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Name _____ Date: March 23, 2020 Subject: physics
Quarter: 3 Revision work sheet Grade: 12A Teacher's Name: Mr Asfaw K.

Answer the following questions

1. If a body is charged positively, what will happen to its mass? Explain.
   _____
2. Consider an electric dipole in a uniform electric field, what is the net force on the dipole?
   _____
3. From Q2, what is the torque developed?

Choose the best answer from the given alternatives

4. Object A has a charge of 2μC and object B has a charge of 6μC. Which statement is true?
   A. $F_{AB}=-3F_{BA}$ C. $3F_{AB}=-F_{BA}$
   B. $F_{AB}=-F_{BA}$ D. $F_{AB}=F_{BA}$

Work out and show your steps clearly

5. Two point charges Q_1 and Q_2 separated by a distance of 90cm exerts a force of 0.05N on each other. If $Q_1+Q_2=4.5\mu C$. Find the magnitude of Q_1 and Q_2.

6. An equal number of electrons is placed on two metal spheres 4mm apart. How many electrons are there on each sphere if the repulsive force is 400N?

7. Two negative point charges are 2m apart and repel each other with a force of 4N. When the distance between the charges is doubled, the force between them is:

8. What is the magnitude of the electric force between two protons separated by $2x10^{-15}m$?

9. A charge of 2μC placed at a point p in an electric field experiences a force of $8x10^{-4}N$. What is the electric field intensity at that point?

10. Find the electric field strength at a distance of 30cm from a point charge of 2μC.

11. What is the net electric field at the mid-point of two charges Q_1=-2μC and Q_2=2μC?

12. Two point charges Q_A=3μC and Q_B=12μC are placed 60cm apart. At what distance from Q_A will the field be zero?

13. Two point opposite charges of equal magnitude are 8cm apart. At the mid-point 0f the line connecting them, the net electric is 45N/m. Find the magnitude of the charges.

14. An oil drop of 3.2×10^{-13}N weight is observed to be balanced by an electric field of 5×10^{5}N/C. What is the charge of the drop?

15. A 4μF and 6μF capacitors are connected in series across a p.d of 500V. What is the energy stored in the 4μF capacitor?

16. A parallel-plate air capacitor has a capacitance of 4×10^{-8}F. What would be the value of capacitance if the region between the plates is filled with a material having a dielectric constant of 8?

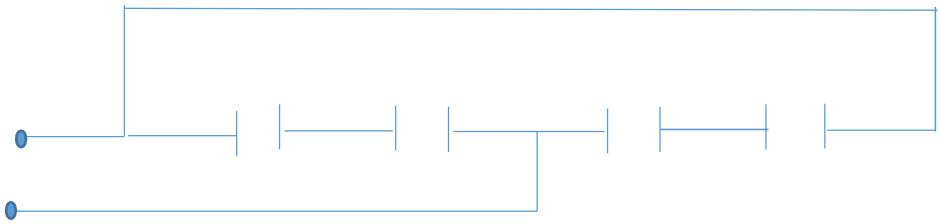
17. Consider three identical metal spheres A, B & C. Sphere A carries charge +10q. Sphere B carries charge -2q. Sphere C carries no charge. Spheres A and B are touched together and then separated. Sphere C is then touched to sphere B and separated from it. Lastly, spheres A and C are touched together and then separated. How much charge ends up on sphere C?

18. The total electric charge of 3.5nC is distributed uniformly over the surface of a metal sphere with a radius of 0.2m. What is the value of the potential at point 0.1m from the center of the sphere?

19. If the electric potential at a point 2m from a positive charge is 12V, what force would be exerted on a charge of 5nC placed at this point?

20. If the energy stored in a 12μC capacitor is $1.5x10^{-2}$J, what is the potential difference across the capacitor?

21. In the figure below each capacitor has a capacitance of 2μF. What the equivalent capacitance of the arrangement.



Parents/Guardians signature_____ **Date of submission March 27, 2020**