

BHS YEAR 11 CHEMISTRY Assessable Topic Test

The Chemical Earth

Name _____

1. Which of the following groups contains pure substances only?

- A) plastic, rubber, glass
- B) cement, paper, brass
- C) sugar, steam, salt
- D) coal, butter, milk

1m

2. Which of the following is true for compounds and not true for elements?

- A) Compounds can chemically combine with other substances
- B) Compounds can be decomposed
- C) Compounds are not very reactive
- D) Compounds are pure substances

1m

3. The following atom:



has:

- A) 13 protons, 14 electrons, 13 neutrons.
- B) 13 protons, 13 electrons, 14 neutrons.
- C) 14 protons, 14 electrons, 13 neutrons.
- D) 14 protons, 13 electrons, 14 neutrons.

1m

4. Which one of the following is **not** a physical property of water?

- A) Pure water boils at 100°C at sea level
- B) It has a high surface tension
- C) It has a density of approximately 1 g/mL
- D) Water can be decomposed into two gases.

1m

5. Sodium (Na) and fluorine (F) have different chemical properties because:

- A) They have different numbers of outer shell electrons
- B) The atoms are a different size
- C) They have different mass numbers
- D) It is difficult to obtain pure sodium and fluorine for testing

1m

6. Two molecules of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) contain a total of

- A) 12 atoms
- B) 24 atoms
- C) 36 atoms
- D) 48 atoms

1m

7. Metal M forms a compound with the formula of M_2O_3 . Which one of the following formula is correct?

- A) MCl_3
- B) MSO_4
- C) MOH
- D) M_2CO_3

1m

8. Covalent bonding involves:

- A) A transfer of electrons between two non-metals
- B) A transfer of electrons between a metal and a non-metal
- C) A sharing of electrons between two non-metals
- D) A sharing of electrons between a metal and a non-metal

1m

9. The compound Li_2SO_4 is most likely to be held together by:

- A) Ionic bonds
- B) Covalent bonds
- C) Metallic bonds
- D) A combination of the above bonds

1m

10. The properties of four elements are shown in the table:

Element	Melting point	Electrical conductivity	Solubility in water	Colour
W	High	High	Insoluble	Silver
X	Low	Low	Slightly Soluble	Pale green
Y	High	High	Insoluble	Reddish brown
Z	High	Low	Insoluble	Colourless

Which of the following statements is correct?

- A) W is the only metal because it is silver
- B) X is the only non-metal because it has a low melting point
- C) Z can not be an element because it is colourless
- D) Y could be a metal because it conducts electricity.

1m

11. Name: (a) a metal which is a liquid at 25°C

(c) an element which does not form compounds

(d) an active metal which reacts with water

3m

12. Define: (a) atomic number _____
 (b) atomic mass _____
 (c) molecule _____ 4m

13. Complete the table below giving differences between metals and non-metals.

Metals	Non-metals
	Do not conduct heat and electricity
Usually have high melting and boiling points	
	Are usually dull in appearance.

3m

14. Write the formulae, clearly showing the valencies for the following **ions**:

barium ion _____

ammonium ion _____

fluoride ion _____

carbonate ion _____ 4m

15. Draw the electronic structure of an ion of chlorine, ${}_{17}\text{Cl}^{35}$ (Cl^-) to show protons, neutrons and electrons :

2m

16. Name and describe the bonding in the following substances:

(a) solid copper _____ Description _____

2m

(b) sodium chloride crystals _____ Description _____

2m

(c) oxygen gas _____ Description _____

2m

17. Draw the Lewis electron dot structure of ammonia gas, NH_3 .

2m

18. Complete the word equations and give fully balanced symbol reactions for the following:

(a) magnesium + hydrochloric acid \rightarrow _____ + _____

(b) sodium hydroxide + sulfuric acid \rightarrow _____ + _____

(c) copper (II) carbonate heated \rightarrow _____ + _____

(d) magnesium + oxygen \rightarrow _____

(e) sodium metal + water \rightarrow _____ + _____

(f) calcium carbonate + sulfuric acid \rightarrow _____ + _____

+ _____

12m