535/3
Physics
Practical
Paper 3
July/August
2 ¼ hours

ACEITEKA JOINT MOCK EXAMINATIONS 2018

UGANDA CERTIFICATE OF EDUCATION

535/3 PHYSICS PRACTICALS

PAPER 3

TIME: 2 HOURS 15 MINUTES

Instructions to candidates:

Answer question 1 and one other question.

Any additional question(s) answered will not be marked

For each question, candidates will be required to select suitable apparatus from the equipment provided.

You will not be allowed to start working with the apparatus for the first quarter of an hour

Marks are given mainly for a clear record of the observations actually made, for their suitability and accuracy and for the use made of them.

1. In this experiment you will determine the acceleration due to gravity g using a pendulum.

(30 marks)

(a) Suspend the pendulum from a clamp using two small pieces of wood as shown in **figure 1.**

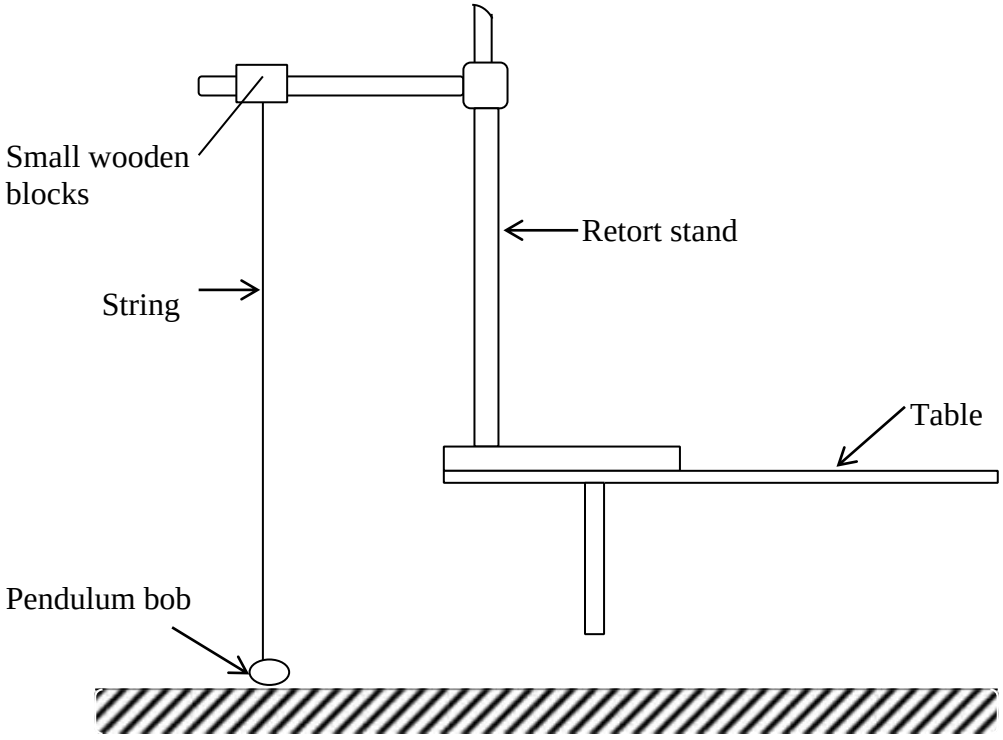

Fig 1

(b) Adjust the length of the pendulum to 1.200m with the bob nearly touching the floor as shown in figure 1.

(c) Displace the bob through a small angle from the vertical and leave it to oscillate.

(d) Measure the time for **10 oscillations.**

(e) Determine the period T.

(f) With the height of the point of suspension unchanged; adjust the length of the pendulum such that the height of the pendulum bob, h, from the ground is 0.200m.

(g) Repeat procedures (c) to (f) for values of h = 0.400, 0.600, 0.800 and 1.000m.

(h) Enter your results in a suitable table including values of T^2.

(i) Plot a graph of h against T^2.

(j) Find the slope, **s** of the graph.

(k) Calculate the acceleration due to gravity g from the expression

$$\frac{4\pi^2 s}{g} = -1$$

2. In this experiment, you will determine the focal length f of the lens provided.

(30 marks)

(a) Mount the lens provided in the holder and place it facing a window.

(b) Place the screen behind the lens and adjust it until a clear image of a distant object is seen.

(c) Measure and record the distance, x between the lens and the screen.

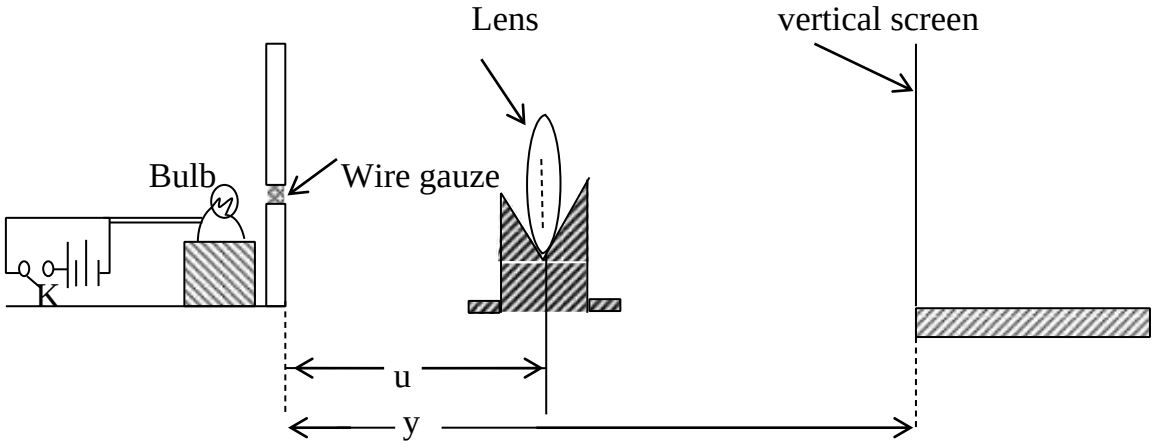

Figure 2

(d) Arrange the lens so that the distance u between the wire gauze and the lens is equal to 1.5x as shown in figure 2 above with illuminated wire gauze at some height above the table and in a straight line

(e) Close the switch, K and adjust the position of the screen until a clear image of the wire gauze is seen on it.

(f) Measure and record the distance **y** of the white screen from the wire gauze.

(g) Repeat procedures (d) to (f) for values of u = 2.0x, 2.5x, 3.0x, 3.5x and 4.0x

(h) Record your results in a suitable table including values of (y – u) and u(y – u) (i) Plot a graph of u (y- u) against (y – u) (j) Find the slope **f** of the graph.

3. In this experiment, you will determine the constant of the bare wire, W provided

(30 marks)

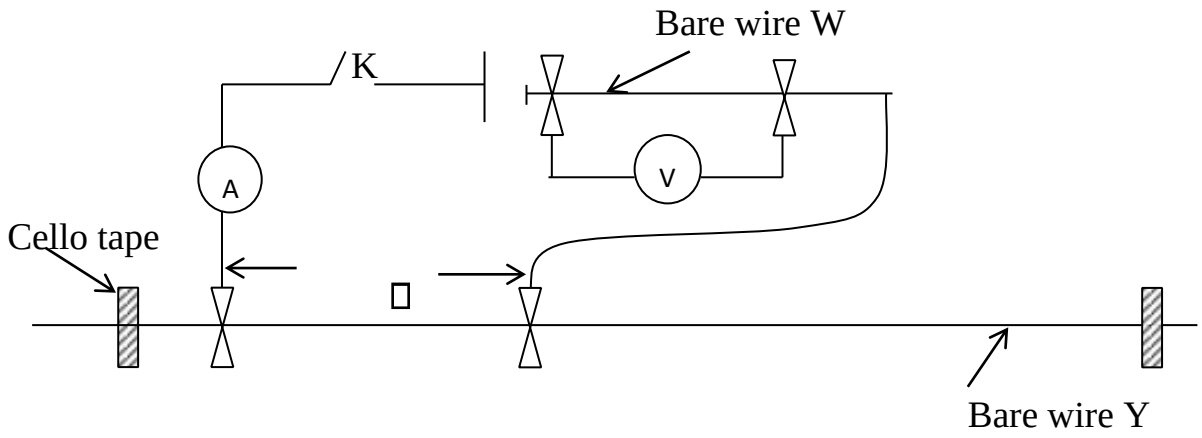

Fig 3.

(a) Fix the bare wire Y on the table using cello tape. (b) Connect the circuit shown in **figure 3**.

(c) Adjust the position of the crocodile clips such that = 20.0cm.

(d) Close the switch K.

(e) Read and record the ammeter reading I and the voltmeter reading V.

(f) Open switch K

(g) Repeat procedures (c) to (f) for values of = 30.0, 40.0, 50.0, 60.0, and

70.0cm.

(h) Record your results in a suitable table.

(i) Plot a graph of V against I

(j) Find the slope **S**, of the graph

(k) Calculate the constant □ of the wire , W from the expression, **2S = □**

END