NAME ..... INDEX NUMBER.....

535/3
PHYSICS
Paper 3
May/June 2024
2 hours

SISEB MOCK EXAMINATIONS 2024
Uganda Certificate of Education
PHYSICS
Paper 3 Practical
2 hours

INSTRUCTIONS TO THE 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 table and silent non-programmable calculators may be used

Item 1 In Karamoja sub-region, glass marbles are sold cheaply almost in all urban centres. Manager of Elegant-Zovc Uganda dealers in sculptures of different designs and sizes wants to buy glass marbles of 5.5 g each, same diameter and physical properties for their masterpiece designs from one of their Agent Out-let in this region. The Out-let received consignment of 4500 glass marbles from the natives of this place but there were no instruments in this centre to ascertain the mass specifications of the company and the manager didn't know how much she should pay for this consignment.

Task:

As a student of physics, carry out a scientific investigation to help the manager of Elegant-Zovc Uganda to determine the mass of an identical glass marble provided to you in order to ascertain how much she should pay to the Out-let for the consignment received.
(30 Scores)

Hint:

o The company pays UGX.200 per kilogram of such glass marble.

o The mass of glass marble,

o Mass, M=(m_g+5.8) where M-mass of disposal cup and glass marble, mass of empty disposal cup is 5.8g and M_b=mass of glass marble

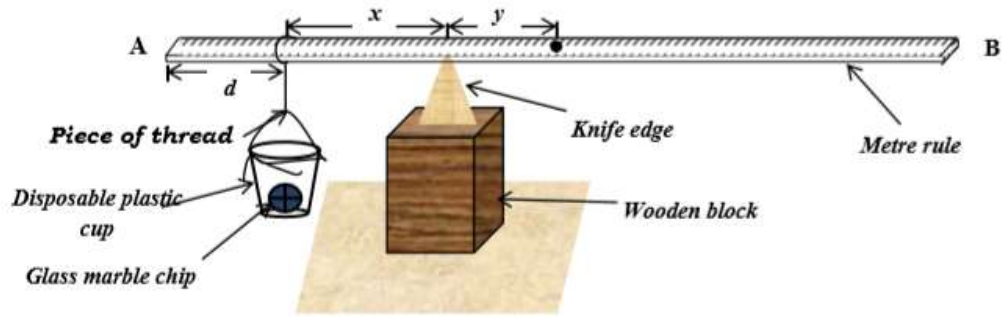

Fig 1

o Other experimental set up may be used.

Item 2

In a certain trading centre, a businessman (photographer) dealing in photography is grappling with losses resulting from low quality pictures and videos of clients from a wedding function he recently covered. After a detailed analysis of the camera used to take pictures and record videos,

the technician discovered that the lens in the camera was faulty and should be replaced with a lens of a fixed focal length and made from a glass material of refractive index 1.5.

The photographer has just acquired a glass block from which the required lens should be cut but does not know if it is of the appropriate refractive index.

Task:

You are provided with glass block, M that has same properties with that of the glass block the photographer bought. Verify the accuracy of the refractive index of the glass material the photographer bought for replacement of his camera lens.
(30 Scores)

Hint:

Refractive index, $n = \frac{\sin i}{\sin r}$

The technician prescribed that the refractive index, N= S

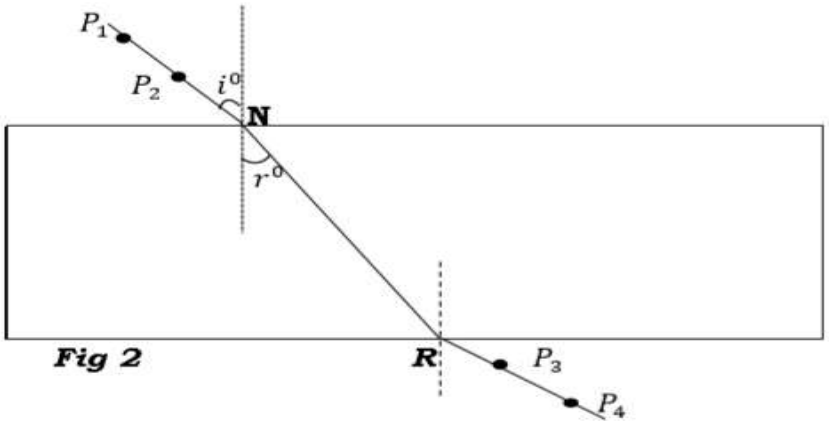

Fig 2

Other experiment set up can be used.

END