

SCHOLARSHIP EXAMINATION

CHEMISTRY

2019

30 Minutes

30 Marks

Name:

School:

Answer ALL the questions in the spaces provided.

Q1.

Changes in the atmosphere

(a) The Earth's earliest atmosphere was very different from the Earth's atmosphere today.

Complete the sentence by putting a cross (X) in the box next to your answer

The Earth's earliest atmosphere was formed by

(1)

- A animals breathing
- B global warming
- C plants decaying
- D volcanic activity

(b) Use words from the box to complete the sentences.

Each word may be used once, more than once, or not at all.

(3)

(i) The Earth's earliest atmosphere is thought to have contained

mainly

(ii) Over the years, carbon dioxide dissolved in the oceans and was absorbed by marine organisms.

The marine organisms eventually formed rocks which

are

(iii) The Earth's atmosphere today contains approximately 79%

of

(c) There is much less water vapour in the Earth's atmosphere today than in the Earth's earliest atmosphere.

Explain how the amount of water vapour decreased.

(2)

.....
.....
.....
.....

(d) When plants first started to grow on the Earth they caused the composition of the atmosphere to change.

Describe how the composition of the atmosphere changed as a result of plants growing.

(2)

.....
.....
.....
.....

Q2.

Paper chromatography can be used to separate the coloured dyes in inks.

A student carried out a chromatography experiment on four inks, **W**, **X**, **Y** and **Z**.

The diagram shows the result.

(i) State the letter of the ink that contained only one coloured dye.

(1)

.....

(ii) Ink **W** has been made by mixing two of the other inks together.

State the two inks that could have been mixed to make ink **W**.

(1)

..... and

Q3.

Complete the sentence by putting a cross () in the box next to your answer.

The reaction that takes place when copper carbonate is heated is an example of

(1)

- A neutralisation
- B oxidation
- C thermal decomposition
- D dissolving

Q4.

The table shows some crude oil fractions and some uses.
Draw one straight line from each fraction to its correct use.
One has been completed for you.

(2)

Q5.

Elements in the periodic table

(a) Copper is a metal.

(i) Complete the sentence by putting a cross () in the box next to your answer.
In the periodic table copper is in

(1)

- A group 0
- B group 1
- C group 7
- D the transition metals

(ii) Which of these is a property of copper metal?
Put a cross () in the box next to your answer.

(1)

- A does not conduct an electric current
- B forms colourless compounds
- C has a low melting point
- D is malleable

(b) Helium and argon are noble gases.

(i) Choose the correct word from this box to complete the sentence below.

(1)

Argon can be used to put out fires because it is

(ii) Choose the correct phrase from this box to complete the sentence below.

(1)

Helium is used in airships because it

(c) Chlorine, bromine and iodine are halogens.

(i) The table shows the appearance of bromine and iodine at room temperature.
Complete the table to show the appearance of chlorine at room temperature.

(2)

(ii) Hydrogen reacts with a gas X to form hydrogen fluoride.
Identify gas X and write the word equation for this reaction.

(2)

..... + →

Q6.

Explain why ammonium compounds are important in agriculture.

(2)

.....
.....
.....

Q7.

Potassium nitrate contains potassium ions, K^+ , and nitrate ions, NO_3^- .

Give the formula of potassium nitrate.

(1)

.....

Q8.

These two hazard symbols are attached to a container of liquid bromine.

A chemist uses bromine in an experiment.

Use the hazard symbols to suggest safety precautions the chemist should take when using the bromine.

(2)

.....
.....
.....

Q9.

Metals are found in the Earth's crust.

Unreactive metals are found as uncombined metals.

Which of these metals is usually found uncombined in the Earth's crust?

Put a cross () in the box next to your answer.

(1)

A gold

- B** iron
- C** potassium
- D** zinc

Q10.

Hydrochloric acid is present in the stomach to help digestion.

(a) State another effect hydrochloric acid has in the stomach.

(1)

.....
.....

(b) Complete the sentence by putting a cross () in the box next to your answer.

Indigestion can occur when excess acid is present in the stomach.

To relieve the pain caused by indigestion, people take indigestion tablets.

Indigestion tablets in the stomach

(1)

- A** dilute the excess acid
- B** neutralise the excess acid
- C** polymerise the excess acid
- D** oxidise the excess acid

(c) Some indigestion remedies contain magnesium hydroxide.

Which of the following substances is formed when magnesium hydroxide reacts with hydrochloric acid in the stomach?

Put a cross () in the box next to your answer.

(1)

- A** magnesium chloride
- B** magnesium carbonate
- C** magnesium nitrate
- D** magnesium sulfate

