AUGUST, 2021
EBS 142P
GENERAL PHYSICS 1 PRACTICAL)
1 HOUR, 30 MINUTES

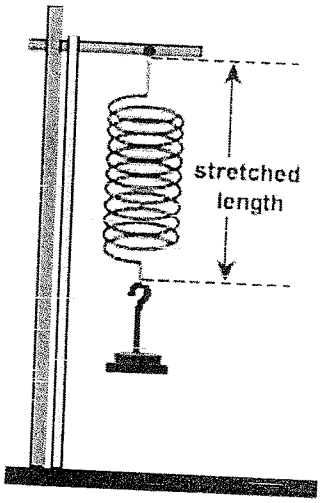
Candidate's Index Number:
Signature:

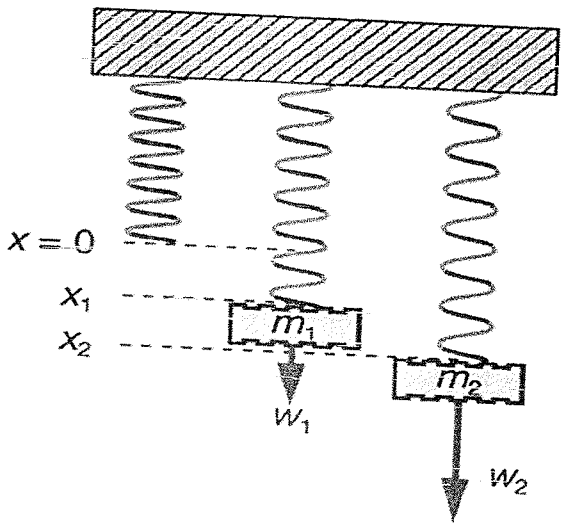
UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
FIRST YEAR, END-OF-SECOND SEMESTER EXAMINATION, JULY/AUGUST, 2021

AUGUST 6, 2021 GENERAL PHYSICS 1 (PRACTICAL) 9:00 AM – 10:30 AM

Answer ALL the questions





In an experiment using the mass-spring set-up shown above, the extension, **X** in a spring was recorded when five different masses **m** were loaded on it. The time t for 20 vertical oscillations, was also recorded for each loaded mass. The results from the experiment were tabulated as follows:

Mass M/g	X_1/cm	X_2/cm	X_{av}/cm	t/s	T/s	T^2/s^2	$4\pi^2$ M/kg
60.0	17.0	17.2		7.62			
80.0	19.0	18.9		8.60			
100.0	20.8	21.0		9.66			
120.0	24.0	24.2		10.87			
140.0	25.4	25.3		11.75			

a. List **four** components of the apparatus needed to carry out the experiment. **(4 marks)**

b. Copy and complete the table for the values of the average extension, X_{av} and the periodic time T, making room for all standard conversions. **(15 marks)**

c. Plot a graph of M against X_{av}. **(10 marks)**

d. Determine the slope **S** from the graph. **(4 marks)**

e. What is the significance of S? **(2 marks)**

f. Use your graph to find how much extension will be produced in the string if a mass of 85 g is hung on it. **(2 marks)**

g. On another graph sheet, plot a graph of T^2 against $4\pi^2 m$. **(12 marks)**

h. Determine the slope Q of your graph. **(4 marks)**

i. Evaluate S/Q to two decimal places. **(3 marks)**

j. State **three** precautions needed to be taken while performing this experiment in a laboratory. **(4 marks)**