	Density Mass Volume Mark Scheme	
1(a)	$27000 \text{ g} \div 0.0015 \text{ m}^3$	[1] Density = mass / volume
	18000000 g/m^3	[1] Correct density in g/m^3

1(b)					[1] $\mathbf{0.018 \text{ kg/cm}^3}$ [1] 24050 g [1] 0.3 cm^3

Object	Mass	Volume	Density
A	27 kg	1500 cm³	**0.018 kg/cm³**
B	**24050 g**	250 m³	96.2 g/m³
C	8.1 g	**0.3 cm³**	27 g/cm³

2	Volume $= 3 \text{ cm} \times 4 \text{ cm} \times 5 \text{ cm} = 60 \text{ cm}^3$	[1] Find the volume of the cube
	Mass = Density $\times$ Volume $= 0.57 \text{ g/cm}^3 \times 60 \text{ cm}^3$	[1] Use of rearranged d = m/v formula
	Mass = 34.2 g	[1] Correct mass
3(a)	Mass = Density $\times$ Volume $= 7.8 \text{ g/cm}^3 \times 3 \text{ cm}^3$	[1] Use of rearranged $d = m/v$ formula
	Mass = 23.4 g	[1] Correct mass
3(b)	Iron: $5 \text{ g} \div 7.8 \text{ g/cm}^3 = 0.64 \text{ cm}^3$	[1] Volume = mass/density
	Aluminium: $5 \text{ g} \div 2.7 \text{ g/cm}^3 = 1.85 \text{ cm}^3$	[1] Volume = mass/density
	Difference: $1.85 \text{ cm}^3 - 0.64 \text{ cm}^3 = 1.21 \text{ cm}^3$	[1] Correct difference in volumes
4	Mass = Density $\times$ Volume $= 9.8 \text{ g/cm}^3 \times 60 \text{ cm}^3$	[1] Use of rearranged $d = m/v$ formula
	588 g	[1] Correct mass
5(a)	$233.1 \text{ g} \div 1.85 \text{ g/cm}^3$	[1] Volume = mass/density
	$= 126 \text{ cm}^3$	[1] Correct volume
5(b)	$126 \text{ cm}^3 \div (3 \text{ cm} \times 6 \text{ cm}) = 7 \text{ cm}$	[1] Correct length
6	Volume $= \frac{4}{3}\pi \times 4^3 = 268 \text{ cm}^3$	[1] Correct volume calculation
	Mass $= 8 \text{ g/cm}^3 \times 268 \text{ cm}^3$	[1] Mass = density × volume
	$= 2140 \text{ g}$	[1] Correct mass to 3 sf

END