

OCR Chemistry A

Circle the correct answers in this section

1 Which row shows the atomic structure of an atom of the ^{19}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, NO_3^- ?

- A 32 B 33
C 47 D 64

[1]

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

What is the formula of calcium hydroxide?

- A CaOH B CaOH_2
C Ca_2OH 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]

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

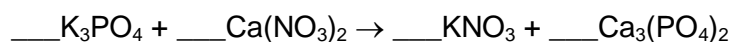
[1]

7 Lithium reacts with oxygen to form lithium oxide, Li_2O
Which equation is correct for this reaction?

- A $\text{Li} + \text{O}_2 \rightarrow \text{Li}_2\text{O}$
B $\text{Li} + \text{O}_2 \rightarrow \text{LiO}_2$
C $2\text{Li} + \text{O}_2 \rightarrow \text{Li}_2\text{O}_2$
D $4\text{Li} + \text{O}_2 \rightarrow 2\text{Li}_2\text{O}$

[1]

8 Balance the equation below.



[2]

9 What is the relative formula mass of NH_4NO_3 ?

- A 42.0
B 56.0
C 66.0
D 80.0

[1]

10 How many moles of CO_2 are there in 22 g of CO_2 ?

- A 0.25
B 0.5
C 2
D 4

[1]

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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 NaCO_3 .

The relative formula mass of sodium carbonate is 106.

A carbonate ion has the formula CO_3^{2-} .

A sodium ion contains one electron in its outer shell.

[1]

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

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

^{65}Cu has two more neutrons than ^{63}Cu

^{65}Cu has two more protons than ^{63}Cu

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

^{65}Cu has two more electrons than ^{63}Cu

[1]

14 Which statement describes the structure of an atom?

a sphere of positive charge with electrons embedded in it

a nucleus of protons and neutrons, orbited by electrons

a solid sphere that cannot be divided into smaller parts

protons and electrons in a nucleus, surrounded by neutrons

[1]

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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]

19 Describe the function of a mass spectrometer.

.....

.....

.....

[2]

Total = 30 marks