St. Lawrence High School

A Jesuit Christian Minority Institution

<u>Term :</u> Pre – Test

Solution of Work Sheet – 15

Class – X   Subject – Physical Science   Date – 09.06.20

Chapter – Current Electricity   Topic – Coulomb's Law

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Choose the correct option for the following questions. $1 \times 15 = 15$

1. The total amount of charge in the universe –
    a. Increases with time
    b. Decreases with time
    c. Remains same
    d. May increase or decrease depending on the situation
        Ans: c. Remains same

2. The SI unit of electric charge is –
    a. Coulomb
    b. Stat Coulomb
    c. Ampere
    d. None of these.
        Ans: a. Coulomb

3. According to the concept of quantization of electric charge, the smallest amount of charge possible is equal to the charge of –
    a. An electron
    b. A proton
    c. A neutron
    d. Both a. and b.
        Ans: d. Both a. and b.

4. Which one of the following can be the charge stored in a body ?
    a. $1.6 \times 10^{-20} C$
    b. $4 \times 10^{-19} C$
    c. $8.5 \times 10^{-19} C$
    d. $9.6 \times 10^{-19} C$
        Ans: d. $9.6 \times 10^{-19} C$

5. The magnitude of force of attraction or repulsion between two charges, depends on –
    a. The product of two charges
    b. The distance between two charges
    c. The medium within which the charges are placed
    d. All of them
        Ans: d. All of them

6. The force of attraction or repulsion between two charges, is –
    a. Directly proportional to the distance between them
    b. Inversely proportional to the distance between them
    c. Directly proportional to the square of the distance between them
    d. Inversely proportional to the square of the distance between them
        Ans: d. Inversely proportional to the square of the distance between them

7. If the distance between two charges is doubled, then the force will be –
   a. Doubled
   b. Halved
   c. 4times
   d. $\frac{1}{4}$ th

   Ans: d. $\frac{1}{4}$ th

8. If the amount of one charge (among two) is doubled, then the force between two charges will –
   a. Be doubled
   b. Be halved
   c. Four times
   d. Remain same

   Ans: a. Be doubled

9. If the amount of the charges and distance between them all are doubled, then the force between two charges –
   a. Will be 4 times
   b. Will be doubled
   c. Will remains same
   d. will be $\frac{1}{16}$ th times

   Ans: c. Will remains same

10. The SI unit of ϵ_0 is
    a. Nm^2/C^2
    b. $N/m^2 - C^2$
    c. $C^2/N - m^2$
    d. $N - m^2 - C^2$

    Ans: c. $C^2/N - m^2$

11. The value of $\frac{1}{4\pi\epsilon_0}$ is
    a. $9 \times 10^{-9} N - m^2/C^2$
    b. $9 \times 10^9 N - m^2/C^2$
    c. $1.6 \times 10^{-9} N - m^2/C^2$
    d. $1.6 \times 10^9 N - m^2/C^2$

    Ans: b. $9 \times 10^9 N - m^2/C^2$

12. The value of ϵ_0 is
    a. $36\pi \times 10^9 \ C^2/N - m^2$
    b. $\frac{10^{-9}}{36\pi} C^2/N - m^2$
    c. $36\pi \times 10^{-9} \ C^2/N - m^2$
    d. $\frac{10^9}{36\pi} C^2/N - m^2$

    Ans: b. $\frac{10^{-9}}{36\pi} C^2/N - m^2$

13. The work done needed to bring one unit positive charge from infinity to a point near another charge, is known as
    a. Electrostatic potential energy
    b. Electrostatic potential
    c. Electric field intensity
    d. None of these

    Ans: b. Electrostatic potential

14. The SI unit of electrostatic potential is –

    a. Stat Volt

    b. Volt

    c. Coulomb

    d. Joule

    Ans: b. Volt

15. The work done to displace one electron through a potential difference of 1volt is –

    a. $\frac{10^{-19}}{1.6}$ $Joule$

    b. $\frac{10^{19}}{1.6}$ $Joule$

    c. 1.6×10^{-19} $Joule$

    d. 1.6×10^{19} $Joule$

    Ans: c. 1.6×10^{-19} $Joule$ [this is also known as 1 eV]

Name of the teacher – Soumitra Maity