Density Past Paper Questions
Jan 2002 to Jan 2009

Q6 Jan 2004

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

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

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

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

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

$\quad$ (allow C.E. for incorrect volumes)

(ii) $\quad m_b\ (= 5.0 + 1.7) = 6.7\,(\text{kg})$ ✓

$\quad\quad$ (allow C.E. for values of m_c and m_z)

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

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

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

$\quad\quad$ max*(4)*

$\quad\quad\quad$ *(5)*