MEAUREMENTS 1

1.
     (a) (i) 20 (cm3))
         (ii) 25 (cm3)±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 ± half a small square		1
	(ii)	line of best fit	*the anomalous point should be avoided the line need not be drawn through the origin*	1
(b)		point at (300, 3.8) circled	*accept this result circled in the table*	1
(c)	(i)	a number from 640 to 660	1	
	(ii)	a number from 0.4 to 0.6	*consequential marking applies to both **c i** and **c ii** accept answers consistent with the graph drawn*	1
(d)		any **one** from	*the answer must refer to the results or the pattern shown by the results*	1
		· the pattern is revealed **or** observed more easily	*accept 'it allows you to see a pattern'*	
		· it tells you the pattern without working it out	*accept 'you can tell the rule by looking at it'*	
		· it gives readings between the recorded readings	*accept 'it is easier to make predictions'*	
		· you can see if there are results more that are wrong **or** do not fit the pattern	*accept 'it shows better **or** more quickly the mass the more weight'* *accept 'the data is continuous'* *do **not** accept 'it is more accurate or*	

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3.

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

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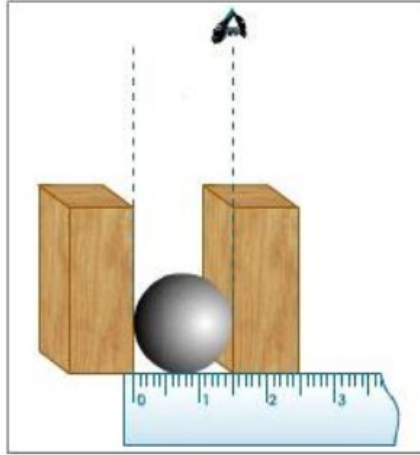
Read the distance between the two blocks on the ruler accurately. (The line of sight should be vertical.) [1m]

[Total 2m]

4.

(a) 200,000 (m^3) B1
(b) D = M/V in any form B1
his (a) x 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 =40cm^3 [1m]

(ii) Volume of iron= 80/8 = 10cm^3 [1m]

(iii) Density of the alloy = (360 + 80)/(40 + 10) = 8.8gcm^{-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]

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density g/cm3 [1]
5.68, 3.02 both to 2/3 sf [1]
(c) Same method, lots of grains [1]
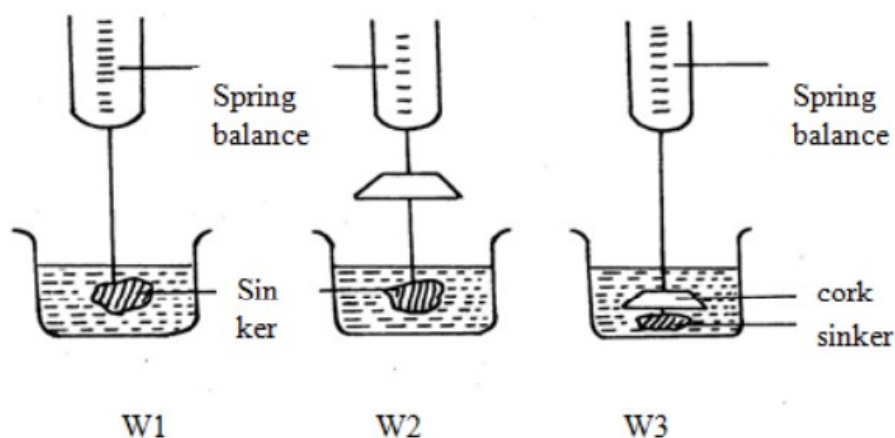
7.

Total volume = 2.0 m^3

Total mass = [0.5 x 800] +[1.5 x 1000] = 1900kg [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_3ü 1
          Up thrust on cork   = $w_2 - w_3$ ü 1
          Weight of cork in air = $w_2 - w_1$
       Relative density of cork = $w_2 - w_1$
                       $w_2 - w_3$ ü 1

W1   W2   W3

b) Volume of liquid displaced = 80cm^3 = 8.0 x 10 m^{3}ü 1
      Weight of liquid displaced = 8.0 10^{-5} x 1200 x10 =0.96 Nü 1
      Up thrust = weight of the liquid displaced
       Weight when fully = (3.80 -0.96)Nü 1
        submerged
          = 2.84 Nü 1

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