PHYSICS PRACTICAL

SS1

1. MEASUREMENT

APPARATUS: Micrometer screw gauge, a coin, a piece of small wire, pendulum bob

METHODS: Use the micrometer screw gauge to measure in cm the thickness of the coin (t), the diameter of the wire (d) and the diameter of the pendulum bob (D). Repeat all your measurement and records your readings as shown below:

READINGS

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1st (cm) | 2nd (cm) | 3rd (cm) |
| Thickness of coin, t |  |  |  |
| Diameter of wire, d |  |  |  |
| Diameter of the bob, D |  |  |  |

QUESTIONS:

1. What is the volume of the bob in cm³?
2. Has the screw gauge any errors? If so, write the value. State how you took care of it in your reading.
3. RELATIVE DENSITY OF SOLID AND LIQUID

APPARATUS: Iron weight, spring balance, water, liquid (Kerosene), beaker and thread

DIAGRAM:

METHOD:

Suspend the iron weight from te hook of a spring balance and determine its weight in air, W. Suspend the weight fully immersed in water and then in the liquid provided and record the weights W₁ and W₂ respectively. Record your results

READING:

W₂ =

W₁ =

W =

QUESTIONS:

1. What is the reading accuracy of the spring balance
2. Calculate R =
3. Calculate R₁ =
4. What do the values of R and R₁ stand for and what are their units

SS2

APPLICATION OF PRINCIPLE OF MOMENTS

APPARATUS:

Metre rule, weight of masses = 20, 30, 40, 50 and 60g. A constant weight labelled M, knife edge, thread.

DIAGRAM

METHODS:

Suspend a metre rule on a knife edge. Adjust the metre rule carefully until it settle horizontally. Read and record the point of balance G of the metre rule. Keep the knife edge at the point G throughout the experiment. Suspend the object labelled M at the 20cm mark of the rule. On the other side of G suspend mass m = 20g and adjust its position until the rule settles horizontally. Read off the position P of the mass m on the metre rule. Record the distance y between G and P. Also record the value of m. Repeat the procedure, keeping mass M at 20cm throughout the experiment and using m = 30, 40, 50 and 60g on the other side of G.

RESULT:

Tabulate your readings as shown below:

Balance point, G = ………………………

Value of M = ……………………………….

Value of x = …………………………………..

|  |  |  |
| --- | --- | --- |
| M (g) | y (cm) | 1/y (cm⁻¹) |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

QUESTION:

1. i. Plot a graph of m against 1/y

(ii) Determine the slope, s of the graph

(iii) Evaluate s/x

(iv) State two precautions taken to obtain accurate results

(v) What does G represent in the experiment?

(vi) A metre rule is balance on a knife edge at its center of gravity G. A mass of 40g is placed at a distance 30cm from G and another mass Xg placed at 10cm from G on the other side kept the rule in equilibrium. What is the value of x?

SS3

DIAGRAM:

Connect the circuit as shown in the diagram above. PQ is a potentiometer wire 100cm long and R is a standard resistor of 5Ω

(ii) With the jockey J not making contact reading l, open the switch

(iii) Use the jockey to make contact with PQ at the 20cm mark such that PJ = l = 20cm. close the switch, read and record the value of i, of the ammeter. Evaluate i⁻¹.

(iv) Repeat the procedure for other values of l = 35,50,65 and 80cm. in each case determine the corresponding values of i and i⁻¹. Tabulate your readings

(v) Plot a graph of i⁻¹ against l

((vi) State two precaution taken to ensure accurate result.

B(i) State 3 advantages of a potentiometer over a voltmeter

(ii) Define the e.m.f of a battery (iii) A cell of e.m.f X 1v is balanced by a length of 40cm on a potentiometer wire. Another cell Y is balanced by a length of 60cm on the same wire. Calculate the e.m.f of Y