

NAME:

MEASUREMENTS 1

1.

- (a) (i) 20 (cm³)
- (ii) 25 (cm³) \pm 0.5) both B1 [1]
- (b) 5 (cm³) e.c.f. B1 [1]
- (c) 5/200 e.c.f. C1
- 0.025 (cm³) e.c.f. A1 [2]
- [Total: 4]

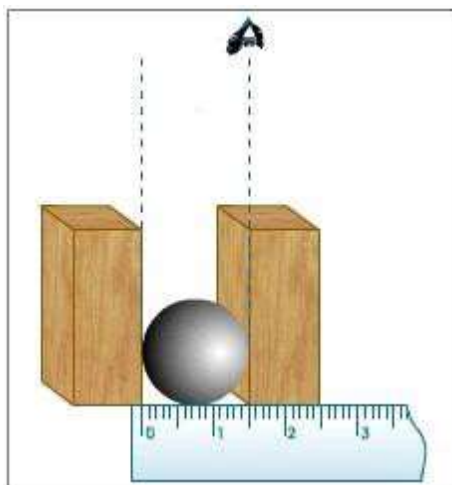
2.

- | | | |
|---------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| (a) (i) | point plotted for (150, 1.5)
to \pm half a small square | 1 |
| (ii) | line of best fit | 1 |
| | <i>the anomalous point should be avoided
the line need not be drawn through the origin</i> | |
| (b) | point at (300, 3.8) circled | 1 |
| | <i>accept this result circled in the table</i> | |
| (c) (i) | a number from 640 to 660 | 1 |
| (ii) | a number from 0.4 to 0.6 | 1 |
| | <i>consequential marking applies to both c i and c ii
accept answers consistent with the graph drawn</i> | |
| (d) | any one from | 1 |
| | <i>the answer must refer to the results or the pattern shown by the results</i> | |
| · | the pattern is revealed or observed more easily | <i>accept 'it allows you to see a pattern'</i> |
| · | it tells you the pattern without working it out | <i>accept 'you can tell the rule by looking at it'</i> |
| · | it gives readings between the recorded readings | <i>accept 'it is easier to make predictions'</i> |
| · | you can see if there are results <i>more</i> that are wrong or do not fit the pattern | <i>accept 'it shows better or more quickly the mass the more weight'</i> |
| | <i>accept 'the data is continuous'</i> | |

precise'

[6]

3. Place the sphere or the cylinder between two blocks in contact with a ruler as shown in figure below



Read the distance between the two blocks on the ruler accurately. (The line of sight should be vertical.) [1m]

[Total 2m]

4. (a) 200,000 (m³) B1
 (b) $D = M/V$ in any form B1
 his (a) $\times 1.3$ C1
 260,000 c.a.o. A1
 kg B1
 (c) decreases M1
 air expands OR density decreases A1
 (d) hot air rises B1

[Total: 8]

5. (i) Volume of copper = $360/9 = 40\text{cm}^3$ [1m]
 (ii) Volume of iron = $80/8 = 10\text{cm}^3$ [1m]
 (iii) Density of the alloy = $(360 + 80)/(40 + 10) = 8.8\text{gcm}^{-3}$

[Total 3m]

6. (a) (i) 50, 75/76 [1]
 (ii) 25 (ecf) [1]
 cm³ (at least once and not contradicted) [1]
 (iii) density 4.36 (ecf) [1]

(b) V2, V1 [1]
cm3(at least once and not contradicted) [1]

density g/cm^3 [1]
 5.68, 3.02 both to 2/3 sf [1]
 (c) Same method, lots of grains [1]

[Total: 9m]

7.

Total volume = 2.0 m^3

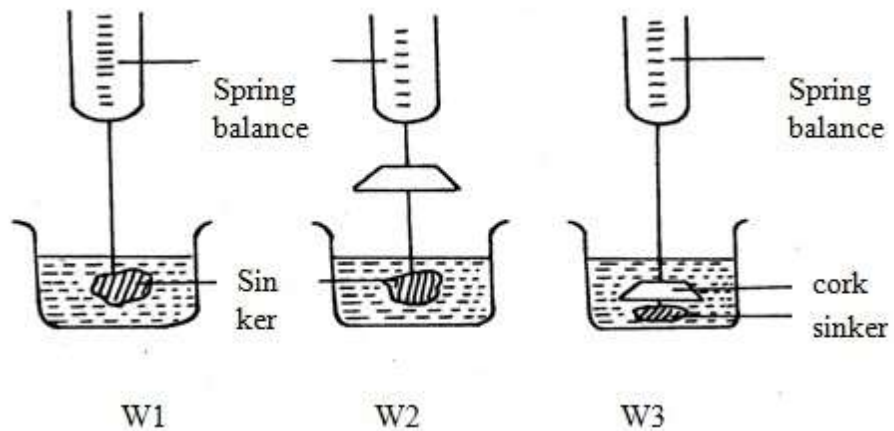
Total mass = $[0.5 \times 800] + [1.5 \times 1000] = 1900\text{kg}$ [1m]

$D = m/v = 1900/2$ [1m]

950 kg m^{-3} [1m]

8.

- a)
- Weigh sinker in water = w_1 ü 1
 - Weigh sinker in water + cork in air = w_2 ü 1
 - Weigh the sinker and cork in water = w_3 ü 1
- Up thrust on cork = $w_2 - w_3$ ü 1
- Weight of cork in air = $w_2 - w_1$
- Relative density of cork = $\frac{w_2 - w_1}{w_2 - w_3}$ ü 1



- b)
- Volume of liquid displaced = $80\text{cm}^3 = 8.0 \times 10^{-5} \text{ m}^3$ ü 1
 - Weight of liquid displaced = $8.0 \times 10^{-5} \times 1200 \times 10 = 0.96 \text{ N}$ ü 1
 - Up thrust = weight of the liquid displaced
 - Weight when fully submerged = $(3.80 - 0.96) \text{ N}$ ü 1
 - = 2.84 N ü 1