

Multiple Choice Answers

Q9: A

Q12: C

Q14: B

3(a)(i)	$2.0 \times 10^5 \text{ Pa}$ OR $200\,000 \text{ Pa}$ OR 200 kPa
	$(P =) F / A$ OR $13\,000 / (0.016 \times 4)$
3(a)(ii)	Any four from: - friction between road and tyre - temperature of air / tyre increases - particles (of air in tyre) move faster - particles (of air) collide harder with the <u>walls</u> (of the tyre) OR particles (of air) collide more frequently with the <u>walls</u> (of the tyre) - force (on the tyre wall) increases, AND <u>area</u> (of tyre) is constant (so tyre pressure increases)
3(b)	(maximum number =) 34
	$pV = \text{constant}$ OR $\{2.0 \times 10^6 \times 0.026\} = 1.0 \times 10^5 \times V_2$
	$V_2 = 0.52 \text{ (m}^3\text{)}$ OR $(V_2 =) \{2.0 \times 10^6 \times 0.026\} / 1.0 \times 10^5$ OR (number of balloons =) $\{2.0 \times 10^6 \times 0.026\} / \{1.0 \times 10^5 \times 0.015\}$

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 $(m =) \rho V$ 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 $60700 / (1.03 \times 200 \times 75)$
	$(m =) 206 \text{ (g)}$ OR $(\Delta\theta) = 75 \text{ (} ^\circ\text{C)}$