

**PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
KIBAHA TC, BAGAMOYO DC AND KINONDONI MC
(KIBAKI)**



FORM FOUR JOINT PRE-NATIONAL EXAMINATION, 2023

CODE:031/2B

PHYSICS 2B

ACTUAL PRACTICAL B

Time:2:30 Hours

YEAR: 2023

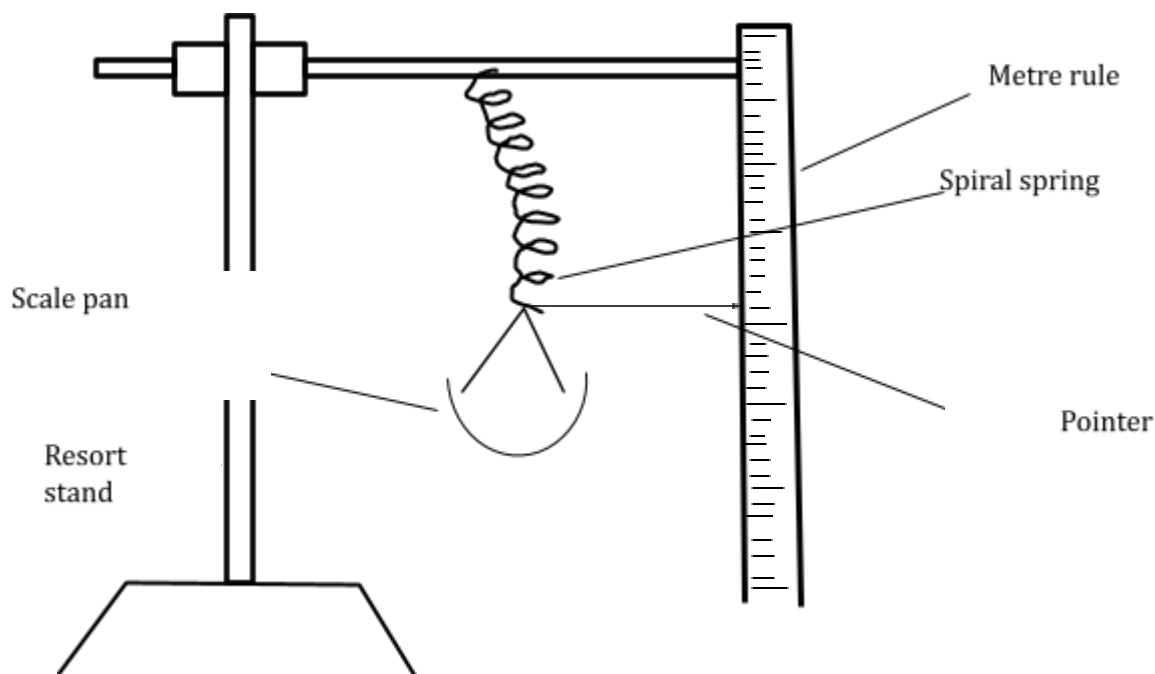
Instructions

1. This paper consists of two questions. Answer all questions
2. Each questions carries twenty five (25) marks
3. Calculations should be shown clearly
4. All writing must be in blue or black ink except drawings must be in pencil
5. Non-programmable calculators and mathematical tables may be used
6. Cellular phones and any unauthorized materials are not allowed in the examination room
7. Write your examination number on every page of your answer booklet (s)
8. Where necessary, the following constant may be used

$$\pi = 3.14$$

$$g = 10\text{m/s}^2$$

1. You are provided with the following apparatus, metre rule, standard masses, spiral spring, pointer, scale pan, retort stand with clamp



Proceed as follows;

- Record the pointer reading in the scale of metre rule when the pan is empty as L_0
- Put 20g to the pan and record pointer reading as L
- Find extension e , of a spring
- Repeat the procedure for masses of 40g to 100g in the interval of 10g
- Tabulate your results
- Plot a graph of tension (T) against extension e (cm)
- Determine the slope S for your graph
- Give the property experienced by spiral spring
- Suggest the aim of this experiment
- Identify and state the law governing this experiment
- What is the physical meaning of the slope obtained in (g) above
- State two (2) sources of error and its precautions taken

2. The aim of this experiment is to determine the value of unknown resistance P

Proceed as follows;

- Set up the slide wire bridge as shown in figure 2 below where c is a standard resistor = 2Ω , R is a resistance box, G is a galvanometer and P is unknown resistance
- Set $R = 1\Omega$ find the balance point and record the length L in centimeters
- Repeat the procedures (b) above for values $R = 4\Omega, 7\Omega, 12\Omega, 15\Omega$ and 20Ω each time record the corresponding balance length L
- Tabulate your results including $\frac{1}{L}$

- (e) Plot the graph R against $\frac{1}{L}$ using the equation $RL = 100C - (C + P) L$, determine the value of unknown resistance P , show your work clearly. **State three (3)** sources of errors in this experiment

