EXAMINATION NO: ……

ST KELMON PRIVATE SECONDARY SCHOOL

2024 MSCE MOCK EXAMINATION

PHYSICS PII

(Marks) Subject Number: M164/II

Tuesday, 26th March **Time allowed: 2 Hours**

Instructions

1. **This paper contains 7 pages. Please check.**
2. This paper has **one** sections
3. Answer all questions in the spaces provided
4. Write your **examination numbe**r on all pages.
5. At the end of the examination, hand in your paper to the invigilator.

Question number	Tick if answered	Do not write on these columns
1		
2		
3		
4		
	Total	

Turnover

1. Describe an experiment to investigate the relationship between upthrust and the weight of water displaced

_____ (10 marks)

2. With a well labelled diagram describe an experiment of making magnet by electrical induction.

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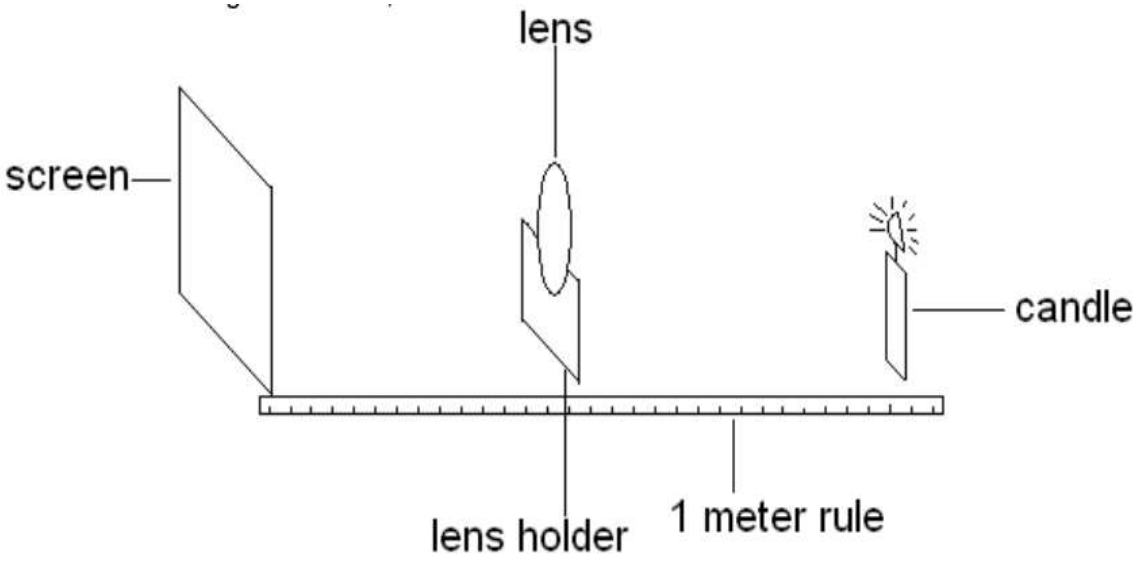
_____ (10 marks)

3. you are provide with a candle, a match box, lens holder, convex lens white screen and a ruler

(a) Arrange the candle, convex lens and screen as shown in **figure**



(b) Light the candle

(c) With the candle at 20cm from the lens, produce a well focuses image of the flame on the screen

(d) Measure and record the image distance in the table of results (table1)

(e) Repeat steps(c) and (d) for the object distance

Object distance (u)	Image distance (v)	U +V
20		
30		
40		
50		

(4 marks

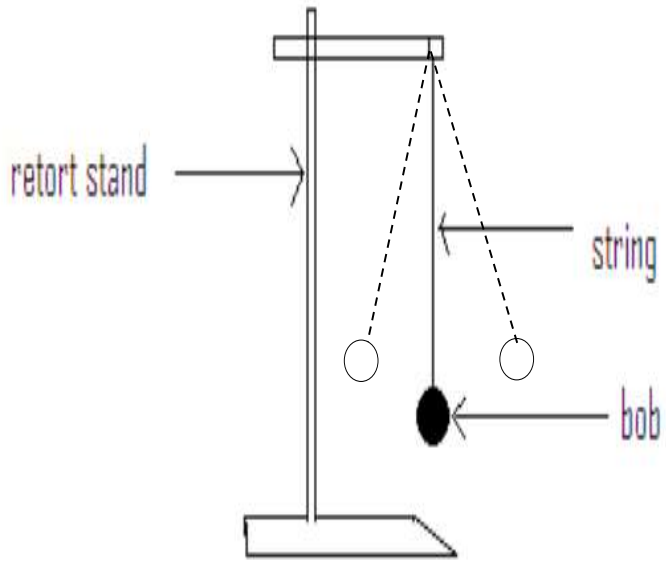
(f) Plot a graph of u+v a gainst u (4 marks)

(g) From the graph, write down the coordinates of the minimum point (1 mark)

(h) Using the coordinates of minimum point ,find the focal length of the lens (1 mark)

4. You are provided with stopwatch, pendulum, table and stand and clamp, determine acceleration due to gravity using a simple pendulum

(a) Assemble the apparatus as shown below in **figure**



(b) Displace the pendulum through a small angle less than 10 degrees and release it

(c) Using a stopwatch to time 20 oscillations of the pendulum, repeat the experiment a second time and calculate the average time for 20 oscillations. repeat the process for at least six different lengths. record your results in table

Length(m)	Time for 20 oscillation trial1 and trial 2	Average time t for 20 oscillations t= t1+t2/2	Periodic time T=t/20	T square
0.20				
0.30				
0.40				
0.50				
0.60				
0.70				

(d) Draw a graph of T square against L

(e) Draw the lines of best fit through the points, determine the gradient m of the line

(f) Derive the formula of finding the acceleration from the experiment (10 marks)