q 64. A charge of 40 C is brought from infinity to a point near a charged body and in this   *1.0 Mark*
process, 800 J of work is done.
What is the electric potential at that point near the charged body?

a. 10 V
b. 20 V
c. 3200 V
d. 1600 V

Q 65. The potential difference (P.D.) between the two ends of a conductor is 110 V when it   *1.0 Mark*
draws 2 A current.
If the P.D. is increased to 220V, how much current, (in Amperes) will flow from the conductor?

a. 1 A
b. 2 A
c. 4 A
d. 8 A

Q 66. If 6.25 × 10¹⁸ electrons flow through a given cross section in unit time, then the   *1.0 Mark*
current is ____. (charge of an e⁻ is 1.6 × 10⁻¹⁹ C)

a. 1 mA
b. 1 A
c. 9.1 A
d. 9.1 mA

Q 67. How many electrons pass through a wire in 1 min if the current passing through the   *1.0 Mark*
wire is 200 mA?

a. 4.5 × 10¹⁹
b. 7.0 × 10¹⁹
c. 7.5 × 10¹⁹
d. 8.5 × 10¹⁹

Q 68.   *1.0 Mark*
An electric current passing through a conductor is 10 A. What is the number of electrons that pass through a given cross-section of the conductor in 3.2 μs ?The charge of an electron, e = 1.6 × 10⁻¹⁹ C

a. 4×10^{12} electrons
b. 2×10^{12} electrons
c. 2×10^{14} electrons
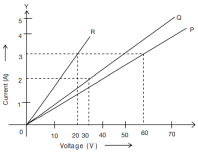d. 4×10^{14} electrons

Q 69.   *1.0 Mark*
What is the electric current through a wire if 20 coulombs of charge flow through a cross section of the wire in 4 seconds?

a. 10 A
b. 5 A
c. 15 A
d. 20 A

Q 70.   *1.0 Mark*
The work done in bringing 5 C of charge from infinity to a point A near a charged body is 20 J.What is the potential at point, A?

a. 4 V
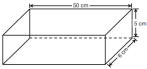b. 10 V
c. 8 V
d. 6 V

Q 71. The graph of current versus voltage drop across the three resistors P, Q, R is as   *1.0 Mark*
shown above. What is the ratio of their resistances?

a. $R_P : R_Q : R_R = 15 : 7 : 4$
b. $R_P : R_Q : R_R = 15 : 9 : 4$
c. $R_P : R_Q : R_R = 12 : 9 : 7$
d. $R_P : R_Q : R_R = 12 : 9 : 4$

Q 72. For the block shown in the figure below, what is the ratio of maximum to minimum   *1.0 Mark*
resistance,
that the block can offer when connected in a circuit?

a. 25 : 1
b. 50 : 1
c. 75 : 1
d. 100 : 1

Q 73. Two wires of equal length and diameter, one made of copper and the other of   *1.0 Mark*
nichrome,
are connected in parellel and the current through them is slowly increased.
Which of the followig is true?

a. Both nichrome wire and copper wire heats up at an equal rate
b. Nichrome wire heats up faster at low currents and copper wire at higher currents
c. Nichrome wire heats up faster
d. Copper wire heats up faster

Q 74. Two wires of equal length and diameter, one made of copper and the other of   *1.0 Mark*
nichrome,
are connected in series and the current through them is slowly increased.
Which of the followig is true?

a. Copper wire heats up faster
b. Nichrome wire heats up faster
c. Both nichrome wire and copper wire heats up at an equal rate
d. Nichrome wire heats up faster at low currents and copper wire at higher currents

Q 75.   *1.0 Mark*
A circle is constructed of a uniform wire of resistance of 4 ohm per cm and is connected in a circuit such that it offers maximum resistance. What is the maximum resistance if the radius of the circle is 7cm?

a. 22 ohms
b. 33 ohms
c. 44 ohms
d. 55 ohms

Q 76. What happens to the resistance of a good conductor when its temperature is   *1.0 Mark*
decreased?

a. decreases
b. increases
c. doesn't change
d. can not be determined

Q 77. What is defined as the rate at which the charges move across any cross section of a   *1.0 Mark*
conductor?

a. Strength of electric current
b. Capacitance
c. Voltage
d. Resistance

Q 78. The dimensional formula of potential difference is _____   *1.0 Mark*

- a. $[M^1L^2T^{-3}A^1]$
- b. $[M^1L^2T^1A^{-2}]$
- c. $[M^1L^2T^0A^1]$
- d. $[M^1L^2T^{-3}A^{-2}]$

Q 79. If 'n' number of identical resistors are connected in parallel combination, then the effective resistance of the combination is   *1.0 Mark*

- a. nR
- b. $\frac{n}{R}$
- c. 2nR
- d. $\frac{R}{n}$

Q 80. The resistance of a current carrying wire depends on _____   *1.0 Mark*

- a. the area of cross-section of the conducting wire
- b. the material of the wire
- c. the length of conducting wire
- d. All the above factors

Q 81. On increasing the number of resistances connected in series, the total resistance of the series combination _____   *1.0 Mark*

- a. increases
- b. decreases
- c. remains the same
- d. decreases with time

Q 82. What is the number of electrons flowing across the cross section of the conductor in 2 seconds, if one ampere current flows through a conductor?   *1.0 Mark*

- a. 1.25×10^{18}
- b. 1.25×10^{19}
- c. 1.5×10^{19}
- d. 1.25×10^{19}

Q 83. The ratio of the resistances of two resistors connected in parallel is 2 : 3. The ratio of the currents flowing through them, when this parallel combination is connected to a cell is _____   *1.0 Mark*

- a. 3 : 2
- b. 2 : 3
- c. 1 : 1
- d. 5 : 3

Q 84. The device used to measure potential difference between two points in an electric circuit is   *1.0 Mark*

- a. ammeter
- b. voltameter
- c. voltmeter
- d. galvanometer

Q 85. Two wires of resistances 10 Ω and 5 Ω are connected in series. The effective resistances is   *1.0 Mark*

- a. 25 Ω
- b. 5 Ω
- c. 30 Ω
- d. 15 Ω

Q 86. If two resistors of resistance 30 Ω and 40 Ω are connected in parallel across a battery, then the ratio of potential difference across them is   *1.0 Mark*

- a. 1:1
- b. 2:1
- c. 3:4
- d. 4:3

Q 87. A resistor of 80 Ω is connected to a cell and the potential difference across the resistor is 40 V. What is the amount of current that flows through the given resistor?   *1.0 Mark*

- a. 1 A
- b. 2 A
- c. 0.5 A
- d. 3 A

Q 88. When two charged bodies at different potentials are connected by a conducting wire, then the charge flows from one body to another body   *1.0 Mark*

- a. till the charge is completely transferred from one body to another
- b. as long as temperature difference exists between them
- c. as long as there exists a potential difference between them
- d. None of the above

Q 89. Consider two bodies A and B of same capacitance. If charge of − 10 C flows from body A to body B, then   *1.0 Mark*

- a. the potential of body A increases
- b. the potential of body B decreases
- c. the magnitude of change in potential in both bodies is same
- d. All the above

Q 90. A cell of emf 5 V can supply a total energy of 9000 J, then the total charge that can be obtained from the cell would be _____   *1.0 Mark*

- a. 180 C
- b. 18000 C
- c. 1800 C
- d. 18 C

Q 91. The ratio of resistances of two resistors is 1 : 4 and the current passing through the circuit when resistors are connected in series is 10 A. What is the current that flows through the circuit when resistors are connected in parallel across same voltage?   *1.0 Mark*

- a. 125 A
- b. 62.5 A
- c. 50 A
- d. 100 A

Q 92. A bulb is connected to a cell and the potential difference across the terminals of the bulb is 24 V. If 3 A of current flows through the bulb, then the resistance of its filament is   *1.0 Mark*

- a. 8 Ω
- b. 16 Ω
- c. 72 Ω
- d. 36 Ω

Q 93. When two electric bulbs of 40 W and 60 W are connected in parallel with a source, then the :   *1.0 Mark*

- a. bulb of 40 Watt gives more light
- b. intensity of both bulbs are same
- c. intensity depends on the type of electric source (A.C. or D.C.)
- d. bulb of 60 Watt gives more light

Q 94. You are given three bulbs 25 W, 40 W and 60 W. Which of them has the lowest resistance?   *1.0 Mark*

- a. 25 Watt bulb
- b. 40 Watt bulb
- c. 60 Watt bulb
- d. insufficient data

Q 95. Two identical heater wires are first connected in series and then in parallel with a source of electricity. The ratio of heat produced in the two cases is :   *1.0 Mark*

- a. 2:1
- b. 1:2
- c. 4:1
- d. 1 :4

Q 96. Number of Joules in 1 kWh is :   *1.0 Mark*

- a. 3.6×10^{7} J
- b. 3.6×10^{6} J
- c. 3.6×10^{5} J
- d. 3.6×10^{4} J

Q 97. Correct Voltage rating of a bulb used in our country (India):   *1.0 Mark*

- a. 100 volts
- b. 110 volts
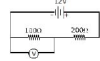- c. 220 volts
- d. 10 volts

Q 98. An electric iron of heating element of resistance 88 Ohms is used at 220 volt for 2 hours. The electric energy spent, in units(KWH), will be :   *1.0 Mark*

- a. 0.8 units
- b. 1.1 units
- c. 2.2 units
- d. 8.8 units

Q 99. An electric heater can boil a certain amount of water in 10 minutes and another heater can do it in 15 minutes, both working at the same voltage. If the two heaters are connected in parallel across the same voltage as before, how much time will they take to boil the same amount of water?   *1.0 Mark*

- a. 9 minutes
- b. 12.5 minutes
- c. 7.5 minutes
- d. 6 minutes

Q 100. In the circuit shown in Fig., the reading of the voltmeter V will be   *1.0 Mark*

- a. 4 V
- b. 2 V
- c. 6 V
- d. 3V

Q 101.   *1.0 Mark*

A man has five resistors each of value $\frac{1}{5}\Omega$. What is the maximum resistance he can obtain by connecting them ?

- a. 1Ω
- b. 5Ω
- c. 0.5Ω
- d. 0.4Ω

Q 102. The smallest resistance that can be obtained from a combination of 'n' identical resistors each of resistance R is :   *1.0 Mark*

- a. $\frac{R}{n}\Omega$
- b. $\frac{R}{n^2}\Omega$
- c. nRΩ
- d. $n^2R\Omega$

Q 103. Three resistance each of 8 ohm are connected to a triangle. The resistance between any two terminals :   *1.0 Mark*

- a. 12 ohms
- b. 2 ohms
- c. 6 ohms
- d. 16/3 ohms

Q 104. A wire of resistance RΩ is cut into n equal parts. These parts are then connected in parallel. The equivalent resistance of combination will be :   *1.0 Mark*

- a. nR Ω
- b. R/n Ω
- c. n/R Ω
- d. R/n^2 Ω

Q 105. If 'I' is the current through a wire and e is the charge of electron, then the number of electrons in t second will be given by :   *1.0 Mark*

- a. $\frac{Ie}{2t}$
- b. Ite
- c. $\frac{Ie}{t}$
- d. $\frac{It}{e}$