

St. Lawrence High School

A Jesuit Christian Minority Institution



Term: Pre - Test Solution of Work Sheet – 16

Class - X

Subject – Physical Science

Date - 12.06.20

Chapter - Current Electricity

Topic – Oham's Law

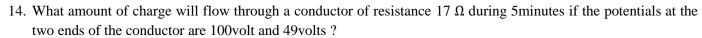
Choose the correct option for the following questions.

 $1 \times 15 = 15$

- 1. According to Ohm's law
 - a. Current in a conductor is directly proportional to the resistance
 - b. Current in a conductor is directly proportional to the potential
 - c. Current in a conductor is directly proportional to the potential difference
 - d. Current in a conductor is inversely proportional to the potential difference
- 2. If a current of 5A flows through a conductor from one end at potential of 13 volt to the other end at potential 5 volt, then the resistance of the conductor is -
 - $\frac{5}{8}$ Ω
 - b. 40 Ω
 - c. 1.6Ω
 - d. None of these
- 3. If a conductor is heated to increase its temperature, then its resistance will
 - a. Increase
 - b. Decrease
 - c. Remain same as resistance does not depend on temperature
 - d. First increase and then decrease
- 4. If the potential difference is increased, then to maintain the current constant
 - a. Resistance of the conductor has to be increased
 - b. Resistance of the conductor has to be decreased
 - c. Resistance should be kept constant
 - d. The area of cross section of the conductor should be increased
- 5. The resistance of a conducting slab depends on
 - a. Length of the conductor
 - b. Area of cross section of the conductor
 - c. Nature of the conductor
 - d. All of these
- 6. Resistivity of a conducting slab depends on
 - a. Length of the conductor
 - b. Area of cross section of the conductor
 - c. Nature of the conductor
 - d. All of these

7.	The SI unit of resistivity is –
	a. $\Omega.m$
	b. Ωm^{-1}
	c. Ω^{-1} . m
	d. $\Omega^{-1} . m^{-1}$
8.	The SI unit of conductivity is –
	a. Ωm
	b. $\Omega \cdot m^{-1}$
	c. Ω^{-1} . m
	d. $\Omega^{-1}.m^{-1}$
9.	When a conductor of resistance 40Ω is connected in between a potential difference, it is seen that the current
٠.	through the conductor is $\frac{2}{5}$ ampere. The possible combination of potentials at the two ends of the conductor may
	J
	be –
	a. 10volts, 2volts
	b. 15volts, 8voltsc. 20volts, 16 volts
	d. 19volts, 3volts
	u. 17voits, 5voits
10.	When a potential difference of 16volts is applied across a conductor for 1minute, it is seen that 6×10^{20} number
	of electrons has flowed in that time. What is the resistance of the conductor?
	a. 1Ω
	b. 1.6 Ω
	c. 5Ω
	d. 10Ω
11.	A solid cylindrical conducting rod is stretched and its length becomes <i>n times</i> of initial length. Its resistance will
	a. Remain same
	b. Become <i>n times</i>
	c. Become $\frac{1}{n}$ times
	···
	d. n^2 times.
12	The resistivity of a material is $\rho = \frac{A}{L}R$. If now, the length L is doubled and the area of cross section is made $\frac{1}{3}$
12.	times (keeping temperature constant), then the resistivity will be –
	a. $\frac{1}{6}$ times
	b. 6 times
	c. $\frac{2}{3}$ times
	d. Will be unchanged
13	For the same set of voltage and current values, if the voltage versus current graph is plotted for two resistances
10.	20 Ω and 50 Ω on the same graph paper (keeping temperature constant), then –
	a. V-I graph for 20Ω will be steeper
	b. V-I graph for 50Ω will be steeper
	c. The slope of both the graphs will be same

d. Slope of one will be 5times that of the other one



- a. 900 C
- b. 100 C
- c. 36 C
- d. 15 C
- 15. The conductivity of copper at 20°C is $6 \times 10^7 \,\Omega^{-1}$. At this temperature, if a 42×10^4 m long copper wire has very small resistance as $7 \times 10^{-3} \Omega$, then the area of cross section of that copper wire is
 - a. $36 \times 10^{14} m^2$
 - b. $10^{-8} m^2$
 - c. $1m^2$
 - d. $1.5m^2$

Name of the teacher – Soumitra Maity