NAME…….……..…ADMNO…….CLASS……

END TERM EXAMS-2019

PHYSICS PAPER 3 PRACTICAL FORM -3 TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

1. You are provided with the following apparatus:
   - ✓ A metre rule
   - ✓ A 250 ml plastic beaker
   - ✓ 4 pieces of cotton thread each 30cm long
   - ✓ A piece of cellotape
   - ✓ 100ml measuring cylinder
   - ✓ Complete stand
   - ✓ A 50g mass
   - ✓ Water in a beaker

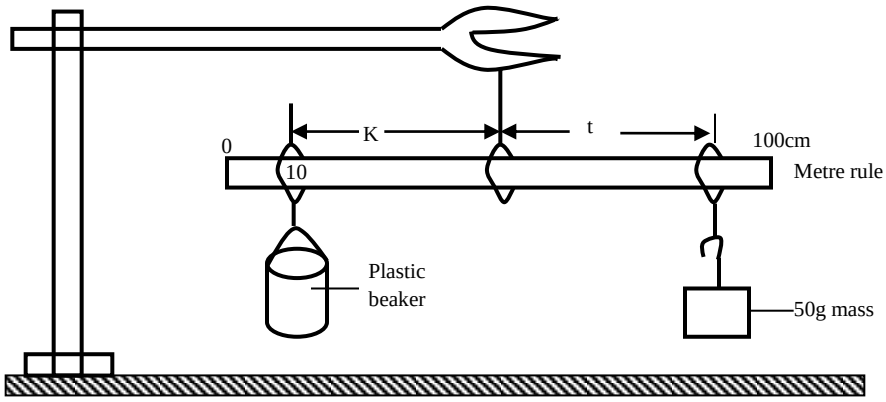
Proceed

(a) Suspend the metre rule using the thread and ensure it balances horizontally (the point of balance should remain unchanged throughout the experiment.

(b) Suspend the empty plastic beaker at the 10cm mark and hang the 50g mass on the other side of the metre rule.

- Move the 50g mass along the metre rule until the set-up balances horizontally as shown in the figure below.

Figure 1



(c) - Record the distances K and t (1 mark)

K _____cm

T _____ cm

(Use the cellotape to fix the position of 50g mass)

- The 50g mass should remain at this position throughout the experiment.

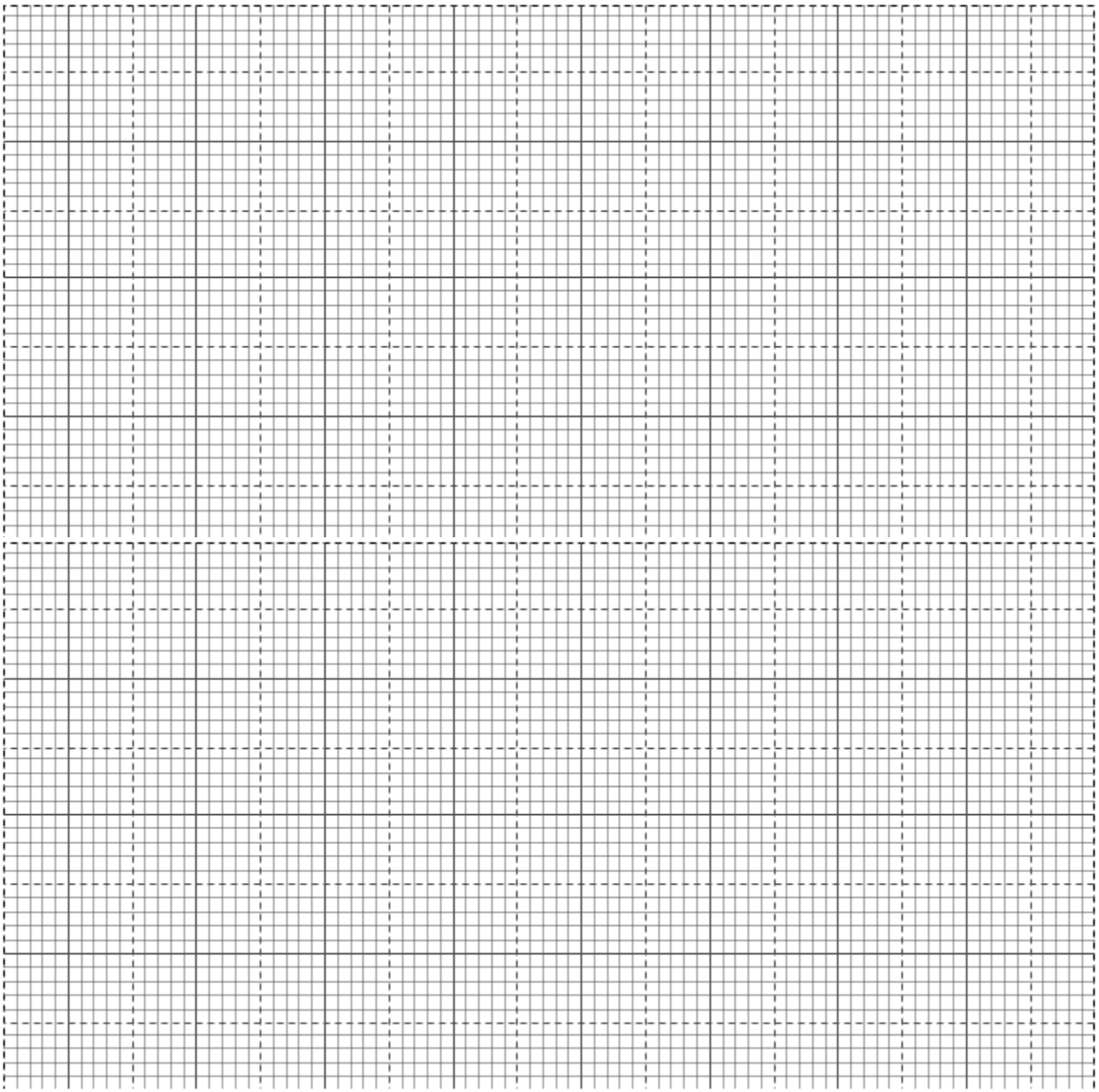
(d) Using the measuring cylinder, measure $20cm^3$ of water and pour it into the pastic beaker. Adjust the position of the beaker until the metre rule balances horizontally again. Record the distance K in table 1 below.

(e)Repeat the procedure (d) above for the other value of V shown. (6 Marks)

Table 1

Volume, V (cm^3)	0	20	40	60	80	100	120
Distance, K, (cm)							
$\frac{1}{k}$ (cm^{-1})							

(f) Plot a graph of volume, V (y – axis) against $\frac{1}{k}$ (5 Marks)



(g) Determine the slope, S, of the graph. (2 Marks)

(h) Given that V = 1000 $\left(\frac{50t}{dk}\right)$ - $\frac{1000m}{d}$

Use your graph to determine the values of

(i) d = (3 marks)

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……

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(ii) m = (3 marks)

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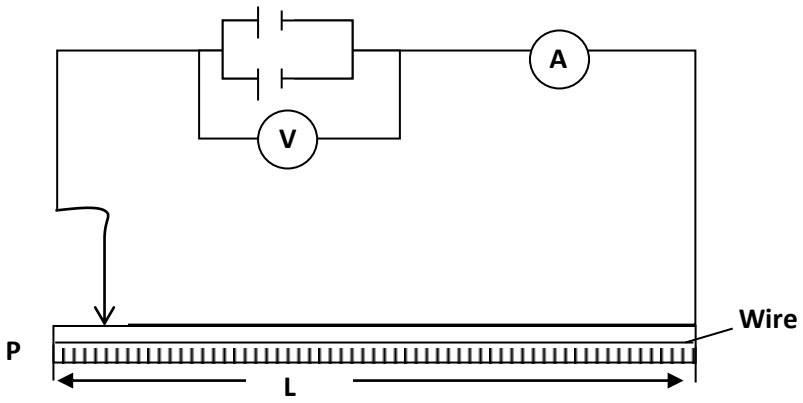
QUESTION 2

a) You require;

- Two dry cells (size D)
- A two cell holder
- A voltmeter
- An ammeter
- Mounted resistance wire on a mm scale
- 7 connecting wires (3 with crocodile clops)
- Vernier calipers (to be shared among five students

Proceed as follows

i) Set the circuit as shown in figure below



ii) With the crocodile clip at P (i.e. L= 100cm) take the voltmeter reading V and the ammeter reading I. Repeat the procedure for values of L=90, 70, 50, 40 and 20cm respectively Record your reading in table below

L (cm)	L(m)	V	I	V/I
100				
90				
70				
50				
40				
20				

iii) a) With the same apparatus design a circuit to determine the e.m.f of the two cells (1mk)

b) Measure the e.m.f of the cells _____ (volts) (1mk)

iv) Plot a graph V/I (ohms) against L (metres)

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v) Calculate the slope S of the graph (3mks)

vi) Measure the diameter d of the mounted resistance wire (1mk)

d= ……mm=……..metres

vii) Given that $S = \pi d^2 /4h$. Calculate the value of h (2mks)