AQA GCSE Chemistry | 8462

SPECIFICATION POINT 4.2.1.5

Metallic bonding

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**3**
Available paper years	**2008–2020**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

4.2.1.5 Metallic bonding

Answer 01 · Mark scheme

January 2008 | CHY2F | Original Q1 | Legacy

Question 1

question	answers	extra information	mark
(a)	CH_4	4 should be below halfway up H / tail of 4 below the dotted line	1
(b)	molecule		1
(c)	covalent		1
total			3

4.2.1.5 Metallic bonding

Answer 01 · Mark scheme

January 2008 | CHY2F | Original Q1 | Legacy

CHY2F

4.2.1.5 Metallic bonding

Answer 02 · Mark scheme

June 2012 | CH2FP | Original Q1 | Legacy

Question 1

question	Answers	extra information	mark
1(a)	oxygen **and** water	both needed for mark allow hydrogen oxide for water in any order ignore formulae	1
1(b)(i)	best fit line, omitting point at 10s	straight line drawn through all correct points	1
1(b)(ii)	circle around point at 10 s	allow any indication	1
1(b)(iii)	7.5	allow ecf from candidate's line	1
1(b)(iv)	increases (with time)	accept goes from 0 to 12.5	1
1(c)(i)	higher		1
1(c)(ii)	more concentrated		1
1(d)(i)	share		1
1(d)(ii)	covalent		1
1(d)(iii)	simple molecules		1
1(e)	Water has a boiling point of 100°C Water has a melting point lower than room temperature		1 1
Total			12

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4.2.1.5 Metallic bonding

Answer 02 · Mark scheme

June 2012 | CH2FP | Original Q1 | Legacy

CH2FP

4.2.1.5 Metallic bonding

Answer 03 · Mark scheme

November 2020 | 8462/1F | Original Q5

Question 5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	**Property** → **Reason** Conducts electricity → Aluminium has delocalised electrons Conducts electricity → Aluminium has layers of atoms which can slide High melting point → Aluminium has strong metallic bonds High melting point → Aluminium has weak intermolecular forces Aluminium has a random arrangement of atoms additional line from a box on the left negates the mark from that box		1 1	AO1 4.2.1.5 4.2.2.7 4.2.2.8
05.2	a mixture of metals	allow a mixture of a metal with other elements	1	AO1 4.2.2.7
05.3	bauxite contains a variable percentage of aluminium	allow converse argument allow bauxite does not have a fixed proportion / percentage of aluminium	1	AO3 4.1.1.1
05.4	any **two** from: • danger of dam bursting • leakage of toxic substances from mud to environment • water pollution • damage to habitats • visual pollution • (dam) blocks light • reduces the value of houses	allow the lake (of mud) could overflow allow unpleasant smell	2	AO3 4.4.3.3

Question 5 continued

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.5	10 / ten		1	AO2 4.1.1.1
05.6	to lower the melting point of the mixture		1	AO1 4.4.3.3
05.7	oxygen carbon	must be in this order	1 1	AO1 4.4.3.3
05.8	$\frac{25}{100}$ × 300 000 =75 000 (kg) = 7.5 ×10^4 (kg)	 allow correct conversion to standard form of an incorrectly calculated mass	1 1 1	AO2 4.4.3.3
Total			**13**	