1) Materials which allow larger current to flow through them are called
(a) Alloy (b) Semiconductors (c) Insulators **(d) Conductors**

2) The unit of specific resistance is
(a) Ohm per meter (b) Ohm (c) Ohm per second
(d) Ohm meter

3) 1 kilowatt hour (kWh) is equal to
(a) 3.6×10^6J (b) $3.6 \times 10_8$J (c) 3.6×10^2J **(d) $3.6 \times 10_5$J**

4) The commonly used safety fuse wire is made of
(a) Lead (b) Copper (c) Nickel (d) An alloy of tin and lead

5) Electric potential is
(a) Neither scalar nor vector **(b) Scalar quantity**
(c) Vector quantity (d) Sometimes scalar sometimes vector

6) Ohm's law is valid only when
(a) Graph between V and I is a straight line
(b) Temperature increases (c) Temperature decreases
(d) Temperature remains constant.

7) If I is the current through a wire and 1 is the charge of electron, then no. of electrons in t seconds will be
(a) 1/It **(b) It/1** (c) $\frac{11}{t}$ (d) It1

8) Electrical resistivity of a given metallic wire depends upon

(a) its length (b) its thickness (c) its shape

(d) nature of the material

9) A current of 1 A is drawn by a filament of an electric bulb. Number of electrons passing through a cross section of the filament in 16 seconds would be roughly

(a) 10^{20} (b) 10^{16} (c) 10^{18} (d) 10^{23}

10) What is the maximum resistance while can be made using five resistors each of $1/5\Omega$.

(a) $1/5\Omega$ **(b) 10Ω** (c) $1/10\Omega$ (d) 25Ω

11) Which of the following represents voltage?

(a) $\frac{Work\ done}{current \times time}$ (b) Work done $\times$ charge (c) $\frac{Work\ done \times time}{current}$

(d) Work done $\times$ charge $\times$ time

12) A cylindrical conductor of length l and uniform area of cross section A has resistance R, another conductor of length 2l and resistance R of the same material has area of cross section?

(a) A/2 (b) 3A/2 **(c) 2A** (d) 3A

13) If the current I through a resistor is increased by 100%, the increase in power dissipated will be

(a) 100% (b) 200% **(c) 300%** (d) 400%

14) The resistivity does not charge if

(a) the material is charged (b) the temparature is charged

(c) the shape of the resistor is charge

(d) both material and temperature are changed

15) In an electrical circuit three incandescent bulbs A, B and C of rating 40 W, 60 W and 100 W respectively are connected in parallel to an electric source. Which of the following is likely to happen regarding their brightness?

(a) Brightness of all the bulbs will be the same

(b) Brightness of bulb A will be the maximum

(c) Brightness of bulb B will be more than that of A

(d) Brightness of bulb B will be less than that of B

16) In an electrical circuit two resistors of 2Ω and 4Ω respectively are connected in series to a 6 V battery. The heat dissipated by the 4Ω resistor in 5s will be

(a) 5 J (b) 10 J **(c) 20 J** (d) 30 J

17) An electric kettle consumes 1 Kw of electric power when operated at 220 V. A fuse wire of what rating must be used for it?

(a) 1A (b) 2A (c) 4A **(d) 5A**

18) Two resistors of resistance 2Ω and 4Ω when connected to a battery will have

(a) same current floeing through them when connected in parallel

(b) same current floeing through them when connected in series

(c) same potential difference across them when connected in series

(d) different potential difference across them when connected in parallel

19) Unit of electric power may also be expressed as

(a) volt ampere (b) kilowatt hour (c) watt second

(d) joule second

20) A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R' then the ratio R/R' is

(a) 1/25 (b) 1/5 (c) 5 **(d) 25**

21) Which of the following terms does not represent electrical power in a circuit?

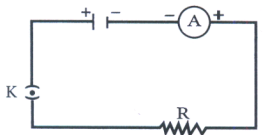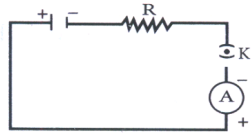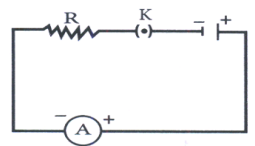(a) I^2R **(b) IR^2** (c) VI (d) V^2/R

22) An electric bulb is rated 220 V and 100 W. When it is operated on 110 V, the power consumed will be
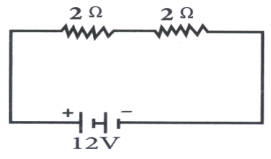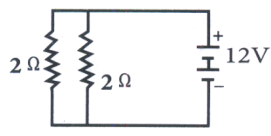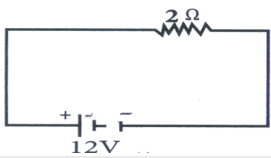
(a) 100 W (b) 75 W (c) 50 W **(d) 25 W**

23) Two conducting wires of the same material and of equal lengths and equal diameters are first connected in series and then parallel in a circuit across the same potential difference. The ratio of heat produced in series and parallel combination would be

(a) 1:2 (b) 2:1 **(c) 1:4** (d) 4:1

24) A cell, a resistor, a key and ammeter are arranged as shown in the circuit diagrams. The current recorded in the ammeter will be

(a) maximum in

(b) maximum in

(c) maximum in

(d) the same in all the cases

25) In the following circuits, heat produced in the resistor or combination of resistors connected to a 12 V battery will be

(a) same in all the cases (b) maximum in case

**(c) maximum in case**

(d) minimum in case

26)
Identify the circuit in which the electrical components have been properly connected.

(a)   (b)   (c)

(d)
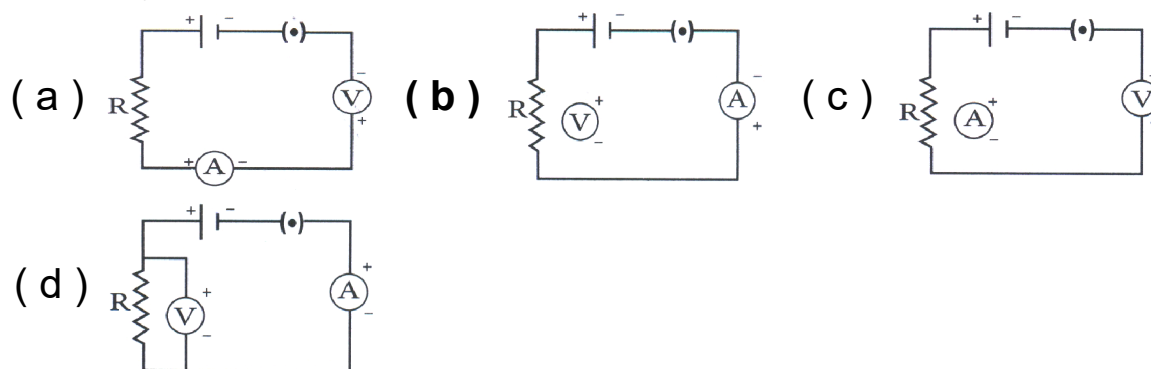
27)
The proper representation of series combination of cells obtaining maximum potential is

(a) $\dashv\vdash\vdash\vdash\vdash\vdash$ (b) $\dashv|\;||\;|\;||\vdash$ (c) $\dashv\vdash\vdash\vdash\vdash\vdash$

(d) $\dashv||\;||\vdash$

28)
A student carries out an experiment and plots the V-I graph of three samples of nichrome wire with resistances R_1, R_2 and R_3 respectively. Which of the following is true?
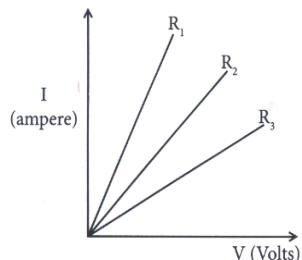
(a) $R_1 = R_2 = R_3$ (b) $R_1 > R_2 > R_3$ (c) $R_3 > R_2 > R_1$
(d) $R_2 > R_3 > R_1$

29)
For metallic conductor voltage uses current graph is shown at two different temperatures T_1 and T_2 From the graph it follows:
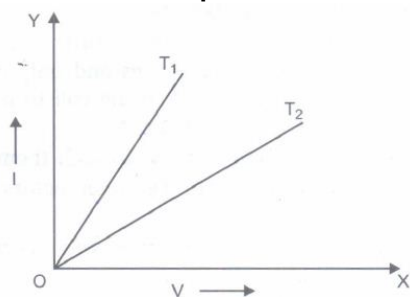
(a) $T_| = T_2$ (b) $T_1 > T_2$ (c) $T_1 < T_2$ (d) None of above

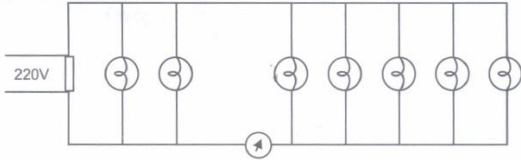**30)** Seven identical lamps of resistance 220 Ω each are connected to a 220 V line as shown in figure. Then reading of ammeter will be

(a) $\frac{1}{10}A$ (b) $\frac{2}{5}A$ (c) $\frac{3}{10}A$ **(d) None of these**

31) Number of kilowatt hours $= \frac{volt \times ampere \times \ldots\ldots\ldots\ldots}{1000}$

(a) Time in seconds   (b) Time in minutes   **(c) Tille in hours**
(d) Time in days

32) A man has five resistors each of 1/5Ω What is the maximum resistance he can obtain by connecting them?
(a) 1Ω   (b) 5Ω   (c) $\frac{1}{2}Ω$ (d) $\frac{2}{5}Ω$

33) Kilowatt hour is unit of
(a) Energy   (b) Power   (c) Impulse   (d) Force

34) Conventionally the direction of the current is taken as
(a) Direction of flow of -ve charge
(b) The direction of flow of atomic
(c) The direction of flow of molecules
(d) The direction of flow of +ve charge

35) The resistance of a conductor is reduced to half its initial value. In doing so the heating effects in the conductor will become
(a) half   (b) double   (c) one fourth   (d) four times

36) The coil of heater is cut into two equal halves and only one of them is used in the heater. The ratio of heat produced by half of the coil to produced in original coil is
**(a) 2:1**   (b) 4:1   (c) 1:2   (d) 1:4

37) The resistivity of a wire

(a) varies with its length (b) varies with its mass

(c) varies with its cross section

(d) is independent of length, cross section and mass of wire

38) What sets electron into motion in an electric circuit

(a) Battery/cell (b) Resistor (c) Rheostat (d) Ammeter

39) An electric geyser has rating 2000 W, 220 Y on it. What is the minimum setting of fuse wire that may be required for use with this geyser?

(a) 5 A **(b) 10 A** (c) 15 A (d) 20 A

40) Graphs between electric current and potential difference across two conductors A and B are shown in the figure. Which of the following conductor has more resistance?
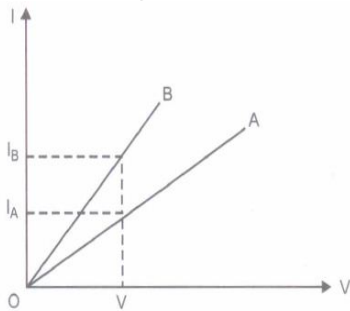
(a) B **(b) A** (c) Both have equal resistance

(d) None of these

41) If the resistance of wire A is four times resistance of wire B then the ratio of cross sectional areas of wires is

(a) 1:2 **(b) 1:4** (c) 1:8 (d) 1:6

42) It the resistance of wire A is four times resistance of wire B then ratio of radii of two wires is

(a) 1: 2 (b) 1:4 (c) 1:6 (d) 1:8

43) Two metallic wires A and B are connected in parallel. Wire A has length 'l' and radius 'r' and wire B has a length '2l' and radius '2r'. Then the ratio of total resistance of parallel combination and the resistance of wire A is

(**a**) **1:2** (b) 1:3 (c) 1:4 (d) 1:5

44) Correct formula for Joules law of heating is

(a) H = I²RT (b) H = IVT (c) $H = \frac{V^2 T}{R}$ (**d**) **All of the above**

45) In household electric circuit different appliances are connected in parallel to each other because

(a) The appliances work at same voltage

(b) The appliances can be operated independent of each other

(c) Even if a component of a electric circuit fails other can work efficiently

(**d**) **All of the above**

46) The resistance of germanium _____ with rise in temperature

(a) increase (**b**) **decreases** (c) remains same

(d) first increases then decreases

47) If a wire of resistance R is melted and recast into half of its length, the new resistance of wire will be

(a) R/4 (**b**) **R/2** (c) R (d) 2R

48) If R_1 and R_2 are the resistance of statements of a 400 W and 200 W lamp designed to operate at same voltage then

(a) $R_1 = 2R_2$ (**b**) **$R_2 = 2R_1$** (c) $R_2 = 4R_1$ (d) $R_1 = R_2$

49) An electric bulb is rated 220 V -100 W If it is operated at 110 V then power consumed by it will be

(a) 100 W (b) 50 W (**c**) **25 W** (d) 400 W

50) A current of 2 A passes through a conductor and produces 80 joules of heat in 10 seconds. The resistance of the conductor is

(a) 0.5 Ω (b) 2Ω (**c**) **4Ω** (d) 20Ω

51) A house is fitted with 10 tubes each of 40 W If all tubes are lighted for 10 hours and if the cost of one unit of electricity energy is Rs 2.50 the total cost of electricity consumption is

(a) Rs 100 (b) Rs 20 (c) Rs 25 **(d) Rs 10**

52) What is meant by the statement, "Potential difference between points A and B in an electric field is 1 volt"?

Answer : It means that 1 joule of work will be done in order to move 1 coulomb of charge from point A to B.

53) Why is the series arrangement not used for connecting domestic electric appliances in a circuit?

Answer : In a domestic circuit, parallel connection of devices is preferable for several reasons: a. In series connection, if one of the devices is defective, if one of the devices is defective, then the current of the entire circuit is cut off. As a result, all the devices stop working. In parallel connection, even if one device is defective, the others continue working. b. In series connection, selective operation of devices is not possible, but this is not so in the case of parallel connection. c. In series connection, the same current passes through all the devices, regardless of the fact that different devices require differnt values of currect to operate. In parallel connection, different values of currect can be obtained for different devices according to their requirements.

54) What is an ammeter?

Answer : A measuring instrument used to measure electric current.

55) Give the S.I. unit of electric currect?

Answer : Ampere (A)

56) How is ammeter and voltmeter connected in a circuit?

Answer : Ammeter is connected in series and voltmeter is connected in parallel.

57) What is a voltmeter?

Answer : **A measuring instrument used to measure potential difference between two points in an electric circuit.**

58) Out of 60 W and 40 W lamps, which one has a higher electrical resistance when in use?

Answer : **Electric power, p = $\frac{V^2}{R}$, where R V = Potential difference across the circuit For 40 W bulb, 40 = $\frac{V^2}{R_1 0}$, where R$_{40}$ = Resistance offered by the 40 W bulb For 60 W bulb, 60 = $\frac{V^2}{R_6 0}$, where R$_{40}$ = Resistance offered by the 60 W bulb Therefore, R$_{10}$ = $\frac{V^2}{40}$ and R$_{60}$ = $\frac{V^2}{60}$ (as the voltage difference remains the same) Therefore, R$_{40}$ > R$_{60}$ So, the 40 W bulb has a higher electrical resistance when in use.**

59) Give the unit of electric resistance

Answer : **Ohm** (1Ω)

60) How is power related to current and voltage?

Answer : **Power (P) = Potential difference (V) $\times$ Current (I)**

61) What is the S.I. unit of electric potential?

Answer : **The S.I. unit od electric potential is volt. It is denoted by V.(Volt)**

62) What is the advantage of the third wire of earth connection in domestic electric appliances?

Answer : **Earth wire is used to provide a low resistance conducting path to any charge that gets leaked into the body of the appliance.**

63) Give the unit of power.

Answer : **Watt**