

Multiple Choice Answers

Q3: C

Q5: B

Multiple Choice Answers

Q5: C

Multiple Choice Answers

Q3: D

1(a)	<table><tr><td>particle</td><td>relative mass</td><td>relative charge</td></tr><tr><td>proton</td><td>1</td><td></td></tr><tr><td>neutron</td><td>1</td><td>0 / nil</td></tr><tr><td>electron</td><td></td><td>– 1</td></tr></table> ✓(1) ✓(1)	particle	relative mass	relative charge	proton	1		neutron	1	0 / nil	electron		– 1
particle	relative mass	relative charge											
proton	1												
neutron	1	0 / nil											
electron		– 1											
1(b)(i)	M1 atoms of the same element that have the same number of protons M2 but different numbers of neutrons												
1(b)(ii)	they have the same number of electrons and therefore the same electronic configuration												
1(c)	M1 22 M2 16 and 18 M3 50 and 22 and to the left of the symbol M4 Ti M5 2+												
1(d)	nucleon number												
1(e)	M1 mol Ar = $2.0 \div 40 = 0.05$ (mol) M2 number of atoms = $0.05 \times 6.02 \times 10^{23} = 3.01 \times 10^{22}$												

Multiple Choice Answers

Q3: A

Q4: B

2(a)	<table><tr><th>M1 charge (1)</th><th>M2 mass(1)</th></tr><tr><td>−1</td><td></td></tr><tr><td></td><td>1</td></tr><tr><td>+1</td><td>1</td></tr></table> 1 mark for each correct column	M1 charge (1)	M2 mass(1)	−1			1	+1	1	
M1 charge (1)	M2 mass(1)									
−1										
	1									
+1	1									
2(b)(i)	<table><tr><th>electron</th><th>neutron</th><th>proton</th></tr><tr><td>19</td><td>20</td><td>19</td></tr><tr><td>18</td><td>22</td><td>19</td></tr></table> 1 mark for each correct column	electron	neutron	proton	19	20	19	18	22	19
electron	neutron	proton								
19	20	19								
18	22	19								
2(b)(ii)	M1 $(41 \times 10) + (39 \times 90) = 3920$ (1) M2 $(3920 \div 100) = 39.2(1)$									
2(b)(iii)	aluminium has only 1 isotope which has nucleon number 27									
2(c)	M1 Ar (1) M2 P^{3-} or S^{2-} or Cl^{-} (1)									

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Q4: B