

Revision Questions – First Year Chemistry

What substance is formed when carbon is burned in oxygen?
Give the effect of this substance on moist litmus paper.

Substance _____

Effect on litmus _____

Select a substance from the list with a pH less than 7 and one with a pH greater than 7: orange juice, rain water, toothpaste, bread soda, vinegar, sour milk, milk of magnesia, cola, washing soda.

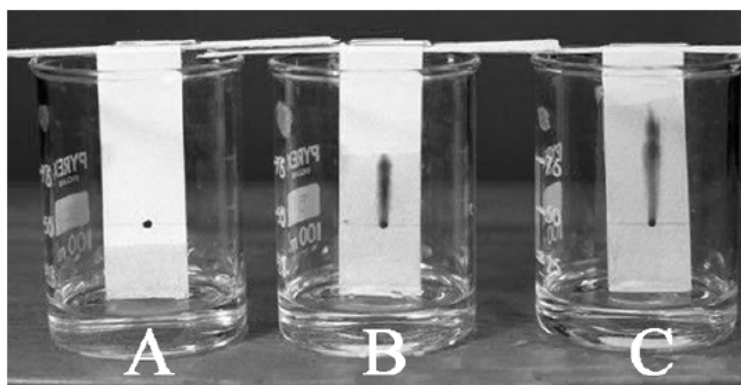
pH less than 7 _____

pH greater than 7 _____

Name two non-metallic elements.

1 _____ 2 _____

Paper chromatography was used to find the composition of brown ink in a pen. The same liquid, paper and pen were used in each of the three experiments shown. They were started at different times, **C** first then **B** and finally **A**.



(i) Why is the ink dot above the level of the liquid in each beaker?

Why? _____

(ii) What caused the dots of ink on the papers **B** and **C** to spread upwards?

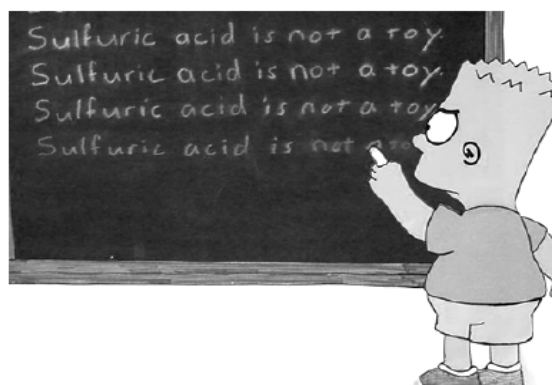
What? _____

(iii) Why were colours, other than brown, seen in **B** and **C** as the ink moved up the paper?

Why? _____

Bart is doing lines.
Most Junior Certificate candidates have three years experience of working in a school laboratory. Give two important safety rules, that must be followed at all times by everyone in the laboratory.

(6)

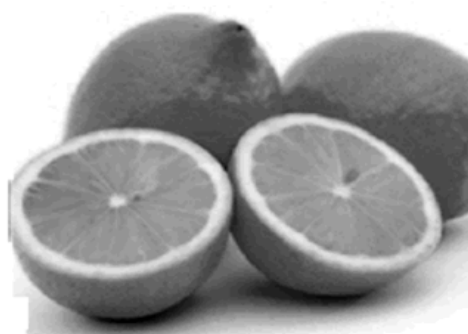


Rule 1 _____

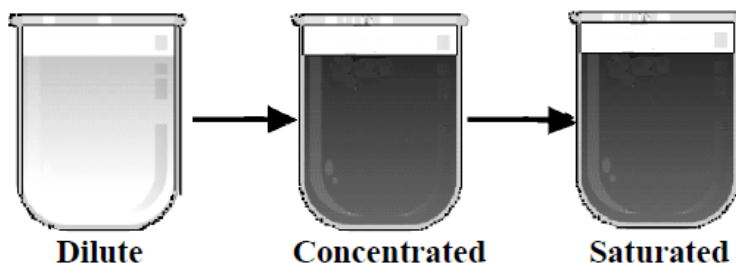
Rule 2 _____

Describe how to measure the pH of lemon juice.

Describe _____



The diagram shows three solutions of copper sulfate.



Starting with a dilute solution state how to make it more concentrated.

State _____

How do you know when a saturated solution has been produced?

How? _____

Name a catalyst that you have used in the school laboratory and give a reaction that it catalyses.

Catalyst _____

Reaction _____

The table gives the % by volume of five gases/ vapours found in our atmosphere.

Formula	% Volume
N ₂	78.08
O ₂	20.95
H ₂ O	0 to 4
Ar	0.93
CO ₂	0.036

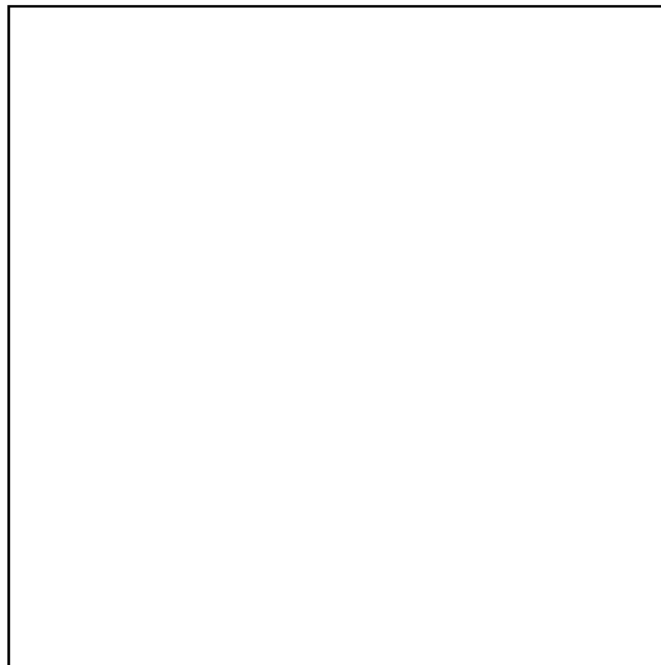
(i) Which two of these gases/ vapours are produced when a fossil fuel is burned? (6)

1 _____ 2 _____

(ii) The amount of water vapour present in air is the most variable. Suggest a reason for this. (3)

Reason _____

Describe an experiment, using a labelled diagram in the box provided to show the presence of carbon dioxide in air. (9)



Give a test to show that the droplets formed on the outside of a glass containing a cold drink are water. (6)

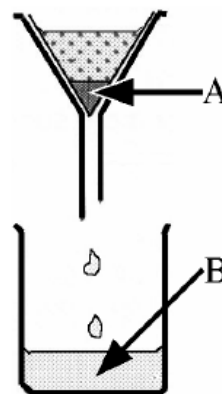


Give **two different properties** of the element magnesium compared to the compound magnesium oxide.

One _____

Two _____

A mixture of sand and salt was stirred up with water and then filtered as shown in the diagram.



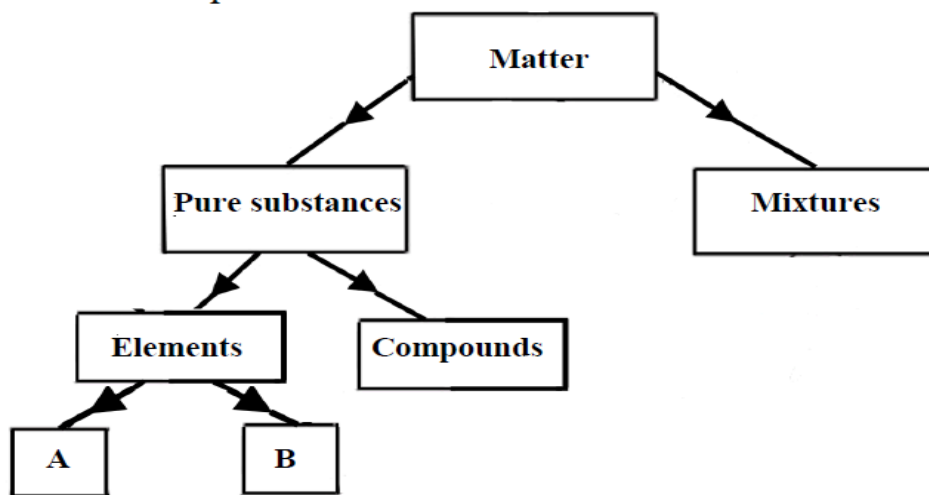
(i) Substance **A** was retained by the filter paper. Name **A**.

A _____

(ii) Substance **B** was passed through the filter paper. Name **one constituent** of **B**.

B _____

Matter is the 'stuff' that all things are made of, including us. The diagram shows how some types of matter are classified. The diagram is not complete.

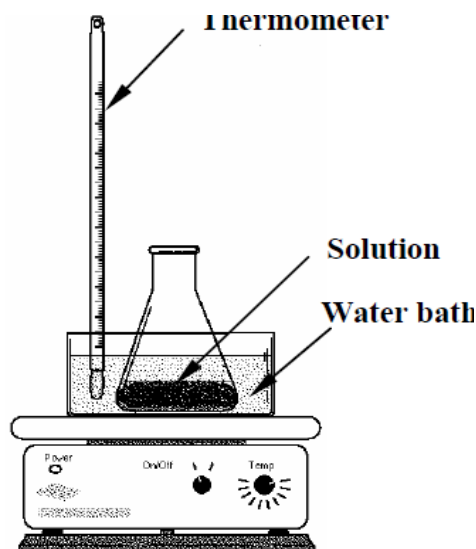


(i) Distinguish between elements and compounds. (6)

(ii) Elements are often divided into two sub-groups. Name these two sub-groups. (6)

_____ & _____

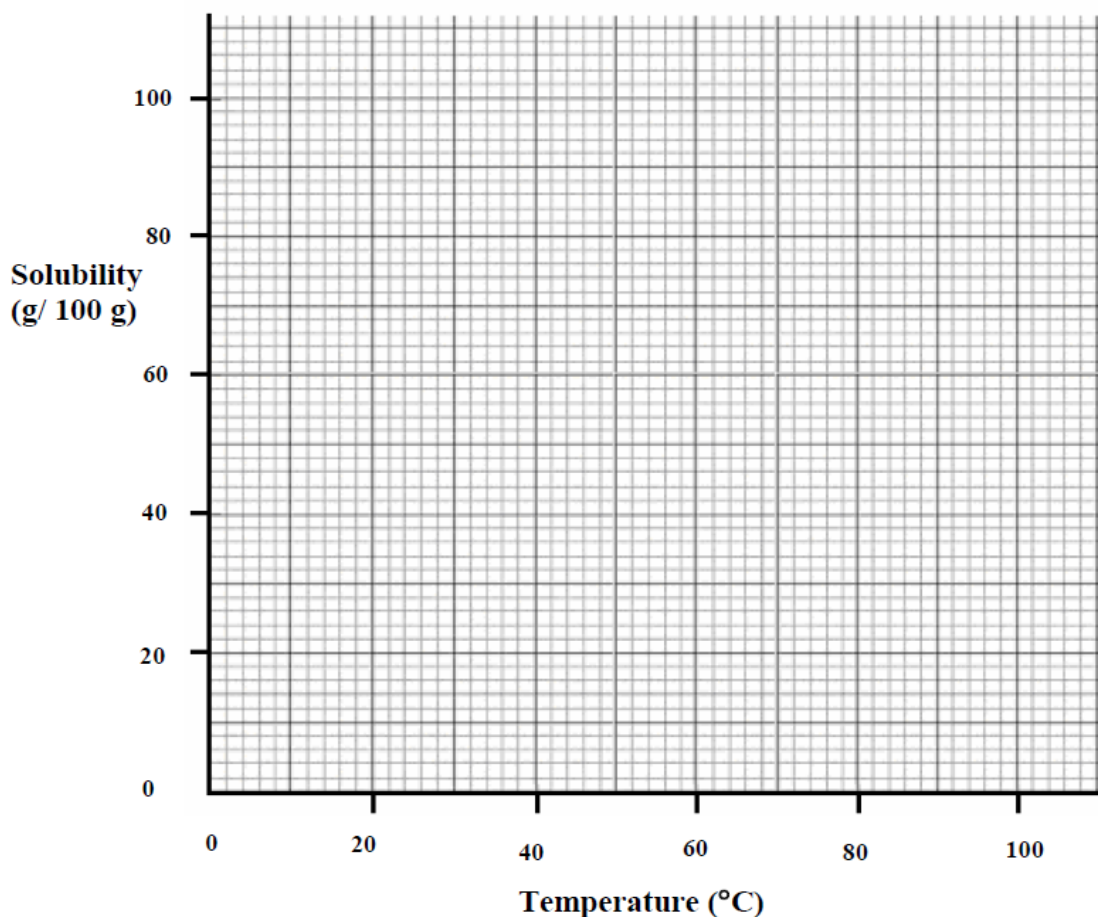
A pupil used the apparatus shown in the diagram to quantitatively investigate the effect of temperature on the solubility of copper sulfate crystals in water. 100 g of water in the conical flask was brought to the required temperature using the water bath. Copper sulfate crystals were added to the water until no more would dissolve. The mass of the copper sulfate crystals that dissolved was noted.



The data was recorded and is given the table.

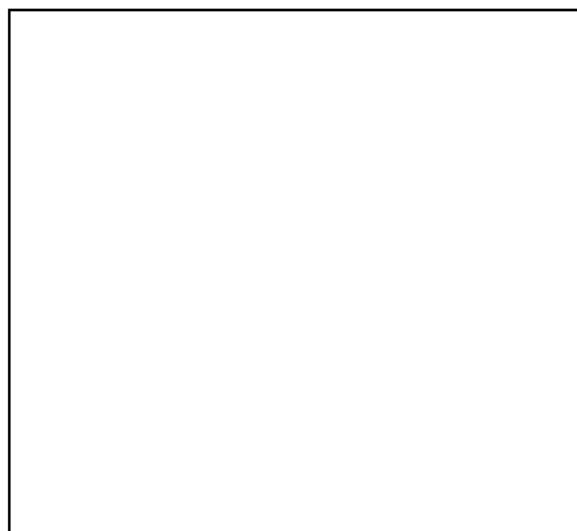
Temperature (°C)	0	20	40	60	80	100
Mass of copper sulfate crystals dissolved (g/ 100 g)	14	21	29	40	55	75

- (i) Draw a **graph** of mass of copper sulfate crystals dissolved (solubility) against temperature in the grid below. A **smooth curve** through the plotted points is required. (9)



- (ii) Use your graph to *estimate the solubility* of copper sulfate crystals at 10 °C. (3)

- (iii) Describe, using an appropriate labelled diagram in the box provided, how to *grow and collect crystals* of copper sulfate from the solution produced at 100 °C. (12)



- (b) (i) What is the *pH scale*? How can *pH be measured*? (9)

What? _____

How? _____

- (ii) Look at the table and name a *strong acid* and a *weak alkali* from it. (6)

Substance	Pure water	Household ammonia	Urine	Gastric juice (stomach)	Blood
Ph	7	12	6	1.4	7.4

Strong acid _____

Weak alkali _____

There are three states of matter: solid, liquid and gas.

(i) Give *one property* that liquids and gases *have in common*.

Give _____

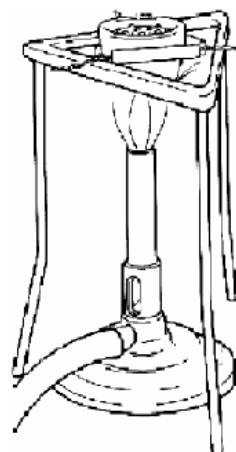
(ii) Give *one property* in which liquids and gases *differ*.

Give _____

Name any *two items of laboratory equipment* shown in the diagram.

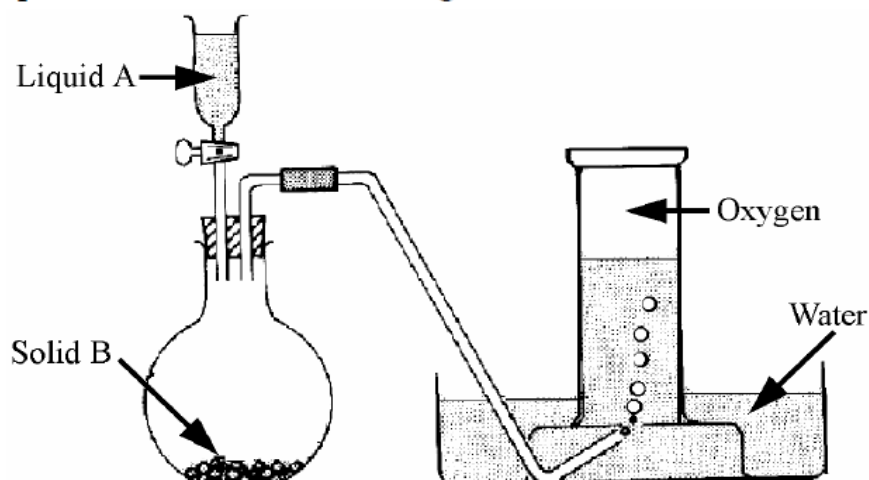
Item one _____

Item two _____



Draw a *labelled diagram*, in the box provided, of an *apparatus* that could be used to *separate an insoluble solid from a liquid*.

Oxygen can be prepared by decomposing liquid **A** using solid **B** as a catalyst. This preparation is shown in the diagram.



(i) Name *liquid A*. (3)

Name _____

(ii) Name *solid B*. (3)

Name _____

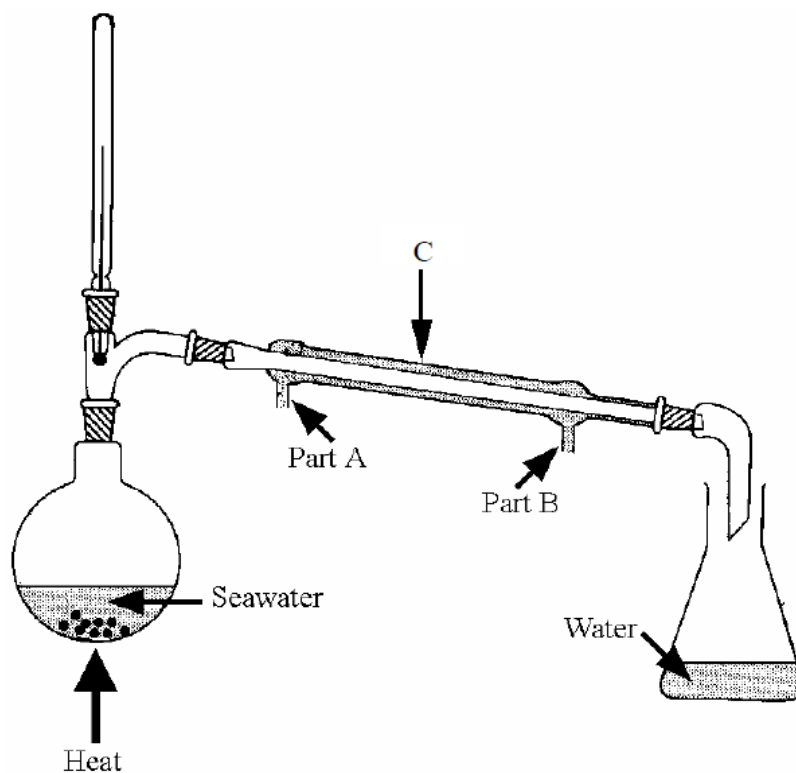
(iii) What is a *catalyst*? (3)

What? _____

Carbon was burned in oxygen and the products tested with pieces of moist red and blue litmus paper.

(iv) Give the *result of the litmus test* described above and make a *conclusion* based on this result. (6)

Result and conclusion _____



(i) Name the *separation process* shown in the diagram. (3)

Name _____

(ii) Name the *item labelled C* in the diagram. (3)

Name _____

(iii) Identify the *part A or B of item C* which is connected to the cold tap. (3)

Identify _____

(iv) How could you show that the water collected contains no salt? (3)

How? _____