

N5 Chemistry

Unit 1: Chemical Changes & Structure

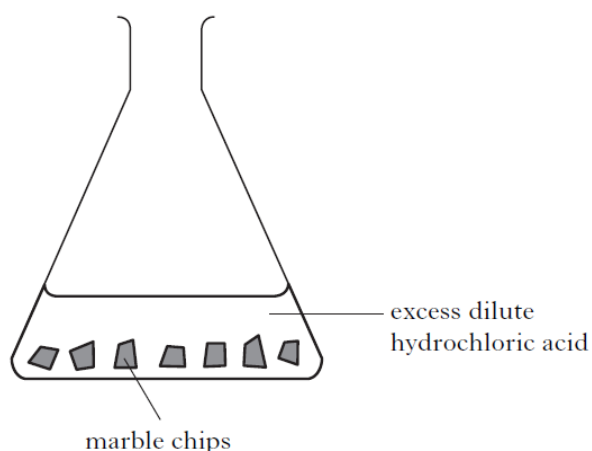
Homework 1.8

1. Which line in the table correctly describes an electron?

	Mass	Charge
A	negligible	+1
B	negligible	-1
C	1	+1
D	1	0

Answer _____

2. A student investigated the reaction between marble chips and excess dilute hydrochloric acid.



Which of the following would **not** affect the rate of reaction?

- A Increasing the volume of the acid
- B Decreasing the size of the marble chips
- C Decreasing the concentration of the acid
- D Increasing the temperature of the acid

Answer _____

3. Which of the following compounds contains only two elements?

- A Magnesium hydroxide
- B Magnesium phosphate
- C Magnesium sulfite
- D Magnesium nitride

Answer _____

4. The formula for phosphorus trichloride is

- A P_2Cl
- B PCl
- C PCl_2
- D PCl_3 .

Answer _____

5. What is the charge on the chromium ion in $CrCl_3$?

- A 1+
- B 1-
- C 3+
- D 3-

Answer _____

6. $xAl(s) + yBr_2(l) \longrightarrow zAlBr_3(s)$

This equation can be balanced when

- A $x = 1, y = 2, z = 1$
- B $x = 2, y = 3, z = 2$
- C $x = 3, y = 2, z = 3$
- D $x = 4, y = 3, z = 4$.

Answer _____

7. The chemical formula for barium hydroxide is

- A $BaOH$
- B Ba_2OH
- C Ba_2OH_2
- D $Ba(OH)_2$.

Answer _____

8. Give the **ionic** formula for each of the following compounds.

a) Sodium bromide _____ d) Sodium carbonate _____

b) Magnesium oxide _____ e) Calcium nitrate _____

c) Aluminium chloride _____ f) Ammonium nitrate _____ 6

9. Balance the following chemical equations.



10. Bromine has a relative atomic mass of 80.

Analysis of a sample of bromine shows it has 2 isotopes, one with a relative mass of 79 the other with a relative mass of 81.

a) Complete the following sentence.

Isotopes are atoms with the same _____ but different _____.

b) From the information given what can be said about the proportions of the isotopes in the sample?

_____ 1

c) Bromine reacts with carbon to form tetrabromomethane (CBr_4). Draw a diagram to show the **shape** of a molecule of tetrabromomethane.

11. A new air bag is being developed for use in cars.
In this reaction, butane reacts with an oxide of nitrogen.



- a) Balance this equation. 1
- b) Water is formed in this reaction. Draw a diagram to show how the outer electrons are shared in a molecule of water, H₂O.

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12. The table contains some information about some substances.

<i>Substance</i>	<i>Melting point/°C</i>	<i>Boiling point/°C</i>	<i>Conducts as a solid</i>	<i>Conducts as a liquid</i>
A	1700	2230	no	no
B	605	1305	no	yes
C	-13	77	no	no
D	801	1413	no	yes
E	181	1347	yes	yes
F	-39	357	yes	yes

- a) Identify the substance which exists as covalent molecules.

Answer _____

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- b) Identify the **two** substance which are liquid at 25°C.

Answer _____ & _____

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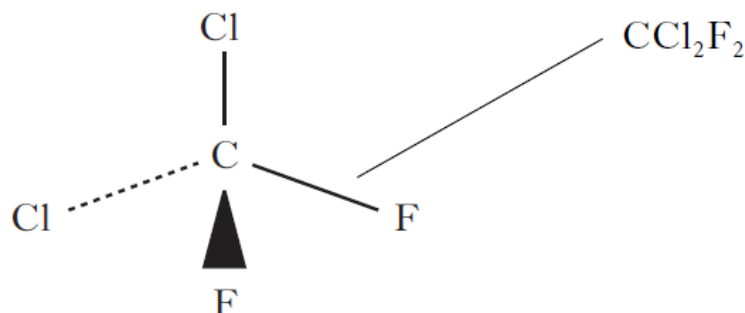
- c) Identify the **two** ionic substances.

Answer _____ & _____

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13. Chlorofluorocarbons (CFCs) are a family of compounds which are highly effective as refrigerants and aerosol propellants. However, they are known to damage the ozone layer.

One example of a CFC molecule is shown below.



- a) What term is used to describe the **shape** of this molecule?

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- b) Scientists have developed compounds to replace CFCs. The table shows information about the ratio of atoms in CCl_2F_2 and compounds used to replace it.

Compound	Number of atoms				Atmospheric life (years)
	C	Cl	F	H	
CCl_2F_2	1	2	2	0	102
Replacement 1	1	1	2	1	13.3
Replacement 2	2	0	4	2	14.6
Replacement 3	1	0	2	2	5.6

- i) Draw a possible structure for Replacement 2.

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- ii) Compared with CCl_2F_2 , the replacement compounds contain less of which element?

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- iii) From the table, what is the advantage of using the replacement molecules as refrigerants and aerosol propellants?

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Total Marks 30