

**JUNIOR LYCEUMS ANNUAL EXAMINATIONS 2002**

Educational Assessment Unit – Education Division

**FORM 2**

**INTEGRATED SCIENCE**

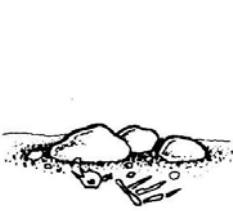
**Time 1hr 30 min**

Name \_\_\_\_\_

Class \_\_\_\_\_

**ANSWER ALL QUESTIONS**

- 1) These 4 drawings show stages in the **formation of soil**.  
The pictures are **not** in the correct order.



**A**



**B**



**C**



**D**

- a) Write down the letters of the drawings in the correct order. \_\_\_\_\_  
4 marks

- b) Look at picture **B**. Describe what is happening in picture **B**.  
\_\_\_\_\_  
\_\_\_\_\_  
2 marks

- 2) Sparrowhawks eat swallows. Greenflies eat rose bushes. Swallows eat the ladybirds.  
Ladybirds eat greenflies.

- a) Use the above information to complete the food chain below:

rose bush → → → →  
4 marks

- b) Which **living thing** in the above food chain is **making the food**? \_\_\_\_\_  
1 mark

- c) Explain why the swallow is both **a predator and a prey**.

i) **predator** \_\_\_\_\_  
1 mark

ii) **prey** \_\_\_\_\_  
1 mark

- d) On a hot summer day the greenfly population increases very quickly.  
Give two ways how this would **affect the population** of ladybirds in the foodchain above.  
\_\_\_\_\_  
\_\_\_\_\_  
2 marks

3) **Magnesium** is a metal.

When we heat magnesium, it burns with a bright, white flame.

A white powder is left at the end. This is called **magnesium oxide**.

a) Give **2** ways that we can tell a **new** substance has been made.

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2 marks

b) i) Is **magnesium** an **element**? \_\_\_\_\_

1 mark

ii) Explain your answer. \_\_\_\_\_

1 mark

c) i) Is **magnesium oxide** an **element**? \_\_\_\_\_

1 mark

ii) Explain your answer? \_\_\_\_\_

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1 mark

4) The table below shows the **pH** value of five soil samples.

Soil Sample	pH of soil
A	6.0
B	7.5
C	7.0
D	4.5
E	8.0

a) Which soil sample is **neutral**? \_\_\_\_\_

1 mark

b) Heathers grow better in **acidic** soil.

In which of the soil samples should heathers grow well? \_\_\_\_\_

2 marks

c) Cabbages grow better in **alkaline** soil.

In which soil samples should cabbages grow well? \_\_\_\_\_

2 marks

d) Lime is an **alkali**. It is sometimes added to **acidic** soils.

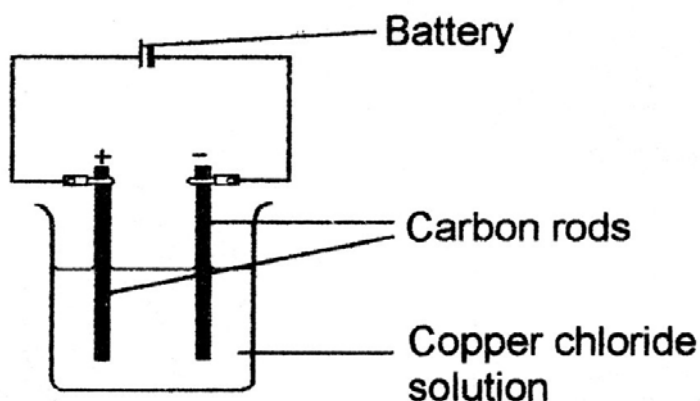
Suggest why this is this done.

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2 marks

- 5) Paul wanted to **break a compound**.  
The diagram shows the experiment he set up.



- a) What is seen at each rod?

\_\_\_\_\_

\_\_\_\_\_

2 marks

- b) Which are the **two elements** that make up the substance in the beaker?

\_\_\_\_\_

2 marks

- c) Write the **symbols** of the elements in b).

\_\_\_\_\_

2 marks

- d) Write a **word equation** to show what is happening in this experiment.

\_\_\_\_\_

3 marks

- e) i) Name the compound, formed when **iron** is left in **damp air**.

\_\_\_\_\_

1 mark

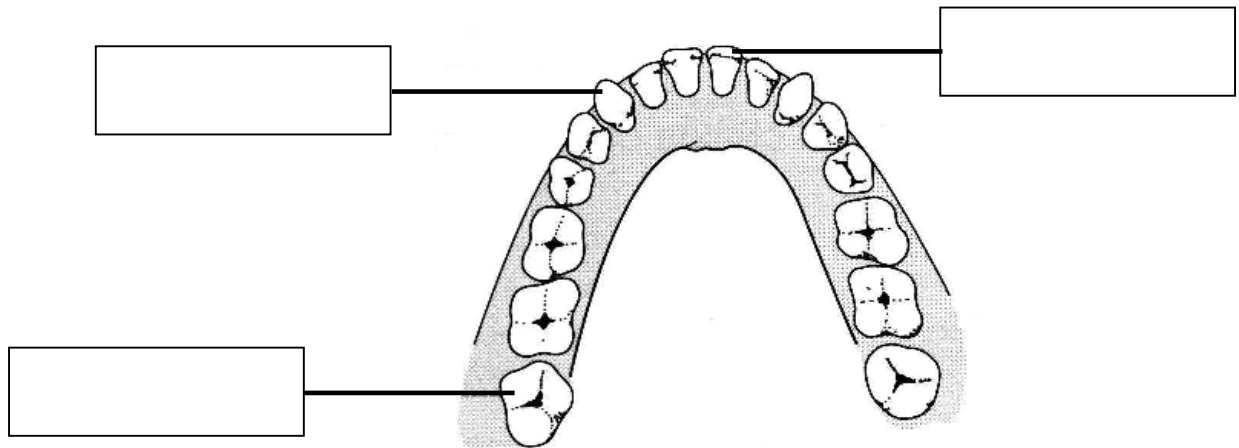
- ii) Which **elements** make up this compound?

\_\_\_\_\_

2 marks

6) The diagram shows **3 different types of teeth** in your mouth.

a) Label these types of teeth.



3 marks

b) Which type of teeth:

i) **bite and tear** the food? \_\_\_\_\_ 1 mark

ii) **chew** the food? \_\_\_\_\_ 1 mark

iii) **scrape and bite** food? \_\_\_\_\_ 1 mark

c) Which type of tooth has a **pointed edge**? \_\_\_\_\_ 1 mark

d) **Plaque** can form on our teeth.

i) What is **plaque**?  
\_\_\_\_\_  
2 marks

ii) Why is it **important to remove plaque** from teeth?  
\_\_\_\_\_  
1 mark

iii) Name **2 things** you can do to keep your **teeth healthy**?  
\_\_\_\_\_  
\_\_\_\_\_  
2 marks

7a) A balanced diet contains **fats, vitamins, minerals, carbohydrates, water** and other substances.

i) Which other food substances are missing from the list?

\_\_\_\_\_ 2 marks

ii) Which food substances give a **supply of energy**?

\_\_\_\_\_ 2 marks

iii) Name a food, which is a **rich source of fat**?

\_\_\_\_\_ 1 mark

b) When testing food, **Iodine** is used to test for **starch**, **Albustix** is used to test for **proteins**, **Clinistix** is used to test for **glucose** and a **filter paper** is used to test for **fat**.

Veronica tested some foods to find out which food substances they contain.  
The table shows her results.

<b>Food</b>	<b>Iodine</b>	<b>Albustix</b>	<b>Clinistix</b>	<b>Filter paper</b>
Pea	No change	Gives a green colour	No change	Leaves a greasy stain
Potato	Gives a black colour	No change	No change	No change
Cake	Gives a black colour	No change	Gives a purple colour	No change
Milk	No change	Gives a green colour	No change	Leaves a greasy stain
Sweet	No change	No change	Gives a purple colour	No change

From the **above results** which **food substances** are present in these foods.

i) Pea \_\_\_\_\_

ii) Potato \_\_\_\_\_

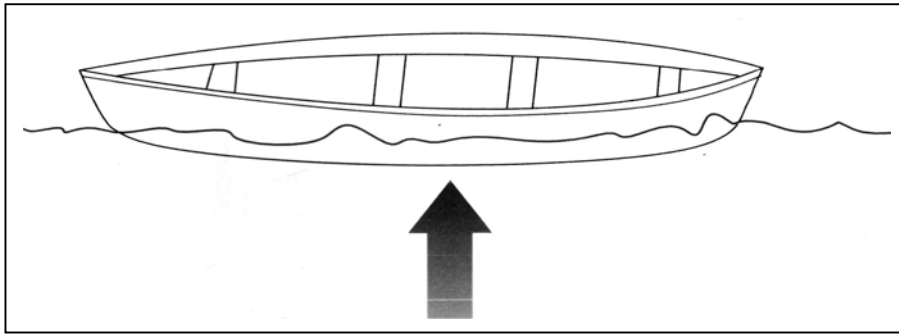
iii) Cake \_\_\_\_\_

iv) Milk \_\_\_\_\_

v) Sweet \_\_\_\_\_

8 marks

8) The diagram shows a boat **floating** on water. The arrow shows **one** of the **forces** that acts on the boat.



a) Choose words from the list to complete the sentence that describes the force shown in the diagram.

**boat                  downward                  Earth                  upward                  water**

The arrow shows the \_\_\_\_\_ push of the \_\_\_\_\_ on the \_\_\_\_\_. 3 marks

b) Draw an arrow on the diagram to show **another force** that acts on the boat when it is **floating**. 1 mark

c) Two people climb into the boat.

i) How does this affect the **size** of the **downward force**?

\_\_\_\_\_ 1 mark

ii) How does this affect the size of the **upward force**?

\_\_\_\_\_ 1 mark

9) The table below shows the **properties** of 4 objects ( A, B, C, D ):

<b>object</b>	<b>hard or soft</b>	<b>rough or smooth</b>	<b>dull or shiny</b>	<b>flexible or stiff</b>
A	hard	smooth	shiny	flexible
B	soft	rough	dull	stiff
C	hard	smooth	shiny	stiff
D	soft	rough	dull	flexible

a) Which of these objects, A, B, C, D, could be:

i) a bath sponge? \_\_\_\_\_ 1 mark

ii) a plastic ruler? \_\_\_\_\_ 1 mark

iii) a new iron nail? \_\_\_\_\_ 1 mark

b) Fill in the table below to describe the **properties of a cement brick**?

<b>object</b>	<b>hard or soft</b>	<b>rough or smooth</b>	<b>dull or shiny</b>	<b>flexible or stiff</b>
Cement brick				

10a) Write down the names of a **solid**, a **liquid**, and a **gas**.

Solid \_\_\_\_\_

Liquid \_\_\_\_\_

Gas \_\_\_\_\_

3 marks

b) Tick (✓) **one** or **more** boxes to show how the **particles** of a solid, a liquid and a gas behave.

Property	Solid	Liquid	Gas
Particles are very near each other.			
Particles are not arranged in a pattern.			
Particles move far away very quickly.			
Particles can be easily pressed in a smaller space.			
Particles move.			

8 marks

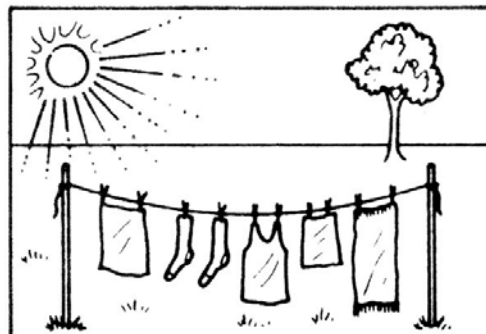
c) A metal rod is heated.

i) Tick (✓) boxes to say what happened to the particles in the **metal rod as it gets hotter**.

	increased	decreased	stayed the same
Size of particles			
Distance between particles			
Movement of particles			

3 marks

ii) What will happen to the **clothes-line** on a **hot** sunny day?



1 mark

11) **Three things** are needed to have a **fire**.

a) Draw the '**fire triangle**' to show these 3 things.

3 marks

b) If a chip pan full of oil catches fire then you should:

- 1. Turn off the gas cooker.**
- 2. Cover the pan with a damp cloth.**

Explain why these 2 actions help to put out the chip pan fire.

1. \_\_\_\_\_

2. \_\_\_\_\_

2 marks

12) Read the following passage, then answer the questions that follow:

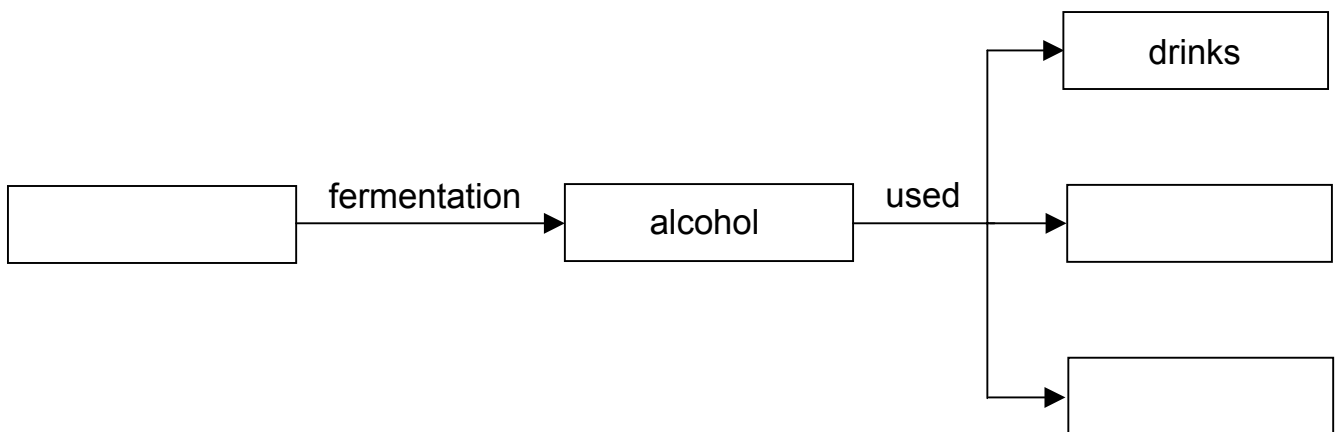
Fermentation is used to change glucose into alcohol. Drinks like wine and beer are made by fermentation. However, alcohol is not only used in drinks. It is also a new fuel that is used instead of petrol in Brazil. It is also a very good solvent.

a) What is this passage talking about?

\_\_\_\_\_

1 mark

b) Complete the flow diagram to present the information in the passage.



3 marks