

Multiple Choice Answers

Q26: A

Multiple Choice Answers

Q23: A

Multiple Choice Answers

Q24: D

5(a)	<table><tr><td></td><td>⁵⁵Mn</td><td>⁴²Ca²⁺</td></tr><tr><td>protons</td><td>25</td><td>20</td></tr><tr><td>neutrons</td><td>30</td><td>22</td></tr><tr><td>electrons</td><td>25</td><td>18</td></tr></table> Each row ✓		⁵⁵ Mn	⁴² Ca ²⁺	protons	25	20	neutrons	30	22	electrons	25	18
	⁵⁵ Mn	⁴² Ca ²⁺											
protons	25	20											
neutrons	30	22											
electrons	25	18											
5(b)(i)	(Mn is a) transition element												
5(b)(ii)	variable oxidation state												
5(b)(iii)	MnO												
5(c)(i)	a substance that reduces another substance and is itself oxidised M1 'a substance' reduces another substance M2 is itself oxidised												
5(c)(ii)	3Mn ₃ O ₄ + 8Al → 4Al ₂ O ₃ + 9Mn M1 Al ₂ O ₃ M2 correct equation												
5(d)(i)	M1 50 × 0.200 ÷ 1000 = 0.01(00) M2 0.01 ÷ 4 = 0.0025(0) / 2.5(0) × 10 ⁻³ M3 = 0.0025 × 24000 = 60(0)												
5(d)(ii)	(damp) litmus (paper) and is bleached / goes white												
5(d)(iii)	M1 kinetic energy of particles decreases M2 frequency of collisions between particles decreases M3 lower percentage / proportion / fraction of collisions / particles have energy greater than / equal to activation energy OR Fewer of the collisions / particles have energy greater than / equal to activation energy												