535/2
PHYSICS
Paper 2
2024
2 hours

MATIGO EXAMINATIONS BOARD

Uganda Certificate of Education

PHYSICS

Paper 2
Practical

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.*

Turn Over

Item 1

A rural farming cooperative in Village Green shares harvests equally among 20 member-families using a spring balance. The balance relies on a spring with a constant between 1200 Nm^{-1} and 1300 Nm^{-1}. Recently, Farmer Thompson overloaded the balance, damaging the spring. Replacement options are scarce, and the cooperative seeks your physics expertise.

Task:

As a learner of physics advise the farmers whether to use the spring in the school laboratory available to replace the damaged spring in the spring balance.

Item 2

During the S4 vacation, a student was working at a hardware shop that specialized in glass and its accessories. A customer approached the shop, seeking a specific type of glass that would glitter. However, the hardware owner was unsure how to determine the glittering property of the glass. The student, recalling their physics lessons, remembered that the glittering of materials like diamonds is due to their small critical angle. Nevertheless, the student couldn't quite recall how to determine the critical angle.

Task

Using scientific investigation, determine the critical angle of the glass material provided.

Hint:

For glass of refractive index, n the critical angle C is given by $nsinC = 1$
Any other set up may be used.

NB: HAND IN THE TRACING PAPER USED IN THIS EXPERIMENT.

END

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