

Mark schemes

Q1.

- (a) random error
1
- (b) thin string would affect the volume measurement less (than thick string)
allow thin string would displace less water (than thick string)
ignore absorption of water by string
1
- (c) the measuring cylinder could not be used to measure to 2 dp
or
the resolution of the measuring cylinder is 0.2 cm^3
allow the resolution is 0.1 cm^3
ignore the resolution is too low
1
- (d) subtract 0.02 g from the measured value
ignore zero the balance
1
- (e) $0.44 \text{ cm}^3 = 4.4 \times 10^{-7} \text{ m}^3$
1
- $21\,500 = \frac{m}{4.4 \times 10^{-7}}$
allow a correct substitution of an incorrectly / not converted value of V
1
- $m = 21\,500 \times 4.4 \times 10^{-7}$
allow a correct rearrangement of an incorrectly / not converted value of V
1
- $m = 0.00946 \text{ (kg)}$
or
 $m = 9.46 \times 10^{-3} \text{ (kg)}$
allow an answer consistent with an incorrectly / not converted value of V
1

[8]