

**Density Past Paper Questions**  
**Jan 2002 to Jan 2009**

**Q6 Jan 2004**

**6**

(a) density =  $\frac{\text{mass}}{\text{volume}}$  ✓

(b)(i) volume of copper =  $\frac{70}{100} \times 0.8 \times 10^{-3}$  ✓ (=  $0.56 \times 10^{-3} \text{ m}^3$ )

(volume of zinc =  $0.24 \times 10^{-3} \text{ m}^3$ )

$m_c (= \rho_c V_c) = 8.9 \times 10^3 \times 0.56 \times 10^{-3} = 5.0 \text{ kg}$  ✓ (4.98 kg)

$m_z = \frac{30}{100} \times 0.8 \times 10^{-3} \times 7.1 \times 10^3 = 1.7 \text{ (kg)}$  ✓

(allow C.E. for incorrect volumes)

(ii)  $m_b (= 5.0 + 1.7) = 6.7 \text{ (kg)}$  ✓  
(allow C.E. for values of  $m_c$  and  $m_z$ )

$\rho_b = \frac{6.7}{0.8 \times 10^{-3}} = 8.4 \times 10^3 \text{ kg m}^{-3}$  ✓

(allow C.E. for value of  $m_b$ )

[or  $\rho_b = (0.7 \times 8900) + (0.3 \times 7100)$  ✓ =  $8.4 \times 10^3 \text{ kg m}^{-3}$  ✓]

max(4)  
(5)