

# AQA Chemistry

Circle the correct answers in this section

1 Which row shows the atomic structure of an atom of the  $^{19}\text{F}$  isotope?

	protons	neutrons	electrons
A	9	9	10
B	9	10	9
C	10	9	10
D	10	10	9

[1]

2 Which row shows the numbers of neutrons and electrons in an  $^{56}\text{Fe}^{3+}$  ion?

	neutrons	electrons
A	26	27
B	29.8	56
C	30	23
D	33	20

[1]

3 What is the total number of electrons in a nitrate ion,  $\text{NO}_3^-$ ?

- A 32                      B 33  
C 47                      D 64

[1]

4 Calcium hydroxide contains  $\text{Ca}^{2+}$  and  $\text{OH}^-$  ions.

What is the formula of calcium hydroxide?

- A  $\text{CaOH}$                       B  $\text{CaOH}_2$   
C  $\text{Ca}_2\text{OH}$                       D  $\text{Ca}(\text{OH})_2$

[1]

5 The mass of an object measured on a 4 decimal place balance is 7.0855 g

What is this mass to 3 significant figures?

- A 7.09 g                      B 7.19 g  
C 7.085 g                      D 7.086 g

[1]

## AQA Chemistry

6 Rearrange  $PV = nRT$  to make  $n$  the subject.

A  $n = \frac{RV}{PT}$

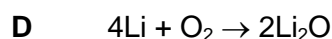
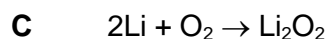
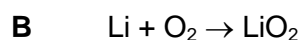
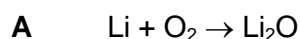
B  $n = \frac{PV}{RT}$

C  $n = \frac{RT}{PV}$

D  $n = \frac{1}{RTPV}$

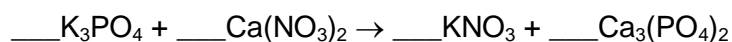
[1]

7 Lithium reacts with oxygen to form lithium oxide,  $\text{Li}_2\text{O}$   
Which equation is correct for this reaction?



[1]

8 Balance the equation below.



[2]

9 What is the relative formula mass of  $\text{NH}_4\text{NO}_3$ ?

A 42.0

B 56.0

C 66.0

D 80.0

[1]

10 How many moles of  $\text{CO}_2$  are there in 22 g of  $\text{CO}_2$ ?

A 0.25

B 0.5

C 2

D 4

[1]

## AQA Chemistry

Tick the boxes next to the correct answers in this section

- 11 Sodium carbonate contains sodium ions and carbonate ions.

Which statement(s) is/are correct?

The formula of sodium carbonate is  $\text{NaCO}_3$ .

☐

The relative formula mass of sodium carbonate is 106.

☐

A carbonate ion has the formula  $\text{CO}_3^{2-}$ .

☐

A sodium ion contains one electron in its outer shell.

☐

[1]

- 12 A sample of copper contains two isotopes,  $^{63}\text{Cu}$  and  $^{65}\text{Cu}$ .  
The relative atomic mass of copper is 63.5.

Which statement(s) is/are correct? Tick **two** boxes

$^{65}\text{Cu}$  has two more neutrons than  $^{63}\text{Cu}$

☐

$^{65}\text{Cu}$  has two more protons than  $^{63}\text{Cu}$

☐

$^{63}\text{Cu}$  and  $^{65}\text{Cu}$  contain the same number of electrons

☐

$^{65}\text{Cu}$  has two more electrons than  $^{63}\text{Cu}$

☐

[1]

- 14 Which statement describes the structure of an atom?

a sphere of positive charge with electrons embedded in it

☐

a nucleus containing protons and neutrons, orbited by electrons

☐

a solid sphere that cannot be divided into smaller parts

☐

protons and electrons concentrated in a nucleus, surrounded by orbiting neutrons

☐

[1]

# AQA Chemistry

15 Which force holds an atom's nucleus together?

electrostatic force

☐

electromagnetic force

☐

strong nuclear force

☐

weak intermolecular interactions

☐

[1]

16 What type of error is caused by results varying around the true value in an unpredictable way?

measurement error

☐

systematic error

☐

random error

☐

zero error

☐

[1]

**Answer the questions in the spaces provided in this section**

17 Describe what it means when results are described as:

**accurate:** .....

.....

**precise:** .....

..... [2]

18 This question is about atoms, isotopes and ions.

(a) (i) Complete the table below to show the properties of the particles.

Particle	Relative mass	Relative charge
proton		
neutron		
electron		

[3]

- (ii) Complete the table for an atom and an ion of two **different** elements.

Element	Mass number	Protons	Neutrons	Charge	Electron configuration
.....	.....	11	13	0	.....
.....	34	.....	.....	2–	2.8.8

[2]

- (b) State the similarities and differences between isotopes of the **same** element.

Similarities.....

.....

Differences.....

..... [2]

- (c) An isotope of an element **X** contains 56 protons and 56 neutrons.

Identify element **X** and write down the mass number and atomic number of this isotope of **X**.

element **X** = .....

Atomic number: .....

Mass number: ..... [3]

- 18** Describe the function of a mass spectrometer.

.....

.....

..... [2]