9 SCIENCE 2015

CHEMISTRY TEST TWO

Name: ANSWER **Teacher:** KEY **Mark:** /58

Percentage: %

SECTION A: **MULTIPLE CHOICE** **(10 marks)**

Multiple Choice Answer Sheet:

1.	(A)	B	C	D
2.	A	B	C	(D)
3.	(A)	B	C	D
4.	A	(B)	C	D
5.	A	B	C	(D)
6.	A	(B)	C	D
7.	A	(B)	C	D
8.	A	(B)	C	D
9.	A	(B)	C	D
10.	(A)	B	C	D

ANSWER KEY

Select the most correct answer for each question below.

1. The only three metals that float on water are:

(a) Sodium, lithium and potassium.
(b) Potassium, nickel and tin.
(c) Nickel, aluminium and sodium.
(d) Aluminium, potassium and copper.

2. Distilled water has a pH of:

(a) 9.
(b) 8.
(c) 6.
(d) 7.

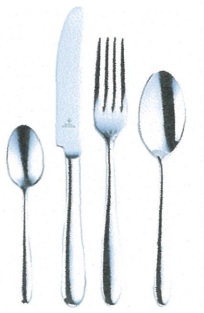
3. Metalloids are sometimes called:

(a) Semi-metals.
(b) Part-elements.
(c) Semi-elements.
(d) Part-metals.

4. A correct definition for the term pH would be:

(a) A scale used to measure the number of hydrogen ions in a solution.
(b) A scale used to measure the concentration of hydrogen ions in a solution.
(c) A scale used to measure the concentration of hydroxide ions in a solution.
(d) A scale used to measure the number of hydroxide ions in a solution.

5. The photo on the right shows objects that are made up of a/an:



(a) Pure metal.
(b) Non-metal.
(c) Allotrope.
(d) Alloy.

6. The base metal in stainless steel is:

(a) Copper.
(b) Iron.
(c) Lead.
(d) Nickel.

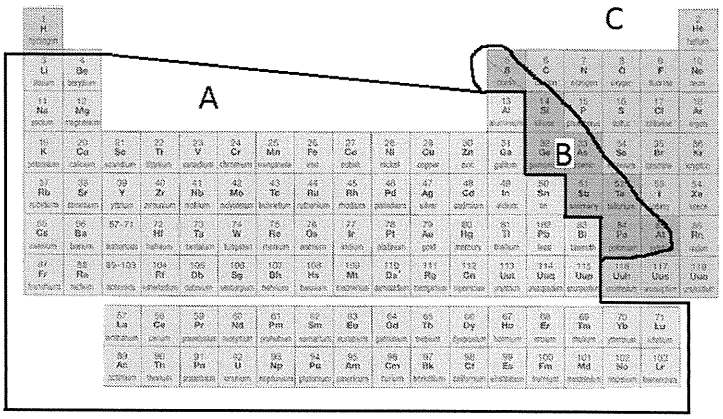
7. Wood, paper and food scraps all burn, leaving charcoal and ash behind. This suggests that they all have the same basic element in them. Select the element below.

(a) Gold.
(b) Carbon.
(c) Hydrogen.
(d) Oxygen.

8. Acids release hydrogen ions (H+) into solution. Use this information to identify which of the following substances could NOT be an acid.

(a) HCOOH
(b) Fe_2O_3
(c) H_2CO_3
(d) $NaHSO_4$

Question 9 and 10 refers to the diagram on the right.



9. The elements in section A are known as:

(a) Non-metals.
(b) Metals.
(c) Metalloids.
(d) Alloys.

10. The elements in section B are known as:

(a) Metalloids.
(b) Alloys.
(c) Metals.
(d) Non-metals.

SECTION B: SHORT ANSWER **(48 marks)**

1. Label the reactants and the products in the equation below. (2 marks)

Sodium + chloride → sodium chloride

(1) reactants (1) product

2. List three physical properties of metals. (3 marks)

- Lustrous
- Malleable
- Ductile
- Thermal conductor
- Electrical conductor
- Dense
- Solid at room temp (except mercury)

(1) mark each

3. List three physical properties of non-metals. (3 marks)

- Dull
- Brittle
- Poor thermal conductor
- Poor electrical conductor
- solid, liquid or gas at room temp (except bromide)
- Low boiling & melting points

(1 mark each)

4. State the **name** and **symbol** of the only metal that is liquid in room temperature. (1 mark)

Mercury (0.5) Hg (0.5)

5. State the **name** and **symbol** of the only non-metal that is liquid in room temperature. (1 mark)

Bromine (0.5) Br (0.5)

6. Explain why pure metals usually cannot be used in their pure form. (1 mark)

Most pure metals are too soft (too weak etc).

7. List the three common allotropes that carbon comes in. (3 marks)

- Amorphous carbon (1)
- Diamond (1)
- Graphite (1)

8. Fill in the missing words. (2 marks)

Acids turn blue (0.5) litmus paper a red (0.5) colour.

Bases turn red (0.5) litmus paper a blue (0.5) colour.

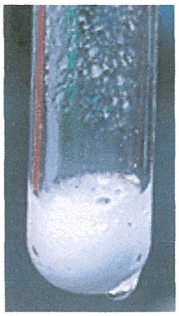
9. Emma dropped a piece of calcium carbonate (chalk) into a test tube of hydrochloric acid. (2 marks)

The acid in this reaction is the: Hydrochloric acid (0.5)

Write the chemical formula for the acid in this reaction: HCl (0.5)

The carbonate in this reaction is the: calcium carbonate (0.5)

Write the chemical formula for the carbonate in this reaction: $CaCO_3$ (0.5)



10. Of the two main types of indicator that you used in class, which one would present a more accurate result and explain the reason why. (2 marks)

Universal indicator is more accurate (1)
It shows an exact pH
while litmus paper only shows (1)
if the substance is an acid or a base

11. Write the general equation for the reaction between an acid and a metal. (2 marks)

Acid + metal → salt + hydrogen gas

12. Write the general equation for the reaction between an acid and a base (neutralisation reaction). (2 marks)

Acid + base → salt + water

13. Write the general equation for the reaction between an acid and a carbonate. (2 marks)

Acid + carbonate → salt + water + carbon dioxide

- 0.5 for each missing part

14. Identify the metal common to both alloys brass and bronze. (1 mark)

Copper

15. For stainless steel, name the two added metals that give it rust resistance. (2 marks)

Chromium (1) Nickel (1)

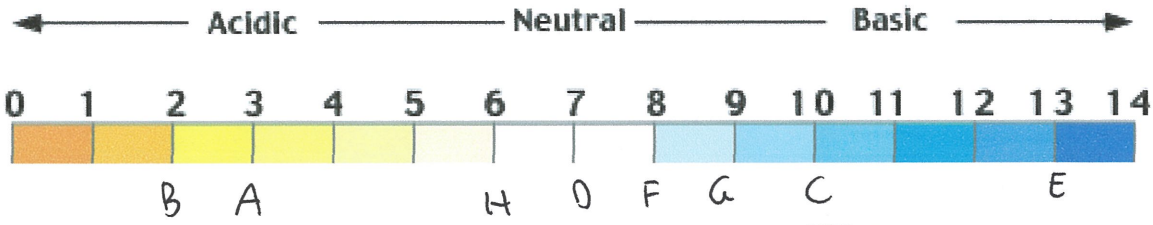
16. Fill in the tables below. (6 marks)

Name of acid	Chemical formula	List one use for the acid
Hydrochloric acid	HCl (0.5)	• stomach (gastric juices) • pool cleaner • cleaning (Any 1 0.5)
Nitric acid (0.5)	HNO_3	• Fertilisers • Dyes • explosives • cleaning products (Any 1 0.5)
Sulfuric acid (0.5)	H_2SO_4	• Dyes • plastics • cleaning products • Fertilisers • synthetic fibres • car batteries • making other chemicals (Any 1 0.5)

Name of base	Chemical formula	List one use for the acid
Calcium hydroxide (0.5)	$Ca(OH)_2$	• cement • mortar • concrete • mortar • paper production (Any 1 0.5)
Sodium hydroxide	NaOH (0.5)	• paint stripper • making other chemicals • cleaning products • cooking • disinfectant (Any 1 0.5)
Ammonia (0.5)	NH_3	• household cleaners (Any 1 0.5)

17. Look at the substances below. Write the letter for each substance under the correct pH line to demonstrate where they sit on the pH scale. (4 marks)

(0.5 for each)



18. List three properties of acids. (3 marks)

(Any 3 (1) mark each)

- corrosive • Conducts electricity • Releases hydrogen ions
- Have a sour taste • Are neutralised by bases
- Turns blue litmus paper red • Reacts with some metals

19. Write the term next to its matching definition below (must be spelt correctly!) (6 marks)

Base, salt, brittle, allotrope, ductile, indicators, lustrous, caustic, alkali, neutralisation, malleable, alloy.

a) Any compound formed by a metal taking place of the hydrogen atom in an acid.

Salt

b) A term that means 'able to burn or corrode'.

Caustic

c) Being shiny when polished.

Lustrous

d) Hard but can break or shatter easily.

Brittle

e) A reaction of an acid with a base, forming a salt and water.

Neutralisation

f) Different physical forms in which an element can exist.

Allotrope

g) Able to be bent into new shapes without breaking.

Malleable

h) Chemicals that change colour to show whether a substance is acidic, neutral or basic.

Indicators

i) A base that can be dissolved in water.

Alkali

j) A substance that releases hydroxide ions.

Base

k) Able to be stretched into wires.

Ductile

l) A mixture of a base metal and a small amount of another element.

Alloy

0.5 for each

MUST be spelt correctly