REPUBLIC OF RWANDA

GATSIBO DISTRICT

SENIOR FIVE END OF 2nd TERM EXAMINATIONS, 2024

SUBJECT: ALTERNATIVE TO PHYSICS PRACTICAL EXAM (20 MARKS)

COMBINATIONS:

PHYSICS-CHEMISTRY-MATHEMATICS	**(PCM)**
MATHEMATICS- PHYSICS- COMPUTER SCIENCE	**(MPC)**
PHYSICS –CHEMISTRY- BIOLOGY	**(PCB)**
MATHEMATICS –PHYSICS- GEOGRAPHY	**(MPG)**

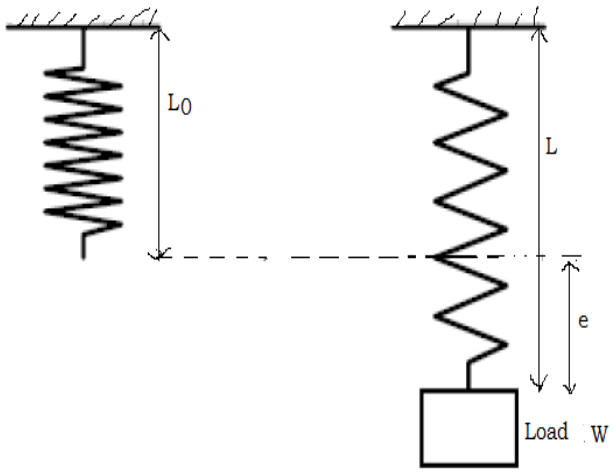
DURATION: 1 HOUR 30 MINUTES

INSTRUCTIONS:

1) Do not open this question paper until you are told to do so.
2) Answer all questions: **20 marks**
3) Use only a **blue** or **black** pen.

ATTEMPT ALL QUESTIONS (20 MARKS)

a)A student carried out an experiment to find the spring constant of a steel spring using Hooke's law . The apparatus is shown below.



The student recorded the unstretched length L_0=30 mm of the spring. Then she/he added loads W to the spring, recording the new length L each time. The readings are shown in the table below.

W/N	L/mm	e/mm
0	30	
1	32	
2	33	
3	36	
4	39	
5	40	

Use your knowledge and acquired skills to analyze and answer the following questions.

a)Calculate the extension e of the spring produced by each load, using

the equation $e = L - L_0$. Record the values of e in the table. **(3marks)**

b) Draw the best-fit straight line of load W (along vertical axis) against the extension e (on horizontal axis). **(11 marks)**

c) Calculate the gradient K (spring constant) of the graph and interpret the obtained result. **(2 marks)**

d) From the graph, state the Hooke's law. **(2 marks)**

e) Provide any two real life applications of the Hooke's law. **(2 marks)**

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