

Year 11 Physics
Electrostatics Assignment

NAME _____

1.
 - a) Draw up a table showing the three subatomic particles, their relative masses and relative charges. /6
 - b) Describe how an object becomes charged electrostatically, including in your answer where the charge comes from. /2
 - c) Describe the forces that act between: positive to positive; negative to negative; negative to positive. /2
2. State Coulomb's Law. List what each letter in the formula represents. /4
3.
 - a) State what is meant by "the force between charges is proportional to the magnitudes of the charges". /1
 - b) State what is meant by "the force between charges is inversely proportional to the square of the distance between the charges". /1
4. Calculate the force acting between two charged objects $q_1 = +1 \times 10^{-4} \text{ C}$ and $q_2 = +1 \times 10^{-5} \text{ C}$ which are 2m apart. /3
5. Explain why a positively charged balloon can be attracted to a neutral ceiling. /2
6. You are having a dream in which a pink cat is charged +3.0mC and a green dog is charged -4.2mC.
 - a) They are 10m apart. Calculate the force which acts between them. /3
 - b) There is a flash and suddenly the distance between them is halved. Determine how many times greater the force is between them. /2
 - c) Again the distance between them is halved. Determine how many times greater (than the original amount) the force is now. /2
 - d) State and explain the pattern which is showing. /2

TOTAL /30