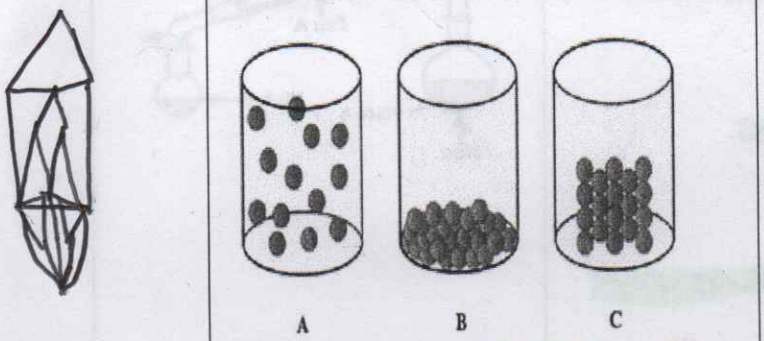
105/136 = 114/136 = 84

Name: Oisín Argoud **Teacher's Name:**

First Year Science Test Summer **Attempt all questions. Write your answers in the space provided. The marks awarded for each question are in brackets.**

Q.1 Scientists believe that everything is made from very small particles.This idea is called Particle Theory. The properties of the states of matter are based on the behaviour of particles.
The diagrams below ,labelled A,B,and C,represent the three states of matter of the same substance. Write down the state of matter represented by each letter.



A= Gas ✓

B= Liquid ✓

C= Solid ✓ 6

9

(9)

Q.2. Matter occurs in different states.

Name a state of matter that has no fixed shape.

Name Gas ✓

Name a state of matter that has no fixed volume.

Name Gas ✓ 6

(6)

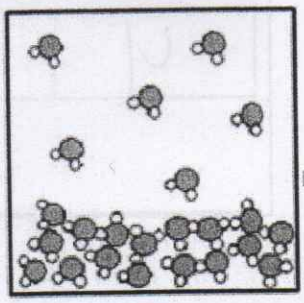
Q.3.

The diagram shows the evaporation of water. What is evaporation?

What? Changing from liquid to gas ✓

What do molecules have to gain in order to evaporate from liquid water?

What? Heat ✓ 6



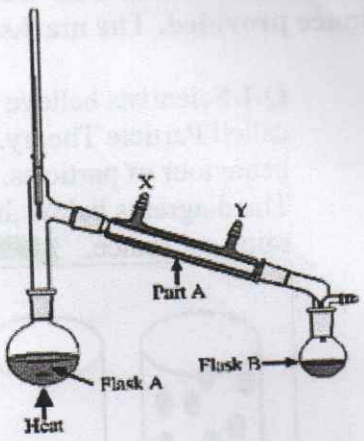
(6)

Q4.

The apparatus shown in the diagram can be used to separate mixtures.

Name part A.

A= Condensor ✓



Flask A contains sea water.

Name the liquid that collects in Flask B.

Name: Pure water ✓

Name a constituent of seawater that does not move from Flask A to Flask B.

Name: Salt ✓ 9

(12)

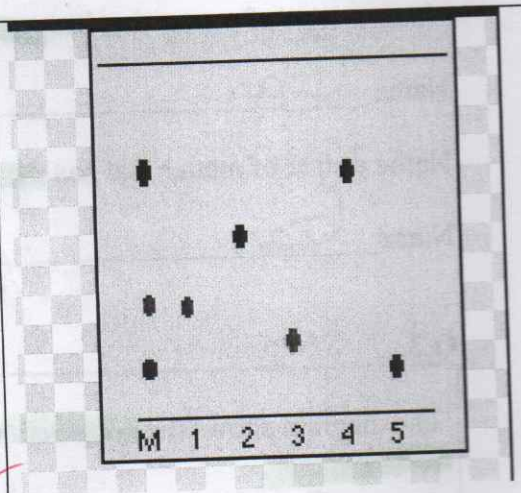
Q.5

The diagram on the left is the result of a chromatography investigation.
Ink M is a mixture of three of the five inks numbered 1 to 5.

Write down the numbers of the three inks found in Ink M.

The numbers of the three inks are:

4	1	5



(9)

9

Q.6

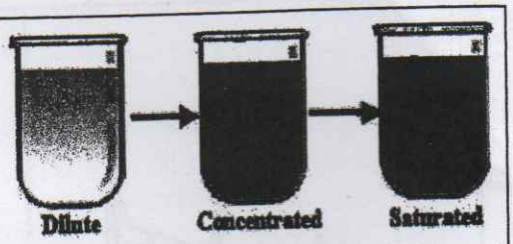
The diagram shows three solutions of copper sulfate.

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

How? Add more copper sulfate ✓

–

(3)



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

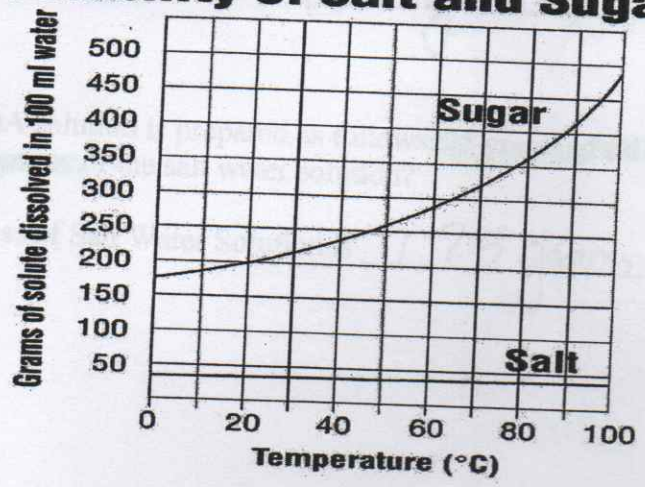
When there are non-dissolved particles ✗ (3)

What colour is copper sulfate solution?

Blue ✓ (3)

6/9

Q.7 A group of first year students investigated the effect of temperature on the solubility of two different solutes: sugar and salt. They presented their results in the table below.



(i) What is meant by *solubility?*

What? How much solute can be dissolved in solvent at that temperature ✓ 3

(iii) What conclusions would the students have made about the effect of temperature on the solubility of **sugar** in water?

Conclusions: Sugar becomes more soluble in water as you increase the temperature ✓ 3

(iii) What conclusions would the students have made about the effect of temperature on the solubility of **salt** in water?

Conclusions: Salt has the same solubility in water, no matter the temperature, or only increases slightly ✓ 3

(12)

Q 8 (i)One hundred grams of ice is allowed to melt at room temperature.. What is the mass of the liquid water when all the ice has melted?

Mass of liquid water is 100 grams ✓

(ii)A solution is prepared as follows. 25 grams of salt is added to 200 grams of water. What is the mass of the salt water solution?

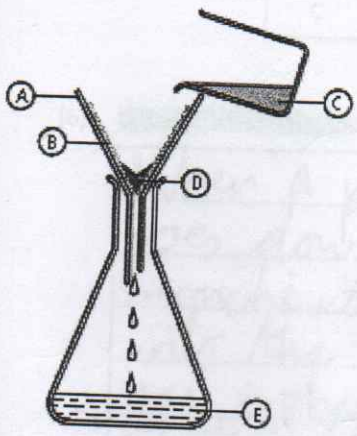
Mass of Salt Water Solution is 225 grams ✓

6

(9)

Q 9.

The following apparatus was set up to separate sand from sea water. Label A,B,C,D,E



A Funnel ✓

B Filtration paper ✓

C Sea water + Sand

D ~~Salt Deep~~ Non-dissolved substance ✓

E Pure water ✗ Sea water

(15)

6

Dissolved substances will get through the filter paper. What process could be carried out to separate the dissolved substances from the water?

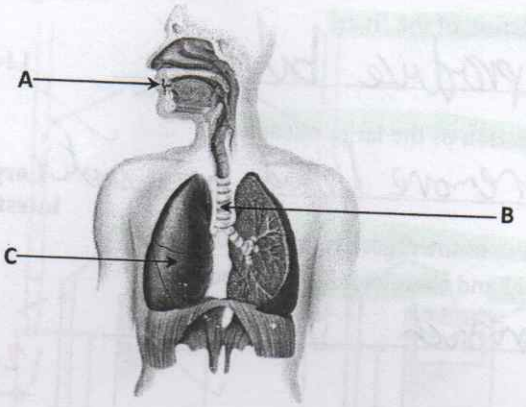
What? Distillation ✓

(3)

3

Question 10

The diagram shows the human respiratory system.



(a) Complete the table below by matching the words to the letters in the diagram.

~~Lung~~ ~~Trachea~~ Liver Oesophagus Mouth

Letter	Part of respiratory system
A	Mouth ✓
B	Trachea ✓
C	Lung ✓

6

(b) Describe what happens in the respiratory system when a person breathes in.

When a person breathes in, the air goes down their trachea, down the bronchi, through the bronchioles and into the alveoli where the process of gas exchange (deoxygenated cells getting rid of their CO_2 in exchange for oxygen) takes place.

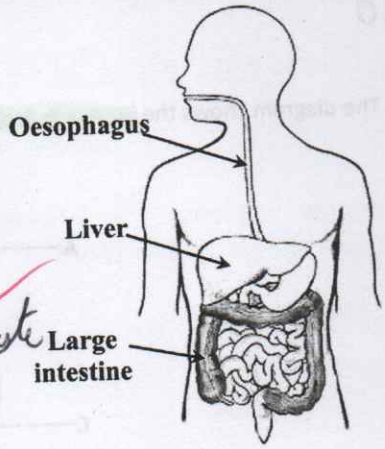
3
3

3/6

Question 11

(12)

(a) The diagram shows the human digestive system.



(i) To which organ of the human digestive system does the oesophagus carry food?

Stomach ✓

(ii) State a function of the liver.

To produce bile ✓

(iii) State a function of the large intestine.

To remove liquid from waste ✓

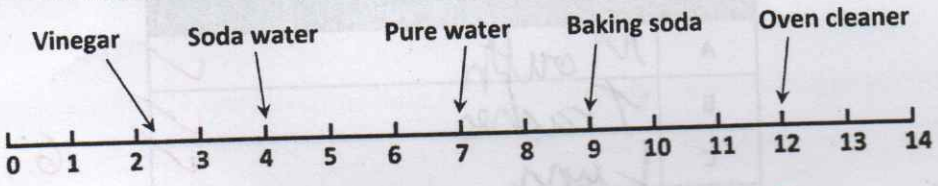
(iv) Name a part of the digestive system where both mechanical and chemical digestion occur.

Stomach ✓

12

Question 12

(h) The diagram shows the pH of a number of substances on the pH scale.



(i) Choose a substance from the diagram that is:

Acidic Vinegar ✓

Basic ~~Pure water~~ Oven cleaner ✓ 6

Neutral Pure water ✓

(ii) State how a student could measure the pH of the substances above.

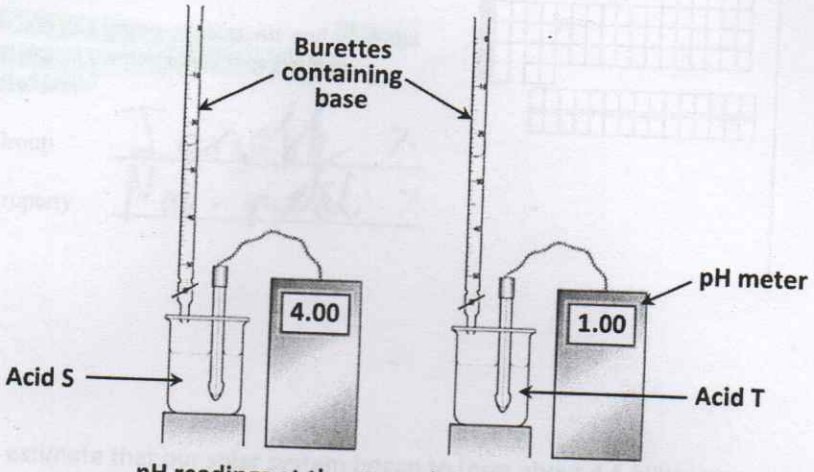
By using litmus. If it turns red, it's an acid, if it turns blue, it's a base and if both colours of litmus stay the same, it's neutral

X

Question 12(b)

(15 marks)

A student was given two acids, **S** and **T**. He set up the apparatus shown below to investigate how the pH of **S** and **T** changed when they reacted with a base. The diagrams below show the pH of **S** and **T** at the start of the investigation.



pH readings at the start of the investigation

(a) Which acid, **S** or **T**, was more acidic at the start of the investigation?

T ✓

(b) State one safety precaution the student should have followed when handling the acids.

~~Do not ingest them~~ Wear safety gloves ✓ 6

The student opened the tap on each burette and allowed the base to flow into the beakers of acid. The changes in pH were recorded as the base was added. The graph shows both sets of results.

(c) What was the pH of the solutions when 50 cm^3 of base had been added?

13 ✓

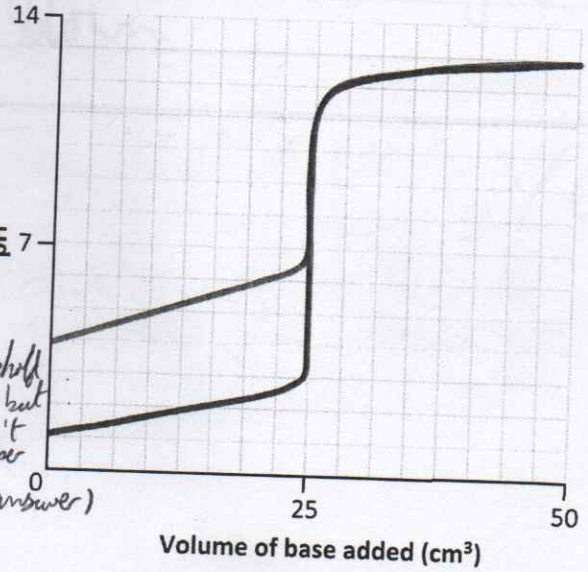
(d) What is the pH of a neutral solution?

7 ✓

(e) Identify a laboratory base the student could have used in this investigation. (I know this is a household base but can't remember the answer)

Oven cleaner

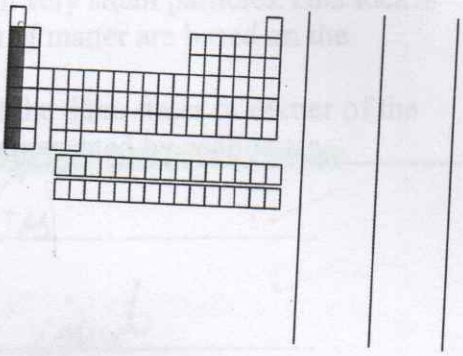
X



6

Question 13

(a) The diagram is an outline periodic table. One area, a group of elements, is shaded.



Name this group of elements and give one chemical property that they have in common.

Group Ignoble ✗

Property Non-metal ✗

Question 14

(f) Scientists estimate that our solar system began to form about 4.6 billion years ago. Scientists also estimate that our universe formed 13.8 billion years ago.

Describe two things that scientists believe happened during the early formation of the universe – before the formation of solar systems.

The Big Bang Theory states that the universe was an infinitely small dot that exploded to become everything. It was really hot at first, but as it got larger it cooled down. 3

3

Big Bang Theory. 3/6

End