

MARK SCHEME

GCSE

CHEMISTRY

AQA - TRIPLE SCIENCE

C2 - TEST 2

BONDING

Beginner

Mark schemes

1.

(a) (i) iron

either order

1

carbon dioxide

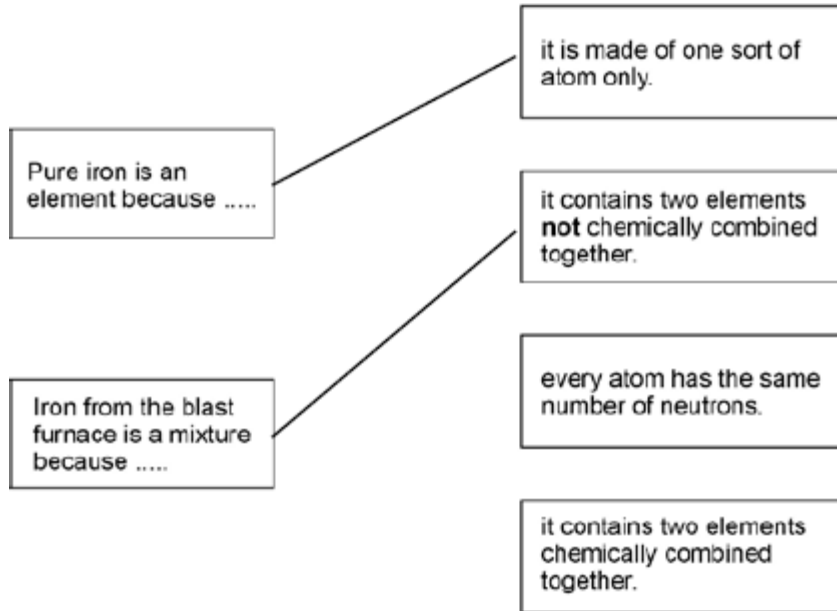
1

(ii) reduced

1

(b) (i) **Statement**

Explanation



each correct line gains 1 mark

extra lines from statement negate the mark

max. 2

(ii) the layers / rows are distorted / disrupted **or** it doesn't occur in layers **or** the atoms are different

1

so cannot **slide** over one another **or slide** less easily

1

[7]

2.	(a)	(i)	high	1
		(ii)	hundred	1
	(b)		hard	1
	(c)	(i)	carbon	1
		(ii)	four	1
		(iii)	covalent	1
		(iv)	all	1
				[7]
3.	(a)	(i)	nucleus	1
		(ii)	neutron	1
		(iii)	electron	1
	(b)	(i)	12	1
		(ii)	24	1

(c) any **four** from:

sharing / covalent / metallic = max 3

- magnesium (atom) reacts with **two iodine (atoms)**
- magnesium (atom) loses electrons
- **2** electrons (from each atom)
- Iodine (atom) gains electron(s)
- **1** electron or an electron (to each atom)
- iodide ion formed
allow iodine ion
- iodide has negative charge / is a negative ion / particle
allow iodine
ignore I²⁻
- magnesium ion formed
- magnesium has positive charge
- oppositely charged ions attract
- a giant structure / lattice is formed
allow 1 mark for unqualified reference to ion formation or ionic bonding

4

[9]

4.

(a) 1 / one

1

(b) (i) protons

1

(ii) neutrons

1

(iii) 7

1

(c) (i) losing

1

(ii) a positive

1

(iii) electrostatic

1

(d) high melting points

1

strong bonds

1

(e) (i) 58.5

1

(ii) mole

1

(f) very small (particles) **or**

ignore tiny / small / smaller / microscopic etc.

1-100nm in size **or**

(particle with a) few hundred atoms

1

[12]

5.

(a) (i) C

1

(ii) C **or** D

1

(iii) A

1

(b) covalent

1

(c) layers

1

can slide / move over each other

accept are weakly bonded (owtte)

allow no bonds between layers

ignore slip / rub

1

[6]

6.

(a) carbon

1

(b) each atom is joined to four other atoms

1

It has a giant structure

1

(c) very small

1

[4]

7.	(a) any two from <i>assume it = methanol</i> <i>allow converse for water</i>		
	• shorter / quicker soaking time <i>allow it is quicker</i>		
	• takes less time / quicker to dry or faster evaporation		
	• dissolves quicker / better in methanol		2
	(b) (i) CH ₄ O		1
	(ii) covalent		1
	(c) it is made of small molecules		1
			[5]
8.	(a) high melting point		1
	not flammable		1
	(b) (i) all		1
	(ii) two		1
	(iii) covalent		1
	(iv) very strong		1
			[6]
9.	the atoms are in layers		1
	the atoms can slide over each other		1
			[2]
10.	(a) the diameter of the tube is very small		1
	(b) (i) three		1

(ii) covalent

1

(iii) bonds

1

[4]

11.

(a) gives out (heat)

1

(b) D

1

(c) L

1

(d) magnesium chloride

1

[4]