

USE YOUR NOTES to answer the questions in the space below. Show ALL work in calculations, with units for full marks.

Part A: Theory of Electricity

1. Electricity that is “on the move” is called _____.
2. The particles that are flowing in current electricity are called _____.
3. Define what a circuit is:

4. Fill in the correct symbols and units:

Name	Symbol	Unit	Unit Symbol
Current			
Charge			
Time			
Potential Difference			
Energy			
Resistance			

5. a. Define the term ***Electric Current***.

b. Name the device used to measure current.

c. Which way does current flow in a circuit?

6. a. Define the term ***Potential Difference***.

d. Name the device used to measure potential difference.

7. Cells and batteries:

a. What is a cell?

b. How is a cell different from a battery?

c. What are the parts of a cell?

8. We have studied 5 different **sources** of **potential difference**. Fill in the table with respect to these sources.

Method	How it Works	Example
Chemical		
Thermal		
Piezoelectric		
Photoelectric		

9. Define the term **electrical resistance**. What causes resistance?

Part B: Electrical Calculations (Mixed)**Remember to show your formula, substitution/work, answer & units!!!!!!!!!!!!!!**

1. If you send 30 C of charge through a wire in 45 seconds, how much current is this?
2. If the resistance of a speaker is $8\ \Omega$, and it has 13 amps of current passing through it, how much potential difference is there?
3. If electrons in a circuit have 300J of energy, and the potential difference is 9 volts, how much charge is in the circuit?
4. You are setting up an electric fence. The fence requires 0.5 A of current. On average a cow would touch the fence for about 3s. How much charge would go into the cow?

5. Find the resistance of a circuit that has an energy of 1240 J, a 17 C of charge, and 0.64 A of current. (Hint: you may need more than one formula)

6. The human body has a resistance of about 1000 Ω . If you stuck your fingers into an outlet (120V) How much current would you receive?

7. How many dry cells would you need to run a cordless drill that requires 900 J of energy, and 50 C of charge.