Question Number	Answer		Mark
16(a)	Use of $\rho = \frac{m}{V}$	**(1)**	**4**
	Use of $\Delta E = mc\Delta\theta$	**(1)**	
	Use of $P = \frac{\Delta E}{\Delta t}$	**(1)**	
	$P = 1630$ (W) [at least 3 sig fig required] [rounded data may give 1640 W] [If reverse calculation shown then MAX 3 marks] [Do not allow intermediate rounding to less than 3 sig figs for m or ΔE]	**(1)**	
	Example of calculation $m = 4.25 \times 10^{-4}\ \text{m}^3 \times 998\ \text{kg m}^{-3} = 0.424\ \text{kg}$ $\Delta E = 0.424\ \text{kg} \times 4190\ \text{J kg}^{-1}\text{K}^{-1} \times (100 - 22)\ \text{K} = 1.386 \times 10^5\ \text{J}$ $P = \frac{1.386 \times 10^5\ \text{J}}{85\ \text{s}} = 1631\ \text{W}$		
16(b)	Use of $\Delta E = L\Delta m$	**(1)**	**3**
	Use of $P = \frac{\Delta E}{\Delta t}$	**(1)**	
	$t = 440$ s (ecf from (a)) [show that value for P gives 449 s]	**(1)**	
	Example of calculation $\Delta E = 0.75 \times 0.424\ \text{kg} \times 2.26 \times 10^6\ \text{J kg}^{-1} = 7.19 \times 10^5\ \text{J}$ $t = \frac{7.19 \times 10^5\ \text{J}}{1630\ \text{W}} = 441\ \text{s}$		
	Total for question 16		**7**