



education

Department of
Education
FREE STATE PROVINCE

FORMAL EXPERIMENT

GRADE 10

TECHNICAL SCIENCES

JUNE 2017

MARKS: 15

TIME: 30 MINUTES

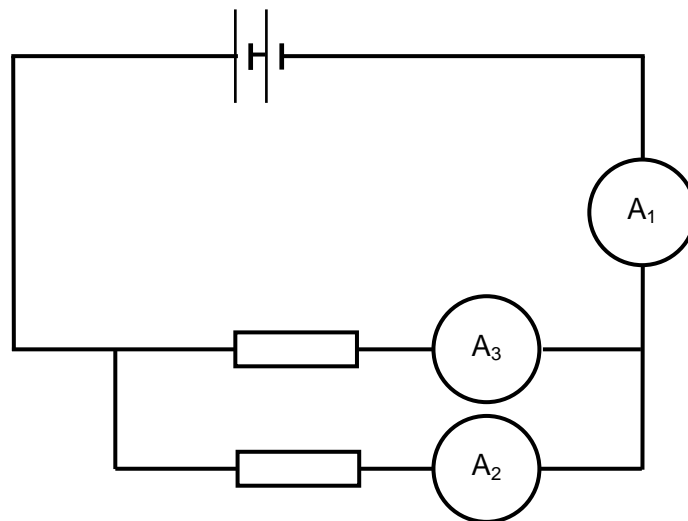
This paper consists of FOUR pages.

Name of learner: _____ Grade: _____

INSTRUCTIONS AND INFORMATION

1. Write your name and grade in the appropriate spaces on the FRONT PAGE of this question paper.
 2. Answer ALL questions in the spaces provided in THIS QUESTION PAPER.
 3. You may use a non-programmable pocket calculator.
 4. You may use appropriate mathematical instruments.
 5. Show ALL the formulae and substitutions in ALL calculations.
 6. Round off your final numerical answers to a minimum of TWO decimal places where necessary.
 7. Give brief motivations, discussions, et cetera where required.
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Grade 10 learners set up the circuit represented below to compare the main current in the circuit to the current in each branch.



1. Write down the following for this experiment:

1.1 The investigative question (2)

1.2 A hypothesis (2)


2. Which one of A_1 , A_2 or A_3 measures the main current in the circuit? (1)

3. Using the same experimental set-up, they decide to find the relationship between the potential difference across the battery and across each of the branches.

3.1 Give the name of the instrument they use to measure potential difference. (1)

3.2 How should this instrument be connected? Choose **In series** OR **In parallel**. (1)

3.3 Redraw the circuit diagram and show how they must connect THREE instruments to measure the potential difference across the battery and across EACH of the resistors.



(4)

4. The following are the results obtained during the experiment.

A_1	A_2	A_3	Potential difference across battery	Potential difference across resistor 1	Potential difference across resistor 2
2,4	1,2	1,2	12	12	12

- 4.1 Write down the SYMBOLS for the SI UNITS of current and potential difference respectively. (2)
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- 4.2 Use the results in the table above to complete the following sentence.

Resistors connected in parallel are current _____

while the _____ across the resistors remains the same. (2)

GRAND TOTAL: 15