Chemistry

Question 4 (52)

For examiner use only	
(1)	(2)

(*a*) Write the letter **F** beside the name of a **fossil fuel** in the table.

Write the letter **P** beside a **product** formed when a fossil fuel is burned.

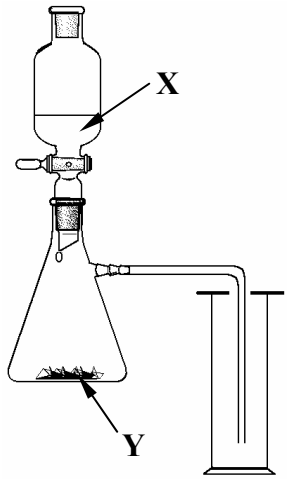
	Coal
	Nuclear
	Oxygen
	Water

(*b*) The diagram shows an arrangement of apparatus suitable for the preparation of **carbon dioxide gas** in a school laboratory.

Name suitable substances **X** and **Y** from which carbon dioxide can be made.

X _____

Y _____

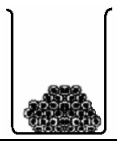
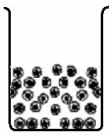
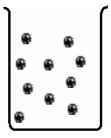


(*c*) The three states of matter are **solid**, **liquid** and **gas**.

The diagram shows the arrangement of particles in the three states of matter.

In the table write the letter **L** beside the arrangement of particles in a **liquid**.

Write the letter **G** beside the arrangement of particles in a **gas**.

(*d*) In each case write the **symbol** of the metallic element beside its name in the table on the right.

	Aluminium
	Copper

(*e*) In the table write the letter **G** beside the name of <u>each</u> of the **<u>two</u> gases** present in **unpolluted air**.

	Carbon dioxide
	Carbon monoxide
	Oxygen
	Sulphur dioxide

(*f*) Plastics are widely used to make bags, bottles, lunchboxes, crates etc.

From which **raw material** are most plastics manufactured?

_____

Plastics can be non-biodegradable i.e. they do not decompose.

Give **one reason** why this affects the environment.

_____

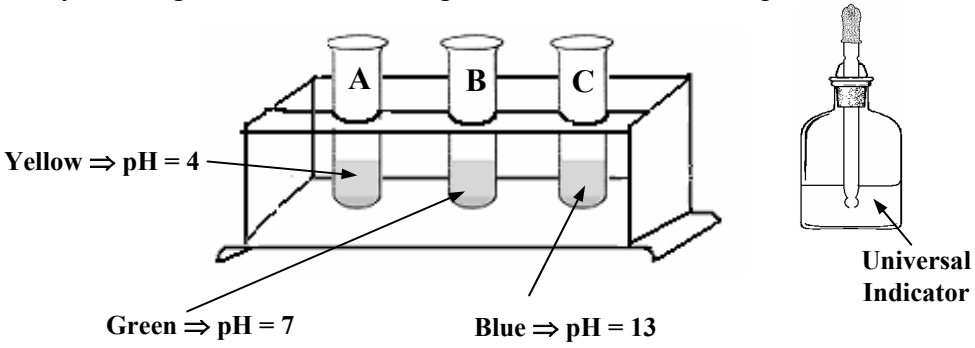
(*g*) Complete the following sentence using the words from the list on the right.

Water is an example of a _____ and

hydrogen is an _____ found in water.

Element
Compound

(*h*) The diagram shows the apparatus set up by a student to investigate **the pH of three different liquids A, B** and **C**.
A few drops of **universal indicator** were added to each liquid in a test tube.
Study the diagram and the results given. Then answer the questions below.



(*i*) Which test tube, **A**, **B** or **C**, contained **distilled water**? _____

(*ii*) Which test tube, **A**, **B** or **C**, contained an **acid**? _____

Give a **reason** for your answer.

_____

_____

(7 × 6 + 1 × 10)

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(1) | (2)

Question 5 (39)

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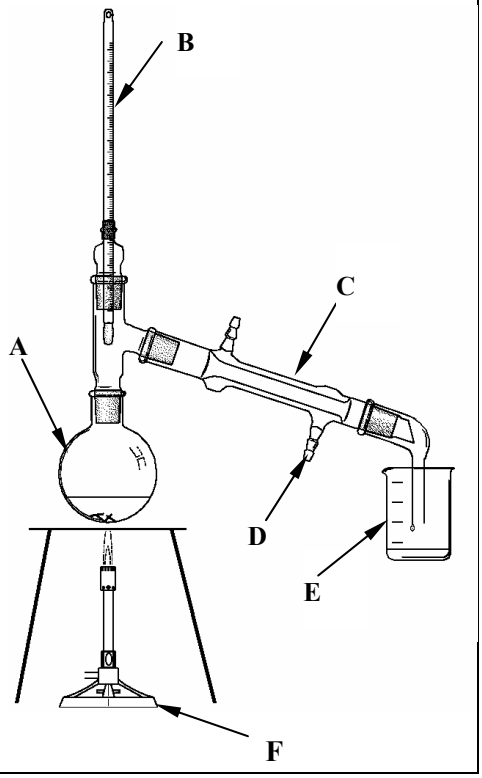
(1) (2)

(*a*) Separation techniques are very important in chemistry.
The apparatus in the diagram below was used to separate a mixture of **water and a dissolved dye**. Study the diagram.

Complete the table correctly **matching** the labels **A – F** in the diagram with words/phrases in the table. (18)

	Bunsen
	Cold water in
	Condenser
	Beaker
	Thermometer
	Round bottomed flask



What is the **name** given to the separation technique shown in the diagram above? (6)

Technique _____

A colourless liquid was collected in container **E** during the separation.

Name a **substance** you could use to show that this liquid was **water**.

_____ (3)

What **colour change** is observed in this test to show that water is present?

_____ (3)

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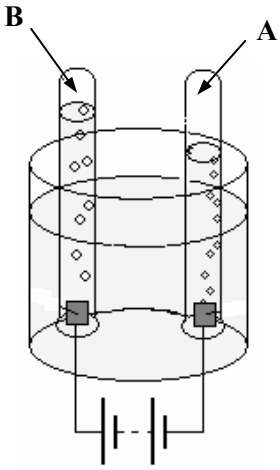
(1) (2)

(*b*) The apparatus on the right can be used to decompose water by **electrolysis**.



Acid is added to the water to allow an electric current to flow through the water.

Answer the following questions about the electrolysis of water. (9)

Hydrogen gas is collected at **A**.

What **test** could you carry out in the laboratory to show that this gas is **hydrogen**?

_____

_____

Name the gas collected at **B**.

Name _____

Question 6 (39)

For examiner use only

(1) (2)

(*a*) (*i*) Atoms are composed of tiny particles.

Choose the correct **particles** from the list on the right to complete each statement below. (12)

Protons
Electrons
Neutrons

The particles located **outside the nucleus** are the _____.

The particles that have **no electric charge** are the _____.

The particles that have a **positive charge** are the _____.

The particles **lost**, **gained** or **shared** when atoms form bonds are the _____.

(*ii*) Different types of bond can be formed when atoms combine.

What **name** is given to the bond that involves an **attraction between positive and negative ions**? (3)

_____

(*b*) In a school laboratory, a student **investigated the solubility of a salt** in water. The amount of salt which dissolved in water at different temperatures was measured. The data collected is presented in the table below.

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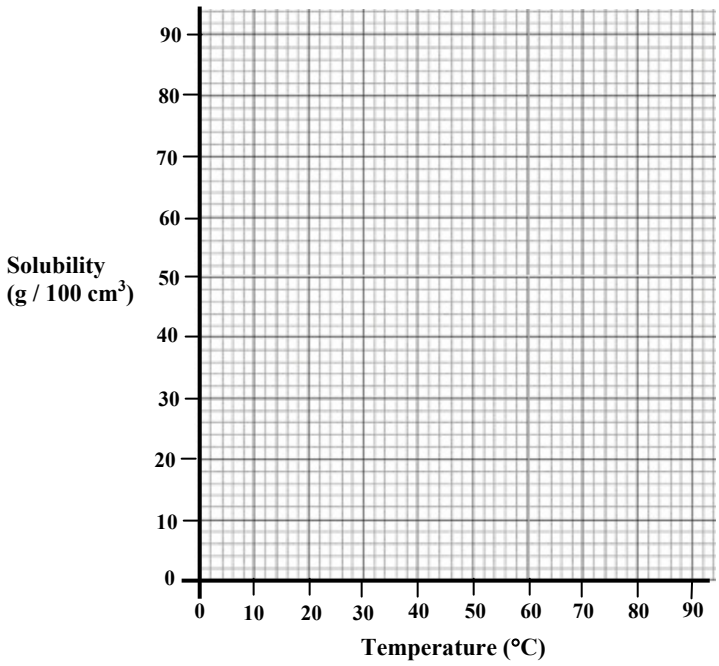
(1) (2)

Temperature °C	20	30	40	70	90
Solubility g per 100 cm^3 of water	10	20	30	60	80

(*i*) Use this data to draw a graph of **solubility (*y*-axis)** against **temperature (*x*-axis)** using the grid provided below. (12)



(*ii*) Use the graph to estimate the solubility at 60 °C. (6)

Solubility at 60 °C _____

(*iii*) What can you **conclude** about the solubility of the salt in water from the graph? _____ (6)

_____