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PHYSICS PAPER 2

(PRACTICAL)

MOCK 2024

AUGUST

TIME:2 HRS



# MEBU EXAMINATIONS CONSULT

## Uganda Certificate Of Education

### MOCK ASSESSMENTS 2024

#### PHYSICS PAPER 2

#### (PRACTICAL)

TIME:2HRS

#### INSTRUCTIONS TO CANDIDATES

This paper consists of **Two** examination items.

Answer **One** item in **All**.

Any additional item answered will **NOT** be scored.

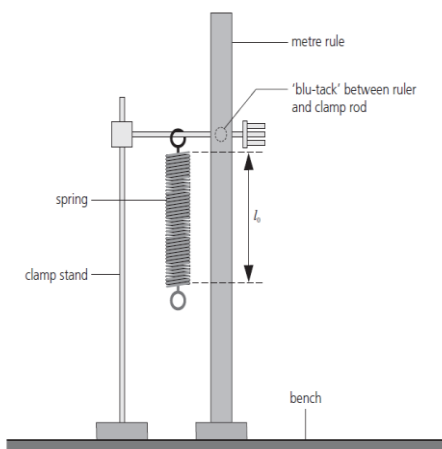
Candidates are **Not Allowed** to start working with the apparatus for the **First Quarter Of An Hour**. This time is to enable candidates to read the items thoroughly, checking for the apparatus they will need and plan appropriately.

A graph paper will be provided.

Mathematical tables and silent non-programmable calculators may be used.

### ITEM 1.

"Green Thumb Tools" is a gardening equipment company that plans to produce retractable hose reels. The reels require a spring mechanism that can reliably extend and retract the hose. The head engineer has suggested that the spring used must obey Hooke's law to ensure consistent performance. The company has sent a sample of the spring they plan to use for testing.



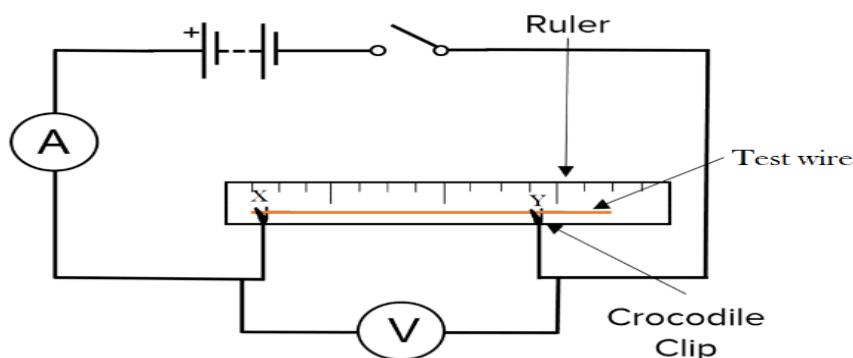
#### Task:

- You have been provided with a sample spring that the company intends to use in the retractable hose reel. Conduct an investigation to determine if the spring obeys Hooke's law. Provide a detailed report on your findings and recommendations based on the experimental data.
- Based on your experiment, what can you conclude about the spring constant and the behavior of the spring under different loads?

### ITEM 2.

Conductivity is the measure of how well a material allows the flow of electric current. When selecting materials for electrical wiring, it is preferred to use materials with high conductivity to reduce energy loss and improve efficiency. This is important in many applications, including the wiring of electrical circuits in homes and electronic devices.

Imagine you are tasked with designing the electrical system for a new apartment complex. There are two types of wire materials available **X** and **Y**. Both types have different conductivity properties.



#### Task:

- You are provided with the two wire samples **X** and **Y**, both having the same length and cross-sectional area. Conduct an experiment to measure the resistance of each wire. Provide a detailed report on which wire should be used in the apartment complex to ensure efficient energy usage and justify your choice based on the experimental data.
- What can you say about the relationship between the material of a wire and its conductivity based on your experiment?

**END**