PHYSICS PRACTICAL MARKING GUIDE

Solution to question 1

PART (A)

B=19.0^{O}

K=Sin30^{0}/Sin19^{0}

K=1.52

Refractive index

PART (B)

v=12.27cm^{3}

Measure the diameter of the cylindrical mass

Measure the height of the mass

Apply formula v=πr^{2}h

(b) G= 49.5cm mark

(ii) y = 45mm

x cm	5	10	15	20	25	30
y cm	4.5	8.5	13	17.3	21.5	25.8

1. graph is a straight line

   Labeling axis 1mk

   Appropriate scale 1mk
   Plotting4-6pts 2mks
   Plotting 2-3pts. 1mk
   Straightline 1mk

(d)$\frac{22.4- 4.5}{26-5}$

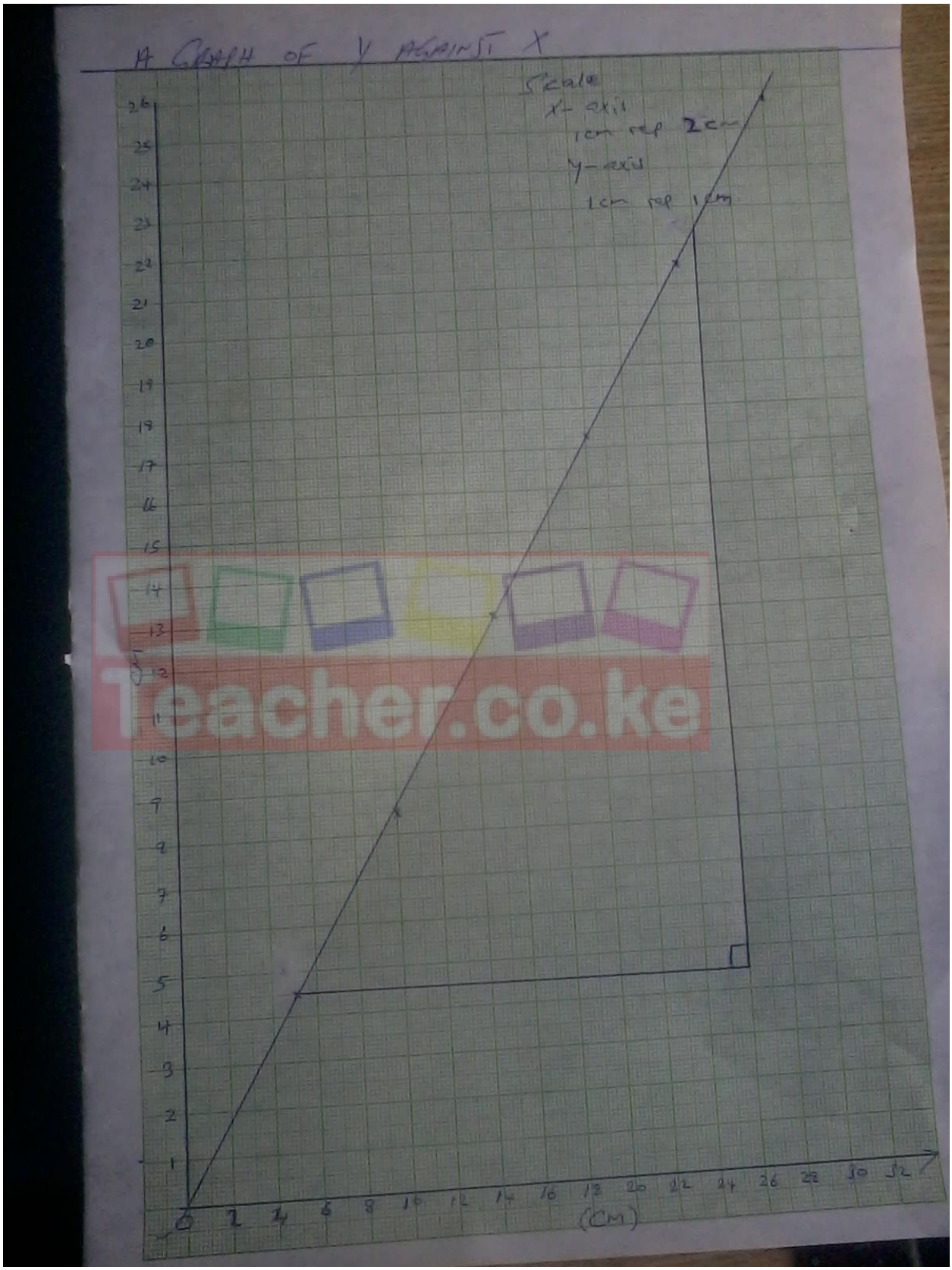
(d) Slope=0.852

(e) F= 0.852× 100
= 8.52g
upthrust is equal to the apparent loss in weight
=100-8.52
=0.9148N

(f) Density= mass of liquid displaced
Volume displaced

=$\frac{91.48}{12.27}$

= 7.456g/cm^3



QUESTION TWO: PART A

(a) V_0= **2.2+ or -0.2**V (1/2mk)

I_0=**1.7+ or -0.2**A (1/2mk)

Hence calculate R given by $R_0 = \frac{V_0}{I_0}$

$= \frac{2.2}{1.7}$ (1/2mk)

=12.94Ω (1/2mk)

TABLE OF RESULTS. 2.0

V (volts)	1.0	1.2	1.4	1.6	1.8	1.9	
I(A)	0.35	0.31	0.28	0.24	0.20	0.18	**+ or -0.05A** 1/2mk x6
R = V/I (Ohms)	2.857	3.871	5	6.667	9	10.56	5/6—1mk 3/4--1/2mk 0/2 0mk
1/I (A^{-1})	2.857	3.226	3.571	4.167	5	5.556	5/6—1mk 3/4--1/2mk 0/2 0mk

d)graph of $\frac{1}{I}$ (A^{-1}) against **R** (Ohms). (5mks)

AXES/UNITS…….1mk
SCALE……1mk
PLOTTING…….1/2x4=2mks
LINE-Must has a positive slope….1mk

e) Determine the slope of the graph. (2mks)

Students values—NB..NO LINE NO SLOPE

f) From the graph determine the e.m.f (E) of the battery, given that E=V+Ir.

EXPRESSING $1/E = \frac{1}{E}R + r/E$ (1/2mk)

Implying Slope=1/E (1/2mk)

E.M.F=2.928V (1/2mk

ACCURACY 2.8-3.2V (1/2mk)

g) From the graph determine the value of r. (1mk)

EXPRESSION

r/E=y intercept..(1/2mk)

Student answer…(1/2mk)

PART B

(i) Using the micrometer screw gauge, measure the diameter of the resistor wire AB.

d= 0.30 + or -0.05mm 2dp A MUST 1/2mk

Radius= 0.0030 m 1/2mk

(ii)Determine the value of α, given by

$\alpha = \frac{AR_0}{L}$-where A is cross-sectional area of the resistor wire AB in m^2

And L is the length of the wire AB=1m.

ACCURACY $0.8 - 1.2 \times 10^{-6}\Omega m$(1/2mk)