

NAME AND SURNAME _____

1) Complete the following table:

10 points

Name of the element	A	Z	Number of protons	Number of electrons	Number of neutrons	Symbol
Lithium	7	3		2		
Oxygen			8	10	8	
						${}^{65}_{30}\text{Zn}^{2+}$
Calcium	40			18	20	
Manganese		25		23	30	
						${}^{32}_{16}\text{S}^{2-}$
Nickel		28		26	31	
Bromine			35	36	45	
						${}^{27}_{13}\text{Al}^{3+}$
Carbon	12		6	6		

ANSWER:

Name of the element	A	Z	Number of protons	Number of electrons	Number of neutrons	Symbol
Lithium	7	3	3	2	$7 - 3 = 4$	${}^7_3\text{Li}^+$
Oxygen	$8 + 8 = 16$	8	8	10	8	${}^{16}_8\text{O}^{2-}$
Zinc	65	30	30	$30 - 2 = 28$	$65 - 30 = 35$	${}^{65}_{30}\text{Zn}^{2+}$
Calcium	40	$40 - 20 = 20$	20	18	20	${}^{40}_{20}\text{Ca}^{2+}$
Manganese	$25 + 30 = 55$	25	25	23	30	${}^{55}_{25}\text{Mn}^{2+}$
Sulphur	32	16	16	$16 + 2 = 18$	$32 - 16 = 16$	${}^{32}_{16}\text{S}^{2-}$
Nickel	$28 + 31 = 59$	28	28	26	31	${}^{59}_{28}\text{Ni}^{2+}$
Bromine	$35 + 45 = 80$	35	35	36	45	${}^{80}_{35}\text{Br}^-$
Aluminium	27	13	13	$13 - 3 = 10$	$27 - 13 = 14$	${}^{27}_{13}\text{Al}^{3+}$
Carbon	12	6	6	6	$12 - 6 = 6$	${}^{12}_6\text{C}$

2) Write the corresponding symbols:

5 points

- a) Hydrogen**
- b) Iron**
- c) Carbon**
- d) Copper**
- e) Magnesium**
- f) Caesium**
- g) Phosphorus**
- h) Tin**
- i) Helium**
- j) Boron**

Which of these elements is an alkaline earth metal?

ANSWER:

- a) H
- b) Fe
- c) C
- d) Cu
- e) Mg
- f) Cs
- g) P
- h) Sn
- i) He
- j) B

Magnesium (Mg) is an alkaline earth metal.

3) Write the elements corresponding to the following symbol

5 points

a) Be

b) Au

c) As

d) F

e) Ne

f) Mn

g) Zn

h) Na

i) Pt

j) Si

Which of these elements is a halogen?

ANSWER:

a) Beryllium

b) Gold

c) Arsenic

d) Fluorine

e) Neon

f) Manganese

g) Zinc

h) Sodium

i) Platinum

j) Silicon

Fluorine (F) is a halogen.

4) Which type of substance; simple or compound, do the following formulas represent?

2,5 points

Indicate the number of atoms of each element in the case of compounds:

2,5 points

- | | | | | |
|----------|---------------|----------|-----------|-----------|
| a) N_2 | c) $CaSO_4$ | e) O_2 | g) BH_3 | i) He |
| b) Fe | d) Na_2CO_3 | f) FeO | h) $NaOH$ | j) NH_3 |

ANSWER:

- a) Simple substance.
- b) Simple substance.
- c) Compound: 1 atom of calcium, 1 atom of sulphur and 4 atoms of oxygen.
- d) Compound: 2 atoms of sodium, 1 atom of carbon and 3 atoms of oxygen.
- e) Simple substance.
- f) Compound: 1 atom of iron and 1 atom of oxygen.
- g) Compound: 1 atom of boron and 3 atoms of hydrogen.
- h) Compound: 1 atom of sodium, 1 atom of oxygen and 1 atom of hydrogen.
- i) Simple substance.
- j) Compound: 1 atom of nitrogen and 3 atoms of hydrogen.

5) Write the formula for the following substances:

5 points

- a) Water.
- b) Hydrogen.
- c) Carbon dioxide.
- d) Ozone.
- e) Ammonia.

ANSWER:

- a) H_2O
- b) H_2
- c) CO_2

d) O₃

e) NH₃

6) a) Explain in your own words the meaning of the following chemical reaction:

2,5 points



H₂SO₄ (aq) = sulphuric acid dissolved in water

b) Identify the reactants and the products.

2,5 points

ANSWER:

a) 2 atoms of sulphur react with 3 molecules of oxygen and 2 molecules of water to make two molecules of sulphuric acid.

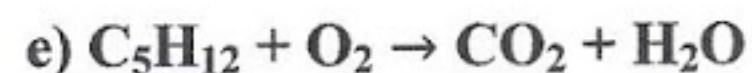
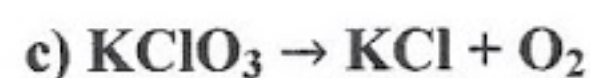
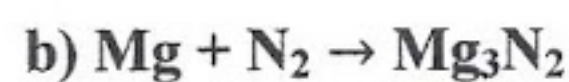
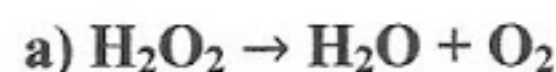
Sulphur, oxygen and water react to make sulphuric acid.

b) REACTANTS: S, O₂ and H₂O

PRODUCTS: H₂SO₄

7) Balance the following chemical equations:

5 points



ANSWER:

