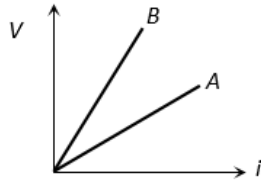


## Topic :- Current Electricity

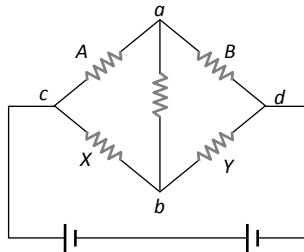
- Two identical conductors maintained at same temperatures are given potential differences in the ratio 1 : 2. Then the ratio of their drift velocities is  
a) 1 : 2                      b) 3 : 2                      c) 1 : 1                      d)  $1 : 2^{1/2}$
- A 100 W bulb produces an electric field of 2.9 V/m at a point 3 m away. If the bulb is replaced by 400 W bulb without disturbing other conditions, then the electric field produced at the same point is  
a) 2.9 V/m                      b) 3.5 V/m                      c) 5 V/m                      d) 5.8 V/m
- The neutral temperature  $t_n = 285^\circ\text{C}$  is constant for a Cu-Fe thermocouple. When the cold junction is at  $0^\circ\text{C}$ , the value of inversion temperature is  $t_i = 570^\circ\text{C}$  but if the cold junction is at  $10^\circ\text{C}$ , the inversion temperature ( $t_i$ ) will be  
a)  $550^\circ\text{C}$                       b)  $560^\circ\text{C}$                       c)  $570^\circ\text{C}$                       d)  $580^\circ\text{C}$
- When a battery connected across a resistor of  $16\ \Omega$ , the voltage across the resistor is 12 V. When the same battery is connected across a resistor of  $10\ \Omega$ , voltage across it is 11V. The internal resistance of the battery (in ohm) is  
a)  $\frac{10}{7}$                       b)  $\frac{20}{7}$                       c)  $\frac{25}{7}$                       d)  $\frac{30}{7}$
- For obtaining chlorine by electrolysis a current of 100 kW and 125 V is used. (Electro chemical equivalent of chlorine is  $0.367 \times \text{kgC}^{-1}$ ). The amount of chlorine obtained in one minute will be  
a) 1.7616 g                      b) 17.616 g                      c) 0.17161 g                      d) 1.7616 kg

6.  $V - i$  graphs for parallel and series combination of two identical resistors are as shown in figure. Which graph represents parallel combination



- a) A  
 b) B  
 c) A and B both  
 d) Neither A nor B
7. As the temperature rises the resistance offered by metal  
 a) Increase                      b) Decrease                      c) Remains same                      d) None of these
8. A wire 100cm long and 2.0 mm diameter has a resistance of 0.7 ohm, the electrical resistivity of the material is  
 a)  $4.4 \times 10^{-6} \text{ ohm} \times m$                       b)  $2.2 \times 10^{-6} \text{ ohm} \times m$   
 c)  $1.1 \times 10^{-6} \text{ ohm} \times m$                       d)  $0.22 \times 10^{-6} \text{ ohm} \times m$

9. In the Wheatstone's bridge (shown in figure)  $X = Y$  and  $A > B$ . The direction of the current between  $ab$  will be



- a) From a to b                      b) From b to a  
 c) From b to a through c                      d) From a to b through c
10. The chemical equivalent of silver is 108. If the current in a silver voltmeter is 2 amp, the time required to deposit 27 grams of silver will be  
 a) 8.57 hrs                      b) 6.70 hrs                      c) 3.35 hrs                      d) 12.50 hrs
11. By increasing the temperature, the specific resistance of a conductor and a semiconductor  
 a) Increases for both    b) Decreases for both    c) Increases, decreases    d) Decreases, increases
12. Two electric bulbs whose resistances are in the ratio of 1 :2 are connected in parallel to a constant voltage source. The powers dissipated in them have the ratio  
 a) 1 :2                      b) 1 :1                      c) 2 :1                      d) 1 :4
13. Two cells of same emf  $E$  but of different internal resistances  $r_1$  and  $r_2$  are connected in series

with an external resistance  $R$ . The potential drop across the first cell is found to be zero. The external resistance  $R$  is

- a)  $r_1 + r_2$                       b)  $r_1 - r_2$                       c)  $r_2 - r_1$                       d)  $r_1 r_2$

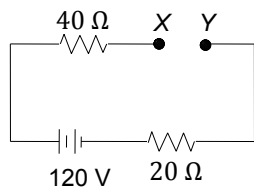
14. A thermocouple is made from two metals, Antimony and Bismuth. If one junction of the couple is kept hot and the other is kept cold, then, an electric current will

- a) Flow from Antimony to Bismuth at the hot junction  
 b) Flow from Bismuth to Antimony at the cold junction  
 c) Not flow through the thermocouple  
 d) Flow from Antimony to Bismuth at the cold junction

15. The resistivity of a wire

- a) Increase with the length of the wire  
 b) Decreases with the area of cross-section  
 c) Decreases with the length and increases with the cross-section of wire  
 d) None of the above statement is correct

16. In the circuit shown figure potential difference between  $X$  and  $Y$  will be



- a) Zero                      b) 20 V                      c) 60 V                      d) 120 V

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17. Heat produced (cals) in a resistance  $R$  when a current  $I$  amperes flows through it for  $t$  seconds is given by the expression

- a)  $\frac{I^2 R t}{4.2}$                       b)  $\frac{I R^2 t}{4.2}$                       c)  $\frac{4.2 I R}{t^2}$                       d)  $\frac{I R t^2}{4.2}$

18. Kirchoff's second law for the analysis of circuit is based on

- a) Conversion of charge                      b) Conversion of energy  
 c) Conversion of both charge and energy                      d) Conversion of momentum of electron

19. A constant voltage is applied between the two ends of a uniform metallic wire. Some heat is developed in it. The heat developed is doubled if

- a) Both the length and radius of wire are halved                      b) Both the length and radius of wire are doubled  
 c) The radius of wire is doubled                      d) The length of wire is doubled

20. If an increase in length of copper wire is 0.5% due to stretching, the percentage increase in its

resistance will be

a) 0.1%

b) 0.2%

c) 1%

d) 2%

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