

Question number	Answer	Notes	Marks
4 (a) (i)	0.717;  N;	allow 0.7, 0.72, 0.70, 0.703... allow newton(s) condone n marks are independent	2
	(ii) density = mass / volume;	allow symbols, e.g. $\rho = m/V$ , $d = m/V$ or rearrangements	1
	(iii) substitution OR rearrangement; evaluation;  e.g. $8960 = 0.0717 / V$ OR $V = m / \rho$ ( $V =$ ) $8.00 \times 10^{-6} \text{ (m}^3\text{)}$	-1 for POT error  allow $8 \times 10^{-6}$ , $8.002... \times 10^{-6}$ answer does not need to be in standard form e.g. $0.000008 \text{ (m}^3\text{)}$ gets both marks	2
(b) (i)	bar chart / bar graph;	accept column graph condone histogram	1
	(ii) steel is more dense; OR granite is less dense;  steel is (approximately) $3\times$ denser;	allow ratio of densities in range 2.8-3.1 ignore comparison of masses accept correct values of both densities for 2 marks e.g. steel = $7900 \text{ kg/m}^3$ granite = $2700 \text{ kg/m}^3$ tolerance $\pm 100$ on each	2

Total for question 4 = 8 marks

Question number	Answer	Notes	Marks	
6	<p>any <b>two</b> advantages:</p> <p>MP1. idea that fuel will last for a long time;</p> <p>MP2. high energy density of fuel;</p> <p>MP3. no CO<sub>2</sub> emissions / no greenhouse gases / does not contribute to global warming / does not produce acid rain;</p> <p>MP4. reliable electricity output / does not depend on weather;</p> <p>any <b>two</b> disadvantages:</p> <p>MP5. waste products are radioactive / difficult to dispose of;</p> <p>MP6. chance of nuclear accident;</p> <p>MP7. high security risk;</p> <p>MP8. high construction / decommissioning cost;</p>	<p>ignore idea that fuel is limitless / will not run out</p> <p>allow idea that a small amount of fuel yields a lot of energy</p> <p>allow idea that it can supply electricity / energy constantly ignore unqualified 'it is reliable'</p> <p>e.g. nuclear meltdown, risk from tsunamis etc.</p> <p>ignore unqualified 'it is expensive'</p>	4	exp

**Total for question 6 = 4 marks**