

Knowledge / 18	Communication / 8	Inquiry / 11	TOTAL MARK /30
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Name: _____

Date: _____

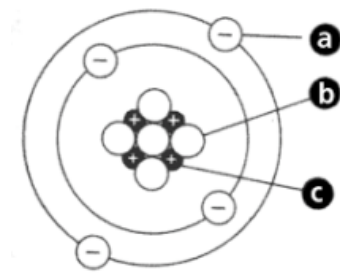
SNC 1D- Static Electricity Assignment

Assignment due date: _____

Complete the following questions about what we have learnt in class so far. You can use your notes. Work on your own. Answer the questions in **full sentences**.

Knowledge Section (18 marks)

1. Label all important structures of an atom discussed in class (3 marks)



2. Compare the proton and the electron using the following chart: (3 marks)

	Proton	Electron
Location in the atom		
Charge		
Can it leave the atom?		
<i>Options</i> (Yes or no)		

3. State the three Laws of Electric Charge? (3 marks)

1)

2)

3)

4. True and False (9 marks)

- ___ Static electricity occurs because charges build-up in one place
- ___ A neutral object will attract a charged objects
- ___ When there are more electrons than protons an object will have a negative charge
- ___ Like charges attract
- ___ Materials at the top of an electrostatic series chart have a strong hold on electrons
- ___ Plastic is a good conductor
- ___ Discharging an object means to remove the charge
- ___ Positive charges never move.
- ___ When a negative rod approaches a fine stream of water from a tap, it repels.

Communication Section (8 marks)

5. **Define** the following terms and **provide an example** of each: (3 marks)

a) Insulator

b) Conductor

6. In your own words what does **charging by friction** mean? (2 marks)

7. Explain clearly why a rubber balloon rubbed with fabric will produce static electricity but a metal bar rubbed with fabric will not. Include the words **charges moving freely**, **charges building up in one place**, **insulator**, **conductor** in your explanation. [3]

Inquiry Section (11 marks)

8. Use the Electrostatic Series to fill in the blanks (4 marks)

a. Foam is rubbed on Human Hair

Material with stronger hold on electrons:

Final Charge on Foam: _____

Final Charge on Hair: _____

b. Nylon is rubbed on Grocery Bag

Material with stronger hold on electrons:

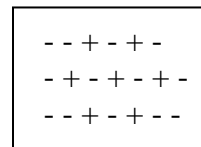
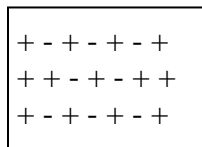
Final Charge on Nylon: _____

Final Charge on Grocery Bag: _____

Electrostatic Series of Some Common Materials

Material	Strength of Hold on Electrons
Glass	
Human hair	
Nylon	
Wool	
Fur	
Silk	
Cotton	
Lucite (a clear plastic)	
Rubber balloon	
Polyester	
Foam	
Grocery bags (low density polyethylene)	
Ebonite (a hard form of rubber)	

9. Determine the charge on each object and draw arrows showing whether they will attract or repel. (3 marks)



Charge on Object 1: _____

Charge on Object 2: _____

Will they attract or repel? _____

Which law of electric charges applies here? _____

10. Below are diagrams of a charged positive rod approaching and touching a neutral pith ball. [4]

- i. Refer to **Diagram 1**. As the positive rod approaches (not touching) the neutral pith ball will they attract or repel? _____

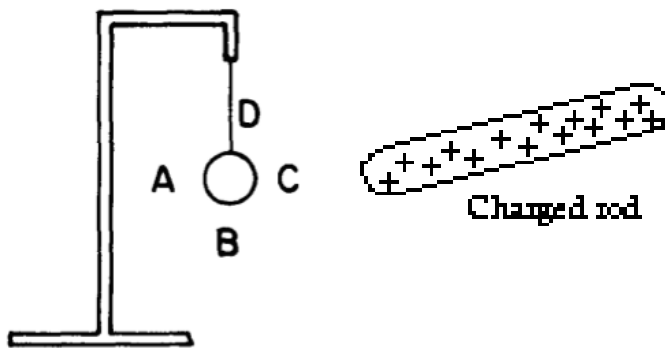


Diagram 1

- ii. In **Diagram 2** below the charged rod has made contact with the pith ball. What charge does the pith ball get? _____

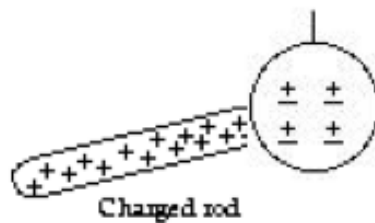


Diagram 2

- iii. If the rod then approaches the charged pith ball after they have touched will they attract or repel? _____
- iv. Do the diagrams above show charging by (circle one)...

friction **or** **contact**