

MARK SCHEME

GCSE

CHEMISTRY

AQA - TRIPLE SCIENCE

C1 - TEST 2

ATOMIC STRUCTURE

Beginner

Mark schemes

1.	(a) number		1	
	0			
	<i>allow 8</i>		1	
	(b) beryllium or magnesium or strontium or barium or radium		1	
	<i>allow correct symbols</i>			
2.	(c) (i) an alkali metal		1	
	(ii) a transition metal		1	
	(d) for undiscovered elements			
	<i>accept so elements with similar properties were in the same groups</i>			
	<i>accept so elements fitted the pattern of properties</i>		1	
			[6]	
3.	(a) groups		1	
	(b) it is a non-metal			
	<i>allow it is not a metal</i>		1	
	(c) to the right of column 7 / Group 7			
	<i>accept in Group 0</i> <i>ignore Group 8 / noble gases</i>		1	
4.	(d) (atomic) number			
	<i>allow proton number</i>		1	
				[4]
	5.	(a) (i) B		1
		(ii) E		1
(iii) F			1	
(iv) D			1	

(v) C 1

(b) (i) Br 1
do not accept BR or br or bR
ignore numbers
allow written in table if answer blank

(ii) I Br Cl 1
allow iodine, bromine, chlorine
allow I,B,C
allow capitals or lower case
allow 184, 58, -34
ignore numbers

(c) they are halogens 1

they become less reactive down Group 7 1

[9]

4.

(a) proton 1

(b) electron 1

(c) 7 1

4 1
in this order only

(d) isotopes 1

(e) neutron 1

(f) $\frac{(10 \times 20) + (11 \times 80)}{100}$ 1

= 10.8 1
an answer of 10.8 scores 2 marks

(g) $\frac{0.2}{10000}$

1

= 2×10^{-5} (nm)

allow 0.00002 (nm)

1

an answer of 2×10^{-5} (nm) scores 2 marks

[10]

5.

(a) (i) B

1

(ii) A

1

(iii) E

1

(iv) D

1

(b) (i) Mendeleev and Newlands

1

(ii) atomic weight

1

(iii) chemical reactions

1

(iv) electrons

1

6.

(a) (i) Halogens

1

(ii) They consist of molecules

1

They have coloured vapours

1

(b) (i) 7 / seven

1

(ii) liquid

1

(iii) astatine

allow obvious mis-spelling

ignore At

1

- (c) chlorine reacts with (the) bromide [owtte] 1
- chlorine reacts with (the) iodide [owtte]
allow chlorine reacts with both
or
chlorine has more reactions for 2 marks
or
*bromine reacts with one **and** iodine does not react at all for 2 marks* 1

7.

- (a) (i) **A** 1
- (ii) **F** 1
- (iii) **E** 1
- (iv) **C** 1
- (v) **A or B** 1
- (b) (i) Rb K Na
allow rubidium, potassium, sodium
*do **not** accept RB or NA* 1
- (ii) decrease
or
 become lower / smaller / less
allow from 180° C to 27° C 1
- (c) They are harder than Group 1 metals. 1
- They have higher melting points than Group 1 metals. 1
- They often form coloured compounds but Group 1 compounds are usually white. 1

[10]

8.

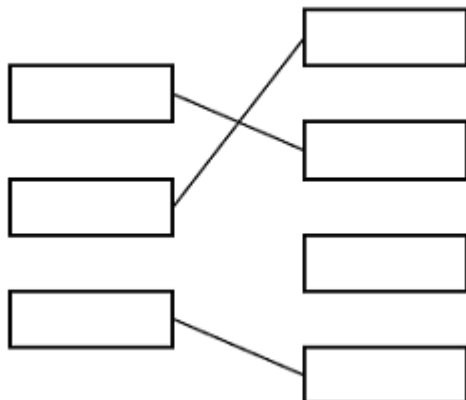
- (a) NN linked to element 1
- OCO linked to compound 1

- (b) electron 1
- nucleus 1
- must be correct order*
- (c) (reacts with) oxygen 1
- to produce water 1
- must be names*
accept hydrogen oxide
allow steam

[6]

9.

(a)



one mark for each substance linked correctly to its description
*do **not** accept more than one line from each substance*

3

- (b) 0 / zero / none / no charge 1
- electron 1
- (c) (i) nucleus 1
- (ii) atomic number 1
- (iii) mass number 1

[8]

10.

- (a) (i) nucleus 1

(ii) protons

1

(b) protons / + / positive

electrons / - / negative

both words needed in any order for 1 mark

1

(c) nitrogen

allow N or N₂

1

(d) **B and C**

both letters needed in any order for 1 mark

*allow Li **and** Na*

1

(both) have one electron **or** same number of electrons in the outer energy level / shell

allow both are in Group 1

allow both are alkali metals

*allow both can lose only one electron **or** become +1 ions*

allow this mark if no letters given in boxes

1

[6]

11.

(a) sodium has a lower density

1

sodium is more reactive

1

(b) hydrogen

1

(c) OH⁻(aq)

1

[4]