

Multiple Choice Answers

Q10: B

Q11: A

Multiple Choice Answers

Q17: C

4(a)	delocalised / free / mobile electrons
	electrons move through metal OR electrons collide with distant particles OR electrons carry energy through the metal
	lattice vibrations transfer energy to neighbouring particles OR particles vibrate and cause nearby / adjacent particles to vibrate OR vibrating particles collide with particles transferring energy
4(b)(i)	(attractive) forces (between particles are much) greater in liquids (than in gases)
	particles in gases are (much) further apart (than in liquids)
4(b)(ii)	occurs at a fixed temperature
	takes place throughout the liquid
4(c)	$3.93 \text{ J / (g } ^\circ\text{C)}$ OR $3930 \text{ J / (kg } ^\circ\text{C)}$
	$\rho = m / V$ OR ($m =$) ρV OR 1.03×200 OR 206 SEEN
	$c = E / m\Delta\theta$ OR ($c =$) $E / m\Delta\theta$ OR $60\,700 / (206 \times 75)$ OR $60\,700 / (1.03 \times 200 \times 75)$
	($m =$) 206 (g) OR ($\Delta\theta = 75 \text{ (} ^\circ\text{C)}$)

4(a)(i)	(mass = 1900×0.05) = 95 kg
	($m =$) ρV in any form OR 1900×0.05
4(a)(ii)	(= 95×1500) = $140\,000 \text{ J / } ^\circ\text{C}$ / $1.4 \times 10^5 \text{ J / } ^\circ\text{C}$
	($C =$) $m \times c$
4(a)(iii)	$34\,000 \text{ s / 560 min / 9 h 20 min}$
	Temperature rise = $12(^\circ\text{C}) / 19-7$ OR $E = C \times \Delta\theta$ in any form
	($t =$) E / P in any form OR (thermal capacity $\times 12$) / 50
	sand molecules gain KE OR vibrate more OR hit (other) molecules (when heated) OR (thermal energy is transferred by) conduction
4(b)(i)	Energy is transferred to molecules of plastic pot in contact with sand (through collisions) OR Energy OR (lattice) vibrations transferred to neighbouring molecules
	(sand is warmer than surroundings and so thermal) energy (constantly) is lost from the sand
	(at a constant temperature) rate of (thermal) energy supplied to the sand is equal to rate of (thermal) energy lost from sand