Name: ..... Adm. No.....

Index No..... Class..... Signature.....

232/3
PHYSICS
PRACTICAL
FSK
JULY 2026
TIME: 2 1/2 HRS

FRIENDS SCHOOL KAMUSINGA

Kenya Certificate of Secondary Education
PHYSICS PAPER 3
PRACTICAL

Instruction to Candidates

- Write your name, admission number, class and signature in the spaces provided at the top of this page.
- Answer all the questions in the spaces provided
- You are supposed to spend the first 15 minutes of the 2 1/2 hours allowed for this paper reading the whole paper carefully before you start.
- Marks shall be awarded for clear record of observations actually made, for their suitability and accuracy and the use made of them.
- Candidates are advised to record their observations as soon as they are made.
- Electronic calculators and mathematical tables may be used
- This paper consists of **9 pages.**

FOR EXAMINER'S USE ONLY

Question	Maximum Score	Candidate's Score
1	20	
2 Part A	16	
2 Part B	04	
TOTAL	40	

QUESTION 1

You are provided with the following apparatus

- ✓ Vernier calipers
- ✓ 5 pieces of glass rod
- ✓ 3 Pieces of thread
- ✓ Eureka car
- ✓ 10ml measuring cylinder
- ✓ Stand, boss and clamp
- ✓ Pendulum bob
- ✓ Liquid N in a 250ml beaker
- ✓ A metre rule

Proceed as follow

a. Using a vernier calipers measure the height **H** of the glass rod provided in **SI units.** (1mk)

H = _____

b. **Closely Wind** the piece of thread **ten** times around the glass rod as shown in **figure 1.** Unwind the thread, Measure and record the length **MN** as L_1 in **SI units.** Repeat this procedure **two** more times to obtain L_2 and L_3. Determine ***the average length*** as **L** (2mks)

fig 1

L_1 = _____

L_2 = _____

L_3 = _____

Average Length (**L**) =

i. Using the average length **L**, estimate the radius **R** of the glass (2mks)

ii. Hence estimate the volume **X** of one of the glass rod. (2mks)

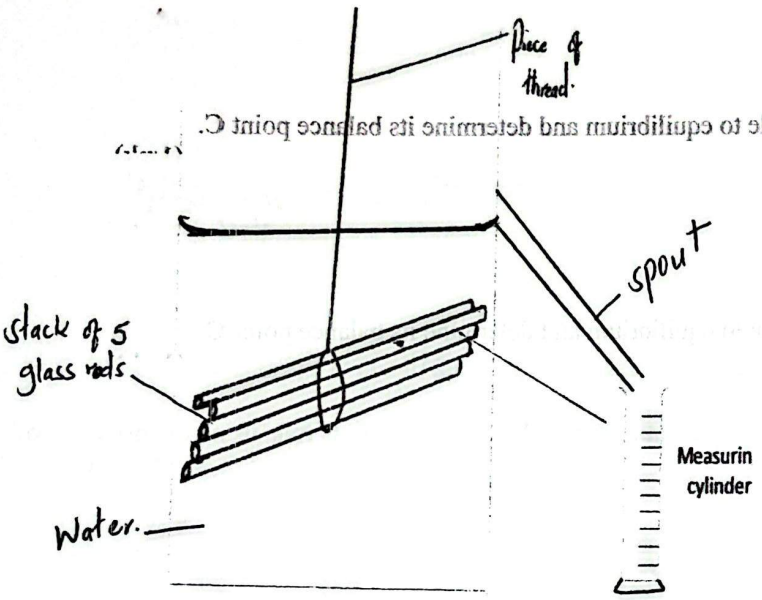
c. Estimate the volume V_A of the five glass rods given that (1mk)

$V_A = 5X$

6

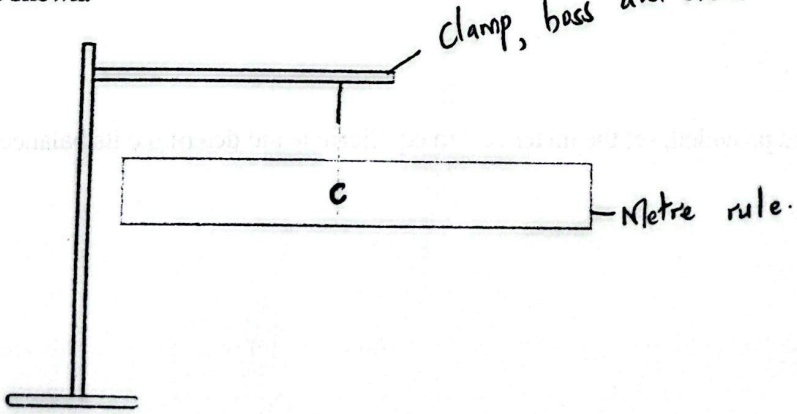
d. Using the 2nd string provided, tie ***all the five glass rods*** provided together. Using the eureka can and measuring cylinder provided, estimate the volume, V_B of the five glass rods. (1mk)

$V_B =$ _____



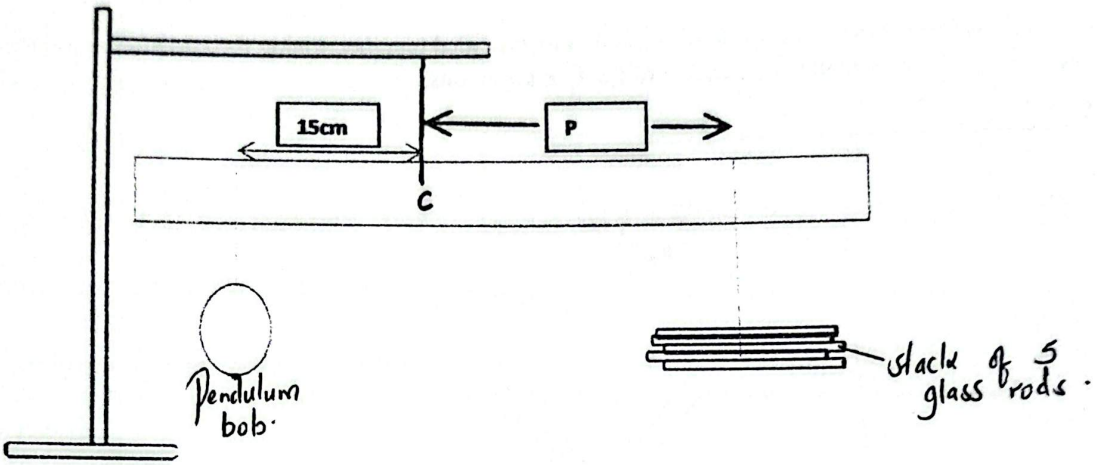
e. Compare the volumes V_A and V_B (1mk)

f. i. Set up the apparatus as shown.



C = _____ M.

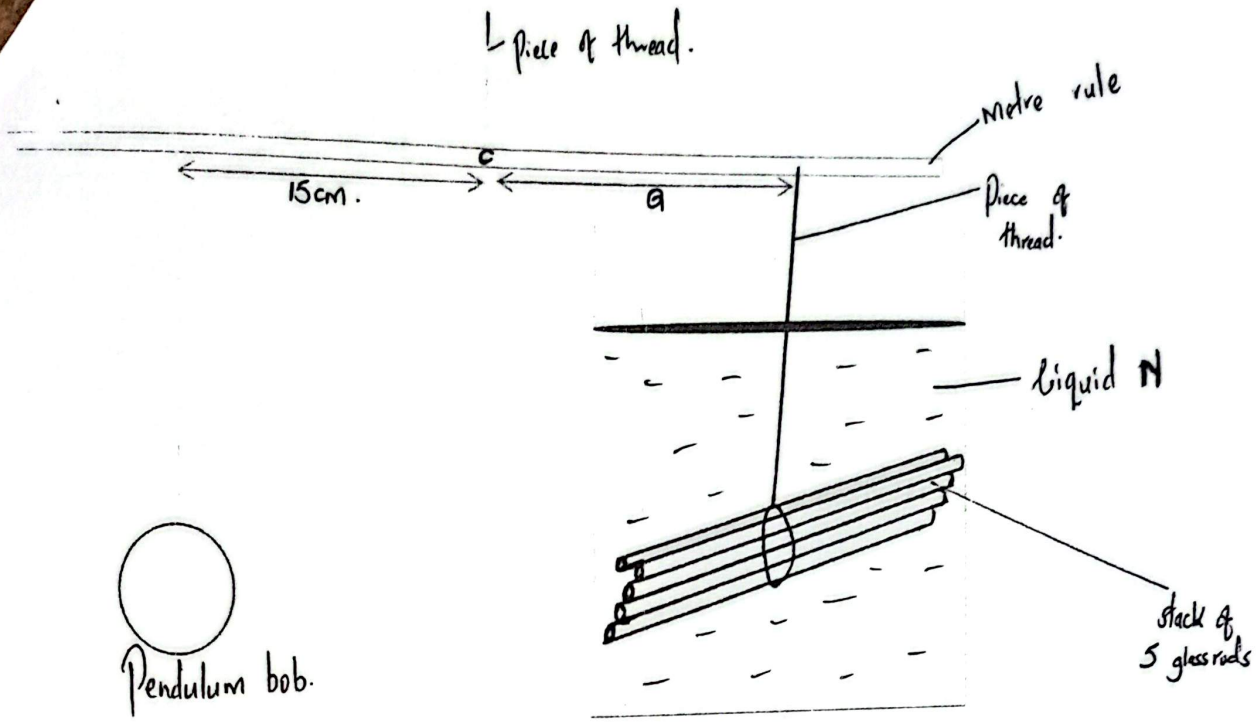
ii. Suspended the pendulum bob provided **15cm** from the balance point **C** and measure the length **P** from the balance point **C** to the line of action of the weight due to **5 glass rods.** (1mk)



P = _____ M

iii. Given that the pendulum bob has a mass of **27g**, determine the weight **W** of the five glass rods using the principle of moments. (2mks)

h. i. ***Without changing the position of the pendulum bob,*** measure the length **Q** when the five glass rods are just completely submerged in liquid **N**



Q = _____ **M** (1mk)

iii. **Determine the upthrust U due to liquid N on the stack of the *5 glass rods*** (2mks)

U= _____

iii. **Determine the density ρ of the glass rod.** (2mks)

iv. **Determine the relative density of the liquid.** (1mk)

QUESTION 2

PART A (16 MARKS)

You are provided with the following

A micrometer screw gauge (to be Shared)

A voltmeter (0 – 3 or 0 -5 v)

Ammeter (0 -1A)

Nichrome wire mounted on a mm scale, **AB**.

A switch.

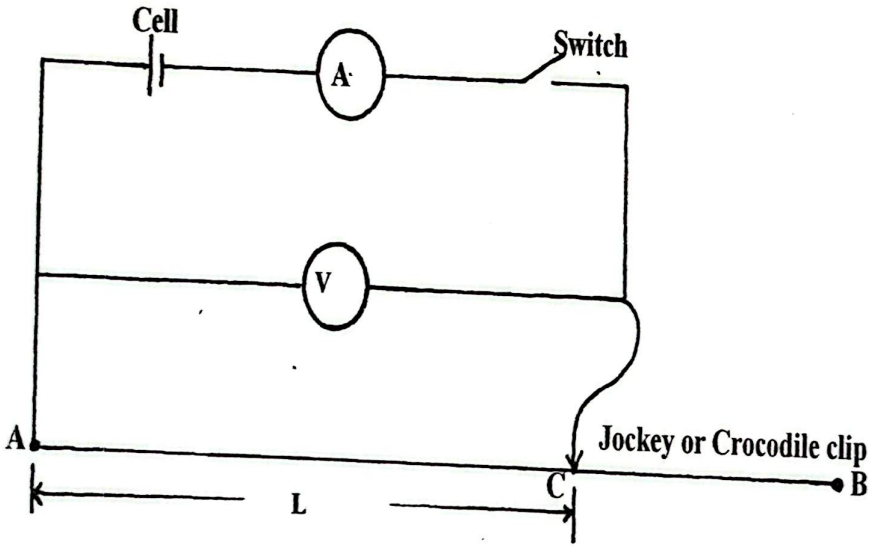
A jockey / long wire with crocodile clip attached.

One dry cell.

8 new connecting wires with clips attached to one end.

Proceed as follows

a) Set up the circuit below. Ensure that when the switch is open, both meters read zero. ***Keep the switch open when readings are not being taken.***



i) Measure and record the diameter **d** of the nichrome wire **AB** Using the micrometer screw gauge.

d = ...m (½ mk)

ii) Disconnect the jockey from wire **AB** and close the switch. Record the value **E** of the voltmeter reading.

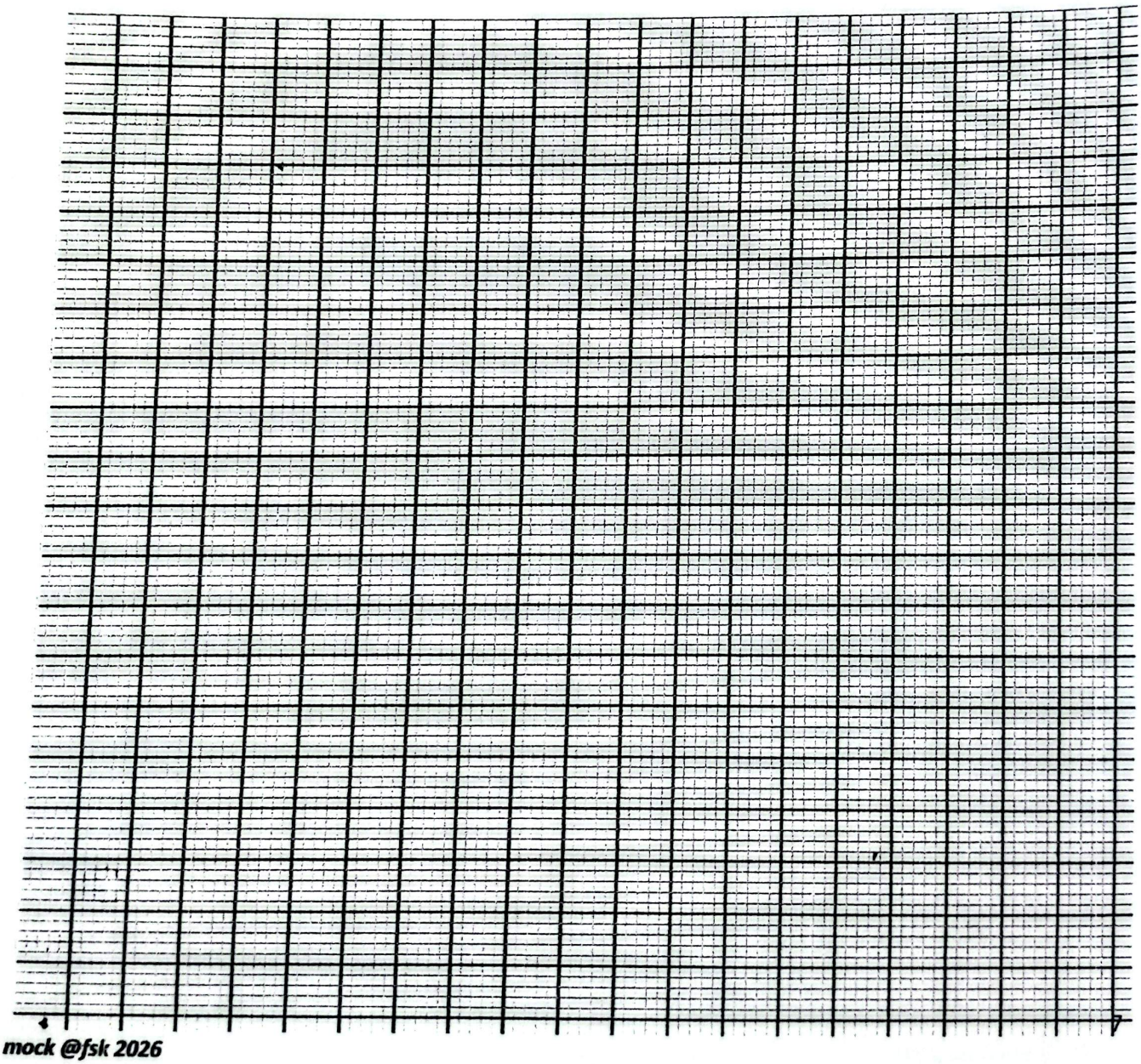
E = ... (½ mks)

b) Now, connect the Jockey on **AB** at a distance **L = 2.5 cm**. Close the switch and record the voltmeter and ammeter readings, **V** and **I** respectively in the table below. (5mks)

L (cm)	2.5	5.0	7.5	10	15	18	20	30	40	50
P.d V (Volts)										
Current, I (A)										
IV (watts)										

i) **Complete the table for values of IV.**

ii) **Plot a graph of IV (Vertical axis) against L.** (5mks)



iii) Using your graph, Find the value L_0 where your graph cuts, the horizontal axis.

L_0 =.....m (1mk)

C) i) Now, place the jockey on wire **AB** such that length **L** is equal to the value of L_0 Obtained in part (iii) above. Close the switch and record both the voltmeter reading, **V** and the ammeter reading **I**.

V = ... (½ mk)

I = ... (½ mk)

ii) Work out the value **r** where:

$$r = \frac{(E-V)}{I}$$

(1mk)

d) Work out the value of **e** where

$$e = \frac{\pi r d^2}{4L_0}$$

(2mks)

PART B

You are provided with:-

A Meter rule

A convex lens

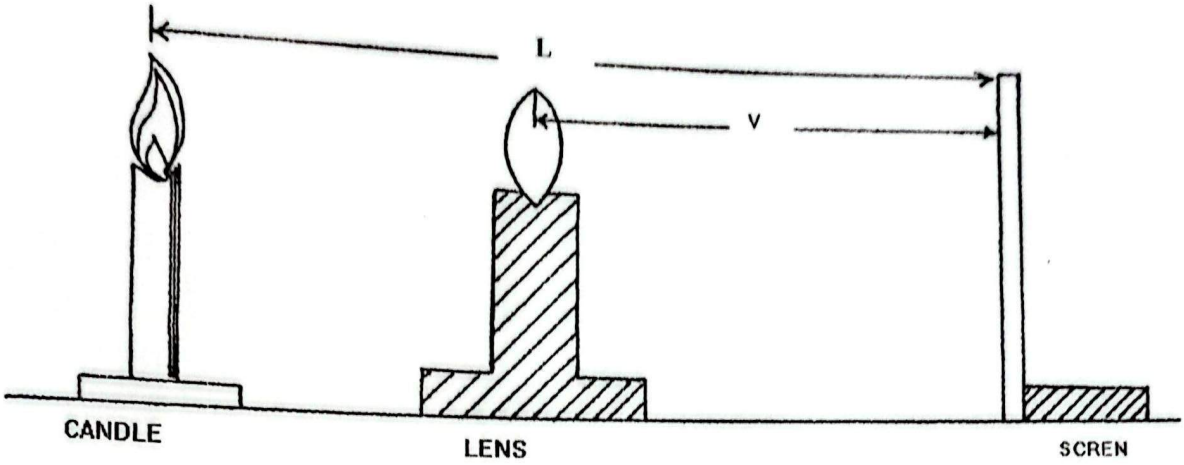
A lens holder

A candle

A white screen.

...ceed as follows:-

a) Set up your apparatus as shown below:



b) Place the candle at a distance **L = 80** cm from the screen,
Move the lens Away from the candle until a sharp image of the candle is seen on the screen.
Measure the distance V_1 between the screen and the lens
V_1 = ... (1mk)

c) Repeat steps (a) and b) above but this time, move the lens towards the candle until a large diminished image is formed. Measure the distance V_2 between the screen and the lens.
V_2 = ... (1mk)

d) i) Determine the focal length **f** of the lens from: (2mks)

$$f = \frac{L^2 - (V_2 - V_1)^2}{4L}$$