535/2
PHYSICS
Paper 2
July - August 2024
2 hours

KAMSSA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

PHYSICS

Practical

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

- *This paper consists of **two** examination items.*
- *Answer **one** item in all.*
- *Any additional items 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; 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

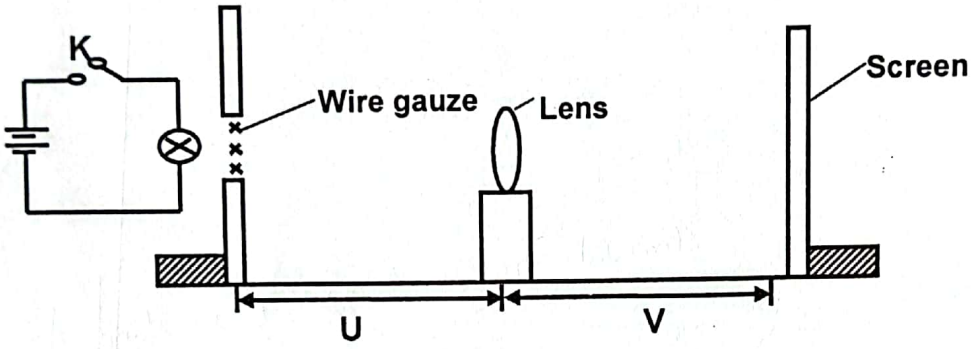
A group of students want to carry out an experiment to find out whether the convex lenses and glass blocks in one of the lockers at school have the same refractive index.

Hint: The object distance, **U**, image distance, **V** and focal length, ***f*** are related by the formula. **UV = f (U+V)**

The lens surfaces in question have a radius of curvature, ***r*** of 10cm. Refractive index, ***n*** is

$$n = 1 + \frac{r}{2f}$$

Support materials; 2 dry cells, cell holder, 1 torch bulb, 1 bulb holder, 1 switch, 1 convex lens, 1 white screen with a wire gauze, 1 white screen and 1 metre rule.



Task

Conduct a scientific investigation as the leader of the survey team to determine whether the lens is made from the same material as the glass block.

ITEM 2

A visitor from Norway has just come to Uganda for the first time. He lives in the capital city of Oslo which is in the Northern hemisphere. The value of acceleration due to gravity in this country is $9.83ms^{-2}$. The visitor wants to know whether the acceleration due to gravity in their country is different from that in Uganda.

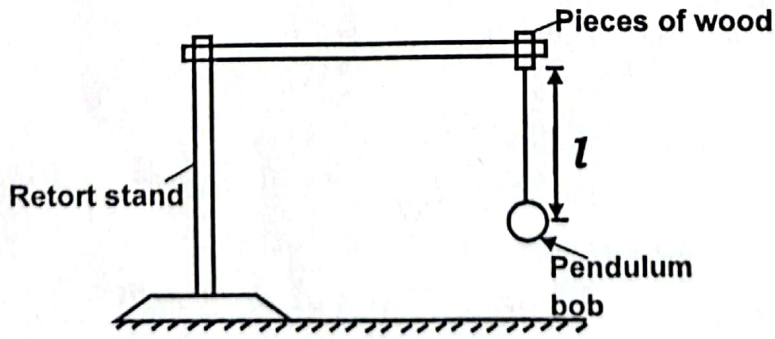
Hint: The period, T of oscillation of a pendulum bob is related to its length, ***l*** by an equation

$$T^2 = \left[\frac{4\pi^2}{g}\right] l$$

where g = acceleration due to gravity.

Support materials; retort stand with a clamp, pendulum bob, a thread of length 120cm, a stop clock, two small wooded blocks and a metre rule.

Diagram



Task

As a physics student, help to conduct a scientific investigation to determine the value of acceleration due to gravity in Uganda.