SEPTEMBER 2022
EBS 142P
GENERAL PHYSICS PRACTICAL 1
1 HOUR 30 MINUTES

Candidate's Index Number
Signature:

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

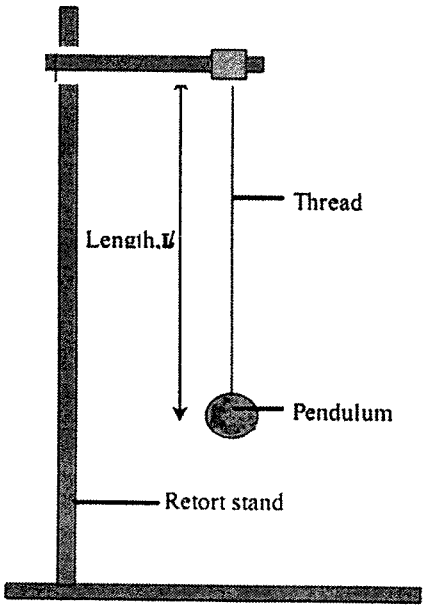
COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
FIRST YEAR, END-OF-SECOND SEMESTER EXAMINATION, AUG/SEPT 2022

SEPTEMBER 2, 2022 **GENERAL PHYSICS PRACTICAL 1** **9:00 AM – 10:30 AM**

Answer any ONE question in this paper.
(60 MARKS)

1. You are provided with a pendulum bob, cork, thread, retort stand and clamp, a meter rule and a stop watch.

   Set up the simple pendulum system, as shown in the diagram below, such that the length L of the pendulum measured from the point of support to the centre of the bob is 90 cm.



   a. Slightly displace the bob, gently release it to swing and note the time t, for 25 complete oscillations. **(3 marks)**

   b. Obtain the period T of oscillation of the pendulum. **(2 marks)**

c. Repeat the procedure for values of L = 80, 70, 60, and 50 cm. **(4 marks)**

d. In each case, determine T and $\sqrt{L}$ and tabulate your results. **(16 marks)**

e. Plot a graph of T as ordinate and $\sqrt{L}$ as abscissa. **(24 marks)**

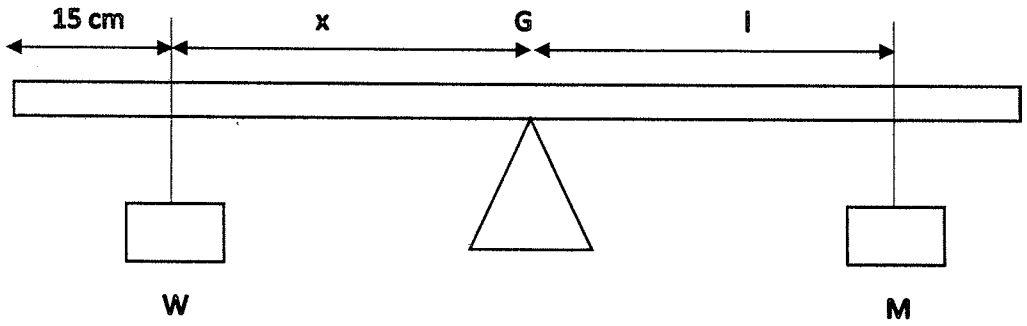
f. Determine the slope M, of the graph, and the intercept k, on the vertical axis. **(4 marks)**

g. Evaluate $^{4\pi^2}/_{M}$ **(3 marks)**

h. State **two** precautions that you took in performing this experiment. **(4 marks)**

2. You are provided with a uniform metre rule, a knife edge, an object of unknown mass W, standard weights and a piece of thread.

a. Balance the metre rule horizontally on the knife edge. Read and record the point of balance G of the metre rule. Keep the knife edge at this point throughout the experiment. **(3 marks)**



b. Using the thread provided, suspend the object labeled W at the 15 cm mark of the metre rule, and a mass M = 20 g on the other side of G. Adjust the position of the mass until the metre rule balances horizontally again. Determine and record the distance x between W and G. **(3 marks)**

c. Note the position y of M on the metre rule, Hence, determine and record the distance l between M and G. **(2 marks)**

d. Repeat the procedure for four other values of M = 30, 40, 50 and 60 g, each time, ensuring that W is kept constant at the 15 cm mark and the knife edge at G. **(4 marks)**

e. Evaluate l in each case and tabulate your readings. **(12 marks)**

f. Plot a graph of M on the vertical axis against l on the horizontal axis. **(24 marks)**

g. Determine the slope s, of the graph. **(4 marks)**

h. Evaluate $\frac{s}{x}$ **(4 marks)**

i. State any **two** precautions taken to obtain accurate results. **(4 marks)**