Conceptual Questions for Electricity

1) Give us the factors on which resistance of the conductors depends

Ans) The resistance of a conductor depends

a) Length

b) Area of its cross-section

c) Nature of the material

2) Write down the difference between Ammeters and Voltmeters?

Ans)

S.no	**Ammeters**	**Voltmeters**
1	It measures current	It measures Potential difference
2	It is connected in Series	It is connected in Parallel

3) Why is Tungsten used almost exclusively for filament of electric lamps?

Ans) Melting point of tungsten is very high so it is used for making filament of electric lamps

4) What happens to resistance of the conductor?

1	When Temperature is increased	
2	When the length is doubled	
3	When area of cross-section is increased	

Ans)

1	When Temperature is increased	*Increased*
2	When the length is doubled	*Increased*
3	When area of cross-section is increased	*Decreased*

5) What is the difference between Open circuits and closed circuits?

Ans)

S.no	**Open Circuit**	**Closed circuit**
1	In this plug key is open	In this plug key is closed
2	No current flows through it	current flows through it

6) Why does the cord of an electric heater not glow while heating element does?

Ans) The cord of electric Heater is made of cooper which has extremely low resistance due to this negligible resistance heat is produced in it

The heating element of an electric heater is made of nichrome wire; It glows because large amount of heat is produced due to its high resistance

7) Why do we use copper wire as connecting wires in the circuit?

Ans) This is because Copper has very low resistivity

8) True and False Statements

A) Series arrangement is used in domestic circuits

B) Resistance of the wire is directly proportional to the length of the wire

C) The graph between V and I is a straight line

D) A thick wire of length L will have less resistance than the thin wire of same length and same material

Solutions

A) False, Parallel arrangement are used in domestic circuits

B) True

C) True

D) True

9) Gave the formula for each

1	Ohm's Law	
2	Resistance in terms of Length,Area,resistivity	
3	Current in terms of Resistance and Voltage	
4	Equivalent Resistance for Resistors in Series	
5	Equivalent Resistance for Resistors in Parallel	
6	Power produced in the resistance	

Solutions

1	Ohm's Law	V=IR

2	Resistance in terms of Length,Area,resistivity	$R = \rho \frac{L}{A}$
3	Current in terms of Resistance and Voltage	$I = \frac{V}{R}$
4	Equivalent Resistance for Resistors in Series	$R=R_1+R_2+R_3.....$
5	Equivalent Resistance for Resistors in Parallel	$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$
6	Power produced in the resistance	$P=I^2R$