**PRESIDENT’S OFFICE**

**REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT**

**LINDI REGIONAL COMMISSIONER’S OFFICE**

**FORM FOUR MOCK EXAMINATION - MAY 2018**

**CODE NO.031/2A PHYSICS 2A (ACTUAL PRACTICAL A)**

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**INSTRUCTIONS**

1. This paper consists of two questions
2. Answer **ALL** questions
3. All questions carry equal marks
4. Where calculations are involved show your work clearly
5. Mathematical tables may be used where necessary
6. The aim of this experiment is to determine the mass of a given dry cell, size**“AA”**

Your provided with a dry cell, a knife edge, two weights **50g** and **20g** and a metre rule

Proceed as follows;

1. Locate and note the centre of gravity **C** of the metre rule by balancing on the knife edge
2. Suspend the **50g** mass on one side of the metre rule and **20g t**ogether with a dry cell on the other side of the metre rule adjusting their position until the metre rule balances horizontally as shown in the fi below

**C**

**a b**

**50g X g**

**20g**

1. By fixing **a = 5cm** from Find its corresponding length**, b** from **C**
2. Repeat and tabulate your results using **a = 10cm, 15cm, 20cm** and **25cm**.
3. Draw a graph of **“a”** against **“b”** and calculate the slope **G**
4. Calculate X from equation ****
5. What does the value of X in (f) above represents?
6. State the principle that governs in this experiment

2. The aim of this experiment is to determine the relationship between the angle of rotation of the reflected ray from a plane mirror and the angle of rotation of the mirror.

(a) Proceed as follows;

**A1**

**A2  O**

**α B2**

**β B1**

**Q R T**

**P S U**

(b) Pin the drawing paper provided to the board and draw two straight lines ***A1B1***and ***A2B2*** to enclose an angle ***α = 100***(see the fig ). Draw a line through ***O*** making an angle of ***750*** with A1B1. This represents the incident ray. Insert two pins ***P*** and ***Q*** on this line. Place the reflecting surface of the mirror along ***A1B1.*** Place pins Rand ***S*** to appear in line with the images of ***P*** and ***Q.***

(c.) Draw the line ***QRS.*** Remove the pins Rand S. turn the mirror through an angle α so that its reflecting surface lies along ***A2B2.*** Sticks pins ***T*** and ***U*** to appear in line with the image ***P*** and ***Q***. join the line ***OTU.*** Record the angle ***α*** and ***β***.

(d) Repeat the experiment with angle α equal to **150, 200, 250** and **300.**

(e) Record your results in a table

1. Plot a graph of α against β
2. Determine the slope of your graph
3. Find the reciprocal of the slope
4. From the graph, deduce the relationship between α and β.

**NOTE: Attach your diagrams with the answer booklet**