

GBHS YAOUNDE MOCK EXAMINATION

MARCH 2021

ADVANCED LEVEL

Subject Title	PHYSICS
Paper No .	Paper 3
Subject Code	780

Time allowed: Two hours

INSTRUCTIONS TO CANDIDATES

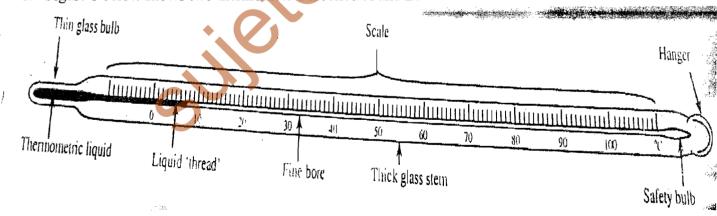
Do not write in pencil except for diagrams and graphs, ***

If you have difficulty understanding the requirements of the questions, or other problems you should ask the supervisor for advice.

You are advised to spend 1hr 20minutes in the MAINSTREAM and 40 minutes in section STATIONS.

The approximate mark distribution is as follows:		
Diagram, precautions and presentation		6marks
Observations		20marks
Graph (s)	. •	6marks
Calculations		8marks
Stations (4)		40 marks
SBA		20 marks

1. Figure 1 below shows two thermometers labelled A and B.



b)	Wh	at is the ac	ccuracy of	A?					V		
c)	Wr	ite down tl	he reading	of A.							
d)	Wh	at is the pr	recision of	f thermomete	er B?						_
e)	Wr	ite down th	he reading	of thermom	eter B?						
				MAII	NSTRE <i>A</i>	M	•			(5marks)	
			<i>N</i>				r				١.
3.	Witt mar of tl Pass one. Pass whe	h one end on k a loop at he longer st s one end of s each end of the longe with a per	arked wood of a short st the other e cring. If the longer of the wood or string is l indulum bot	den bar horizon ing tied firm also restring through the bar to through that on its own banging from	ontally on ly on the make loo gh the loo ough one la it forms it midpo	the stand. pendulum to p at each er p of the sho loop so that a point as show	orter	em is about	90 cm.	e d	В.
6	d =					10				(1 mark)	
7. 8. 9.	1 = Mea Pull Rele Dete Vary	asure the an the pendul ease the bob ermine the p	gle θ um slightly o. period (Τ) ce AB bety	of it oscillation	so that th	$\chi = $ e plane of t	he V mal		angle of abo	(1 mark) ut 8° with vertical	
• • •	resu	Its on the d			S			(20 rna	.rks)		
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						}					
	c) d) e) 1. 2. 3. 4. 5. 6. 7. 8. 9.	c) Wr d) Wh e) Wr 1. Cla 2. With mar of th 3. Pass one 4. Pass whe V 5. Adj d = 6. Mea 1 = 7. Mea 8. Pull Rele 9. Dete 10. Var	c) Write down to d) What is the pro- e) Write down to 1. Clamp an unm 2. With one end of mark a loop at of the longer st 3. Pass one end of one. 4. Pass each end of when the longer of	 c) Write down the reading d) What is the precision of e) Write down the reading 1. Clamp an unmarked wood 2. With one end of a short st mark a loop at the other e of the longer string. 3. Pass one end of the longer one. 4. Pass each end of the wood when the longer string is law. "V", with a pendulum bot 5. Adjust the position of the d = 6. Measure the distance 1 and 1 = 7. Measure the angle θ 8. Pull the pendulum slightly Release the bob. 9. Determine the period (T) 10. Vary the distance AB between the data table between the data tab	 c) Write down the reading of A. d) What is the precision of thermometers e) Write down the reading of thermometers SECT MARKS) (80 ft) 1. Clamp an unmarked wooden bar horized 2. With one end of a short string tied firm mark a loop at the other end of it. also of the longer string. 3. Pass one end of the longer string throughone. 4. Pass each end of the wooden bar to throwhen the longer string is left on its own "V", with a pendulum bob hanging from the loops AB = d d = 6. Measure the distance 1 and χ from the 1 measure the angle θ 8. Pull the pendulum slightly towards you Release the bob. 9. Determine the period (T) of it oscillation. 10. Vary the distance AB between the loop results on the data table below 	c) Write down the reading of A. d) What is the precision of thermometer B? e) Write down the reading of thermometer B? MAINSTREA SECTION ONE MARKS) (80 MINUTE) 1. Clamp an unmarked wooden bar horizontally on 2. With one end of a short string tied firmly on the mark a loop at the other end of it. also make loop of the longer string. 3. Pass one end of the longer string through the loop one. 4. Pass each end of the wooden bar to through one when the longer string is left on its own it forms "V", with a pendulum bob hanging from it midped. 5. Adjust the position of the loops AB = d until the d = 6. Measure the distance 1 and \chi from the centre of 1 = \chi 7. Measure the angle \theta 8. Pull the pendulum slightly towards you so that the Release the bob. 9. Determine the period (T) of it oscillations 10. Vary the distance AB between the loop by moving	 c) Write down the reading of A. d) What is the precision of thermometer B? e) Write down the reading of thermometer B? MAINSTREAM SECTION ONE: (40 MARKS) (80 MINUTES) 1. Clamp an unmarked wooden bar horizontally on the stand. 2. With one end of a short string tied firmly on the pendulum be mark a loop at the other end of it. also make loop at each end of the longer string. 3. Pass one end of the longer string through the loop of the shoone. 4. Pass each end of the wooden bar to through one loop so that when the longer string is left on its own it forms a "V", with a pendulum bob hanging from it midpoint as shown the loops AB = d until the distance be d =	 c) Write down the reading of A. d) What is the precision of thermometer B? e) Write down the reading of thermometer B? MAINSTREAM SECTION ONE: (40 MARKS) (80 MINUTES) 1. Clamp an unmarked wooden bar horizontally on the stand. 2. With one end of a short string tied firmly on the pendulum bob, mark a loop at the other end of it. also make loop at each end of the longer string. 3. Pass one end of the longer string through the loop of the shorter one. 4. 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MAINSTREAM SECTION ONE: (40 MARKS) (80 MINUTES) 1. Clamp an unmarked wooden bar horizontally on the stand. 2. With one end of a short string tied firmly on the pendulum bob, mark a loop at the other end of it. also make loop at each end of the longer string. 3. Pass one end of the longer string through the loop of the shorter one. 4. Pass each end of the wooden bar to through one loop so that when the longer string is left on its own it forms a "V", with a pendulum bob hanging from it midpoint as shown. 5. Adjust the position of the loops AB = d until the distance between them is about 90 cm. d = (1 mark) 6. Measure the distance 1 and \(\chi \) from the centre of mass of the bob \[\begin{array} \text{V} = \text{V} & (2 marks) \text{Release the bob.} \end{array} 7. Measure the angle \(\theta \) (1 mark) 8. Pull the pendulum slightly towards you so that the plane of the V makes a small angle of about 8° with vertical Release the bob. 9. Determine the period (T) of N oscillations 10. Vary the distance AB between the loop by moving it appropriately, repeat steps (7) through (9) and record your results on the data table below

II. Plot a graph of $ extbf{T}^2$ as ordinate against $ extbf{LSin} heta$ as abscissa	(5 marks)
12. Determine the slope of the graph (S) of you graph and calculate	$e \delta = \frac{4\pi^2}{S}$
	(4 marks)
13. Obtain the intercept (I)on the T^2 – axis and calculate $K = \frac{1}{5}$	
I	(1 mark) (1 mark)
14. State the physical significance ofδ	(1 mark)
15. Compare your value of K with χ	
	(2 mark)
Diagram of set up	
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SECTION TWO: STATIONS (40 MARKS) (40 MINUTES)

Station 1: Determination of specific heat capacity (10 marks) (10 minutes)

You are provided with 50 cm³ of liquid B, a spring balance, a measuring cylinder, hot water in a plastic cup and a thermometer. Determine the specific heat capacity of liquid B

<u>Diagram</u>

Conclusion	Frocedure			
Conclusion Station 2 : Optics (10 minutes) You are provided with a plane mirror in its holder, a white sheet of paper, a 30 cm ruler, four optical pins and a protractor, investigate the relationship between angle of incidence and angle of reflection of a ray of light incident on a plane mirror. Diagram Procedure				
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Procedure				
Procedure	You are provided with a plane min Investigate the relationship between	ror in its holder, a white sl en angle of incidence and a	heet of paper, a 30 cm ruk angle of reflection of a ray	er, four optical pins and a protractor. of light incident on a plane mirror.
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Observations				
Observations				
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	Observations			
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Conclusion	Conclusion			

Determine th	ne resistivity of the wire.	
	. <u>Diagram</u>	
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Conclusion	• 0	
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Station 4 - Surface tension y (10 marks) (10 minutes)

You are provided with water in a container A, a capillary tube and a 30.0 cm ruler. Insert the capillary tube in the water and

hold it vertically. Measure the height of the liquid in the tube. Determine the radius r of the tube, given that

 $\gamma = \frac{rh\rho g}{2}$, $(\rho = 1000 kgm^{-3} \text{ and } \gamma = 0.07 \text{ Nm}^{-1})$

<u>Diagram</u>

Station three - (10 marks) (10 minutes)

You are provided with a copper wire, a digital multimeter, a ruler and a micrometer screw gauge.

Precautions

Measufrements			
			
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Calculations			
			
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Conclusion			
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Precautions			
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Stop! Go back and check you work!!!!!!