



NATIONAL ASSESSMENT AT FORM III

NAME

SCHOOL
NAME

CLASS/SECTION

CHEMISTRY

Specimen Paper

1 hour

Students answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, the name of your school and your class/section in the spaces provided above.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Any rough working should be done in this booklet.

Do not use correction fluid.

There are **8** questions on this paper.

Answer **all** questions.

All answers must be written in the spaces provided.

Give **all** your answers using appropriate units.

The number of marks is given in brackets [] at the end of each question or part question.

The total of the marks for this paper is **50**.

1. For each item, there is one correct answer. Draw a circle around the letter which shows the correct answer.

(a) Which of the following salts is commonly used as a fertiliser in agriculture?

- | | | | |
|----------|-------------------|----------|---------------------------|
| A | Potassium nitrate | B | Calcium sulfate |
| C | Sodium chloride | D | Sodium hydrogen carbonate |

(b) The human stomach contains acid. Sodium hydrogencarbonate (NaHCO_3) is often found as a component of antacids, which are used to settle upset stomachs. It reacts in a similar way to normal carbonates releasing a gas. Which of the following is correct?

- A** It produces hydrogen gas.
- B** It produces carbon dioxide gas.
- C** It solidifies in the stomach.
- D** It settles on top of the stomach contents.

(c) Which one of the following describes a neutralisation reaction?

- A** Reaction of a salt with water to form a base
- B** Reaction of a metal and an acid to form a salt and a gas
- C** Reaction of a metal and a base to form a salt and water
- D** Reaction of a base with an acid to form a salt and water

(d) Which one of the following salts is often used in fertilizers for agricultural purposes?

- | | | | |
|----------|------------------|----------|--------------------------|
| A | Ammonium sulfate | B | Sodium hydrogencarbonate |
| C | Calcium sulfate | D | Sodium fluoride |

(e) What is the total number of atoms in a molecule of sulfuric acid?

- | | | | |
|----------|---|----------|---|
| A | 4 | B | 2 |
| C | 7 | D | 1 |

[5]

2. Fill in the blanks with appropriate words

- (a) A chemical reaction occurs when _____ react to form new substances, called the _____.
- (b) _____ turns lime water milky.
- (c) _____ is used in respiration and rekindles a glowing splinter.
- (d) _____ is the lightest element and is highly flammable.

3. (a) Fig. 2.1 shows a schematic representation of particles in a solid.

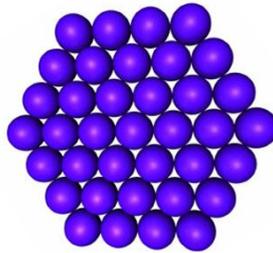
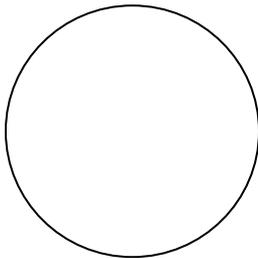
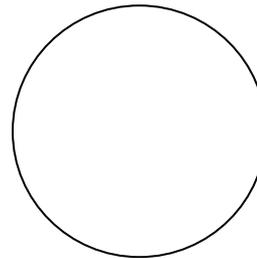


Fig 2.1: Schematic representation of particles in a solid

i) In the circles below, draw the particles of a liquid and that of a gas.



Liquid



Gas

ii) Certain substances can spread out to completely fill up any container.

Write yes or no in each row to complete the table.

	Do they spread out to completely fill up any container?
Gases	
Liquids	
Solids	

b) Air pollution results in the greenhouse effect.

i) Name one greenhouse gas

..... [1]

ii) Describe one harmful effect of the greenhouse gases.

.....
.....
.....[2]

4. Fig. 4.1 shows the pictures of six objects found in Sophie’s garden.

The objects are all made of different materials as shown.



Aluminium greenhouse frame



Slate roof tile



Iron gate



Plastic plant pot



Marble statue



Steel watering can

Fig. 4.1: Objects found in Sophie’s garden

a) Which two objects shown are made of **rock**?

i) ii) [1]

b) Which two objects shown are made of **metal**?

i) ii) [1]

(c) (i) A gas in the air reacts with iron to make it rusty. Give the name of this gas.

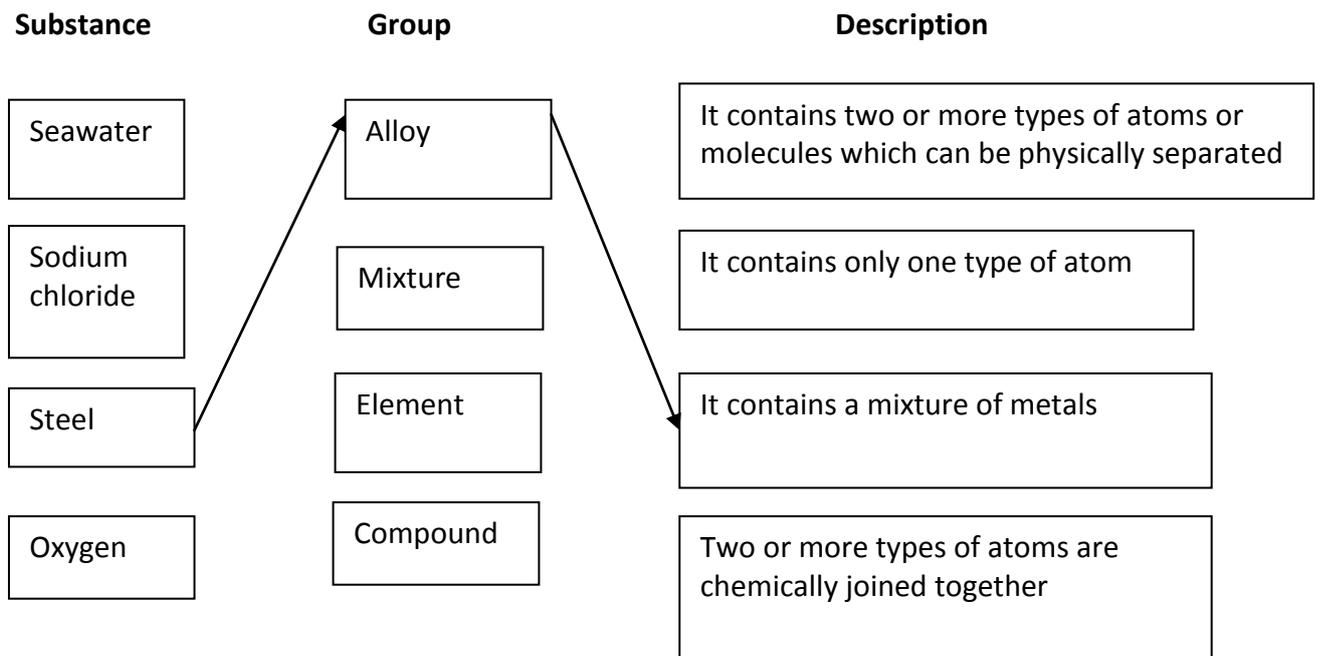
..... [1]

(ii) Give two precautions that can be taken to protect the iron gate from rusting?

.....
 [2]

5. (a) Draw a line from each of the **substances** below to the **group** that it belongs to. Draw only **three** lines.

(b) Draw a line from each **group** to the correct **description**. Draw only **three** lines.
 One example has been done for you.



[6]

6. A list of metals in order of reactivity, including 3 unknown metals **X**, **Y** and **Z**, is given below.

X **Na** **Ca** **Mg** **Y** **Fe** **Pb** **Cu** **Z**

(a) Which of these **unknown** metals:

i. will react with steam but not with cold water? [1]

ii. will not react with dilute acids? [1]

iii. will react with cold water? [1]

iv. forms a carbonate which is stable to heat?..... [1]

(b) Metal **Z** is used extensively in jewellery. What could metal **Z** be?

.....

[1]

(c) Which metal is mixed with chromium and nickel to form a corrosion resistant alloy used in cutlery?

.....

[1]

7. Fig. 7.1 shows the apparatus used to separate a mixture.

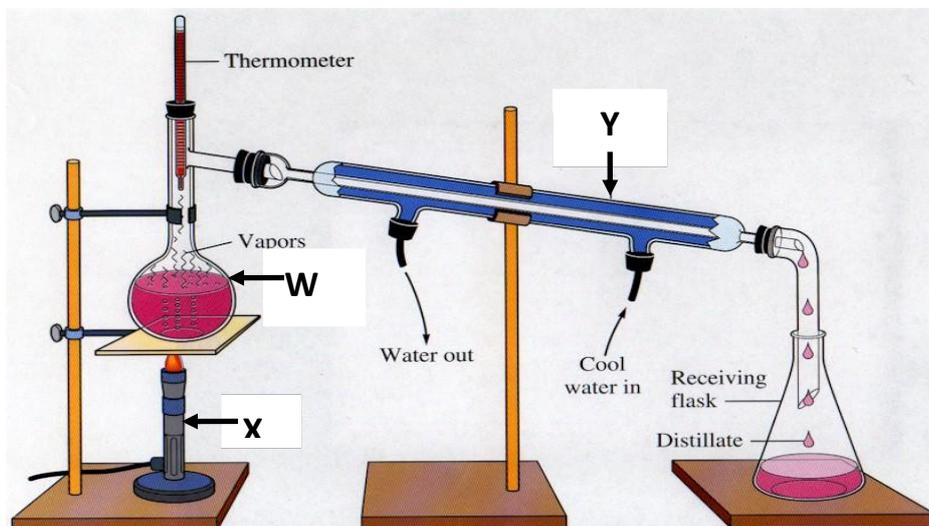


Fig. 7.1: A separation method

a) Name the method of separation shown in **Fig. 7.1**.

..... [1]

b) Label apparatus W, X and Y in the diagram

W **X**

Y [3]

c) Give an example of a mixture that can be separated using this technique.

..... [1]

d) For the mixture you have named in part (c), what is the substance which collects in the **receiving flask**?

..... [1]

e) Name a suitable separation technique for the following:

i) Separation of the inks in a forged cheque:

ii) Separation of sand and iron:

iii) Separation of sand from seawater:

[3]

8. Magnesium burns in air with a bright flame to form a white powder.

(a) Give the name of the white powder

..... [1]

(b) Give the balanced chemical equation for the reaction

..... [2]

(c) Some of the atmospheric carbon dioxide comes from the process of combustion.

Give one way in which carbon dioxide is produced through combustion.

..... [1]

(d) Fig. 8.1 shows the air cycle.

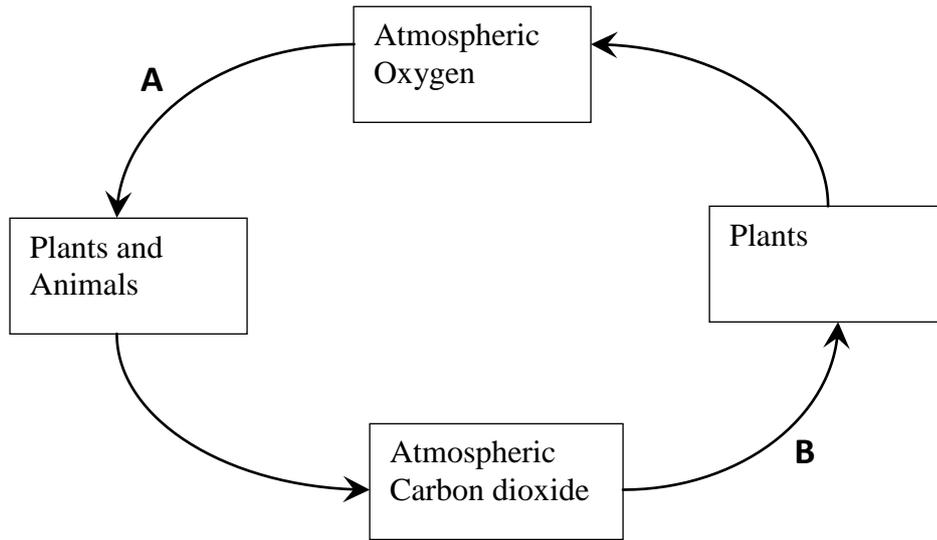


Fig. 8.1: Air Cycle

Label processes A and B

A:..... B: [2]

(e) Describe how the two above named processes help to maintain the air composition and to sustain life on earth.

.....
.....
.....
..... [2]

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