Candidate 1

The evidence for this candidate has achieved the following marks for question paper, section 2.

Question	Max Mark	Mark awarded	Commentary
1 (a)	1	1	The correct term 'isotopes' has been stated.
1 (b)	1	1	The candidate correctly stated 'they have different numbers of neutrons'.
1 (c)	1	1	The correct mass number has been stated.
2 (a)	1	1	The correct term 'carbon nanotube' has been stated.
2 (b)	1	1	The correct metal 'lithium' has been identified.
2 (c)	2	0	An incorrect number of moles has been calculated.
3 (a)	1	1	A diagram showing all outer electrons has been correctly drawn.
3 (b)	1	1	The shape of the molecule has been correctly named as tetrahedral.
3 (c)	1	1	The candidate has correctly stated that the chlorine will gain an electron.
3 (d)	2	2	The candidate has circled the correct properties in the table.
4 (a)(i)	2	2	The correct information has been inserted in the diagram.
4 (a)(ii)	1	1	A correct explanation has been given as to why the temperature must not drop below 1538 °C.
4 (b)	1	1	A correct ion-electron equation has been given.
5 (a)(i)	1	1	The correct half-life has been calculated.
5 (a)(ii)	2	2	The candidate has shown three half-lives and correctly calculated the time.
5 (b)	1	1	The correct type of radiation has been identified.

Question	Max Mark	Mark awarded	Commentary
6	3	1	The candidate has demonstrated a limited understanding of the chemistry involved.
7 (a)	1	1	The functional group 'carboxyl' has been correctly identified.
7 (b)(i)	1	1	A correct structural formula has been drawn for butanoic acid.
7 (b)(ii)	2	1	One mark has been awarded for butanoic acid has ‘more carbon atoms’. Although ‘more bonds’ was also stated, it was not correct as these bonds were not specifically identified as being between the molecules.
8 (a)(i)	1	0	The observation does not indicate that the magnesium will glow more brightly than zinc.
8 (a)(ii)	1	1	The candidate's description of 'increase the rate of reaction' is correct.
8 (b)	1	1	The correct substance 'magnesium' has been identified.
9 (a)	1	1	A correct definition of homologous series has been given.
9 (b)	1	0	The terms 'branched alkanes' or 'branched hydrocarbons' are not acceptable answers.
9 (c)(i)	1	1	The candidate has correctly identified the relationship between the length of time and number of carbons in the structure.
9 (c)(ii)	1	1	The position of propane has been correctly identified.
10 (a)(i)	1	0	The candidate has incompletely labelled the solutions in the diagram.
10 (a)(ii)	1	0	An incorrect redox equation has been written.
10 (b)	3	2	The candidate has calculated an incorrect GFM but correctly calculated the percentage of aluminium using this GFM.

Question	Max Mark	Mark awarded	Commentary
11 (a)	2	2	The candidate identified that the pH decreased to below 7 and the hydrogen ion concentration increased.
11 (b)	1	1	A correct general trend has been stated.
12 (a)	1	1	The candidate has correctly circled a hydroxyl functional group.
12 (b)	1	1	The candidate has correctly stated the family are 'esters'.
12 (c)	3	3	The correct mass of ester produced has been calculated.
13 (a)	1	1	A correct general formula for the alkyne family has been stated.
13 (b)(i)	1	0	The repeating unit for the polymer has been incorrectly drawn.
13 (b)(ii)	1	1	The correct type of polymerisation has been named.
13 (c)(i)	1	0	An incorrect full structural formula for the alkyne has been drawn.
13 (c)(ii)	1	0	An incorrect description of why 2,4-dibromopentane does not form an alkyne has been stated.
14 (a)(i)	1	1	A correct structural formula for hexan-1-ol has been drawn.
14 (a)(ii)	1	0	An incorrect predicted value for the energy released has been given.
14 (b)	3	1	One mark has been awarded for correctly calculating the mass and temperature change.
15	3	1	The candidate has demonstrated a limited understanding of the chemistry involved.
Total	60	42	