education
Department of Education
FREE STATE PROVINCE

NATURAL SCIENCES **GRADE 9** **INFORMAL TEST 3.1**
TOPIC: FORCES **MARKS: 15**

Name and Surname: _____ Gr. 9 ___ Date: _____

SECTION A

QUESTION 1

1.1 Write the **LETTER** (A, B, C or D) of the correct answer on the line provided.

1.1.1 Which force is responsible for slowing down a ball rolling on the ground?

A Gravity
B Tension
C Friction
D Air resistance

ANSWER: _____ (1)

1.1.2 A force is defined as a ….

A field force.
B push or touch.
C contact force.
D push or pull.

ANSWER: _____ (1)

1.2 Match the description in COLUMN A with the correct term in COLUMN B. Write only the LETTER (A - E) next to the question number (1.2.1 – 1.2.3) in the open spaces provided below.

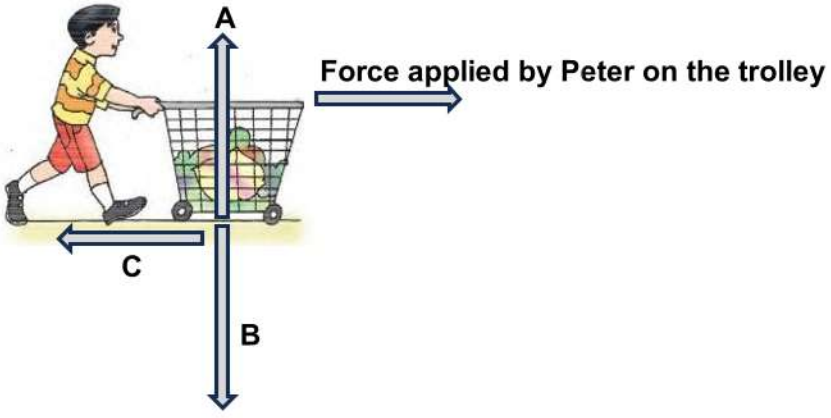
COLUMN A		**COLUMN B**	
1.2.1	When applied, it can change an object's shape, direction, or speed.	A	Field force
1.2.2	The measuring unit for force.	B	Friction
1.2.3	A force that acts over a distance between objects.	C	Weight
		D	Force
		E	Newton

ANSWERS: 1.2.1 _____ 1.2.2 _____ 1.2.3 _____ (3)
[5]

SECTION B

QUESTION 2

In the diagram below Peter is pushing a trolley towards his car. The forces acting on the trolley are indicated on the diagram.



2.1 Name **Force A**: _____ (1)

2.2 Identify the two HORIZONTAL forces that are balanced if Peter is pushing the trolley to the right at a constant speed.

_____ (2)

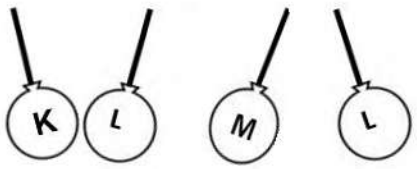
2.3 Give the LETTERS of the two forces that form the following force-pair:
The force the trolley exerts on the ground, and the force the ground exerts on the trolley.

_____ (1)
[4]

QUESTION 3

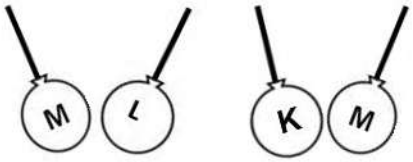
3.1 The balloons shown below, all carry a certain electric charge. Based on the observations shown below and the information given, indicate the missing charge for each scenario.

3.1.1



Balloon	Charge on the balloon (+, - or neutral)
L	Negatively (-) charged
M	

3.1.2



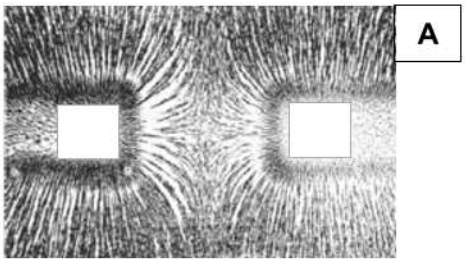
Balloon	Charge on the balloon (+, - or neutral)
K	Positively (+) charged
L	

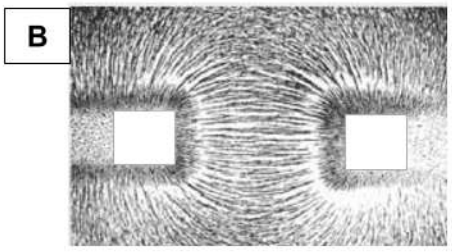
(2)

3.2 The poles of two bar magnets are facing each other in two different scenarios. Iron filings are sprinkled onto a sheet of paper placed over the magnets, revealing two distinct magnetic field patterns: **Pattern A** and **Pattern B**. For each scenario:

3.2.1 Indicate the possible poles of the magnets by writing **N** for north or **S** for south in each of the empty squares. (2)

3.2.2 Identify the type of force between the magnets. Choose between ATTRACTION or REPULSION. Write the answer below each diagram in the space provided.





A: _____ **B:** _____ (2)
[6]

TOTAL MARK: 15

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MEMORANDUM

SECTION A

QUESTION 1

1.1.1 C ✓ (1)
1.1.2 D ✓ (1)

1.2.1 D ✓ (1)
1.2.2 E ✓ (1)
1.2.3 A ✓ (1)
[5]

SECTION B

QUESTION 2

2.1 A – Normal / Normal force ✓ (1)

2.2 Applied force / Force applied by Peter on the trolley ✓
AND
Friction / C ✓ (2)

2.3 A and B **OR** B and A ✓ (1)
[4]

QUESTION 3

3.1.1 M is negatively (-) charged ✓ (1)

3.1.2 L is positively (+) charged ✓ (1)

3.2.1 **Scenario A:** S and S **OR** N and N (like poles) ✓

Scenario B: S and N **OR** N and S (unlike poles) ✓ (2)

3.2.2 **A:** Repulson ✓
B: Attraction ✓ (2)
[6]

TOTAL MARK: 15