OCTOBER 2023
EBS 142P
GENERAL PHYSICS PRATICAL I
1 HOUR 15 MINUTES

Candidate's Index Number
Signature:

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

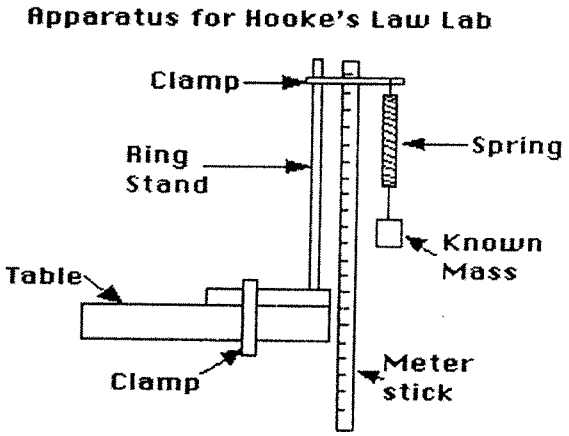
COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
FIRST YEAR, END-OF-SECOND SEMESTER EXAMINATION, SEPT./OCT. 2023

5TH OCTOBER 2023 GENERAL PHYSICS PRATICAL I 3:00 PM – 4:15 PM

[60 MARKS]

Answer ALL the questions.

1. In a laboratory experiment, the spring-mass set-up below was used.



Different masses M were suspended from the end of a helical spring and the new lengths L, corresponding to the suspended masses M, were recorded as in Table I below:

Table I:

M/g	L/cm	e/cm
0.0	18.2	0.0
20.0	18.8	0.6
40.0	19.5	
60.0	20.1	
80.0	20.6	
100.0	21.2	

a. Copy and complete Table I for the extensions **e** produced by finding the difference between the original length (for **M** = 0.0g) and the new lengths due to the masses. **(4 marks)**

b. Using the information on Table I, plot a graph with extension **e** on the vertical axis and the masses **M** on the horizontal axis. **(12 marks)**

c. Determine slope K of your graph. **(4 marks)**

d. Use your graph to estimate the extension in the spring, if a mass 70 g were to be attached to the spring. **(3 marks)**

2. The masses attached to the spring in '**Q1**' above were each given slight vertical displacements and released for the spring-mass system to undergo oscillations. The time *t*, for 20 oscillations were recorded as shown in Table II below.

Table II

M/g	**t/s**	$T = {}^{t}/_{20}$ s	T^2/s^2
20.0	13.25		
40.0	26.30		
60.0	39.50		
80.0	52.47		
100.0	65.75		

a. Copy and complete the table for values for the period T and T^2. **(10 marks)**

b. Plot a graph with T^2 as ordinate and M as abscissa. **(16 marks)**

c. Determine slope S of the graph. **(3 marks)**

d. State any **two** precautions needed to be taken in performing the experiment described above. **(4 marks)**

e. Mention any **two** safety rules that must be observed while conducting experiments in a Physics laboratory. **(4 marks)**