

JUNIOR LYCEUM ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

FORM 1

INTEGRATED SCIENCE

Time 1hr 30 min

Name _____

Class _____

ANSWER ALL QUESTIONS

- 1) Read the following information about **an experiment**.

Simon added some salt to 100 ml of cold water in a beaker.

He stirred the water to dissolve the salt. He added more salt until no more would dissolve.

He repeated his experiment with sugar, baking powder and instant coffee powder. Each time, he used a different beaker containing 100ml of cold water.

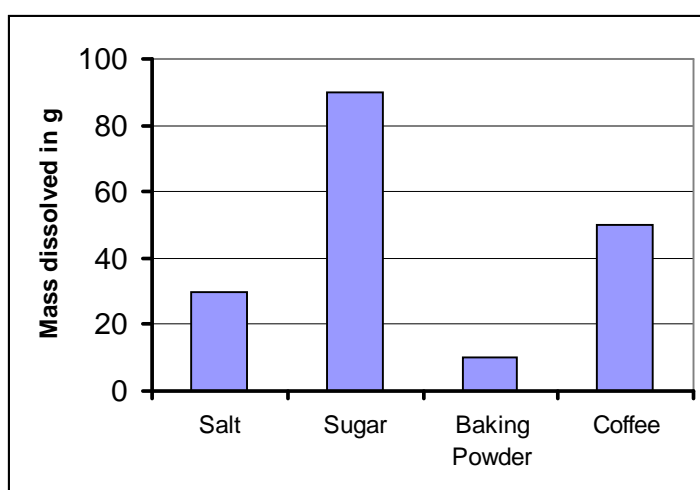
- a) Which apparatus did he use to measure 100ml of water?

(1 mark)

- b) Draw the apparatus, used in (a) in the space provided.

(1 mark)

He drew a bar chart of his results.



- c) From the bar chart, which one of the four solids was most soluble in water?

(1 mark)

- d) Give another way of how Simon could make more salt dissolve in 100ml of water?

_____ (1 mark)

- e) Safety is important when doing experiments in a science laboratory.

Write down THREE important safety rules.

_____ (3 marks)

- 2) Complete the following table about different measuring instruments:

| Measuring Instrument | What it measures | Unit |
|----------------------|------------------|--------------------|
| Thermometer | | $^{\circ}\text{C}$ |
| | Length | |
| | | Kg |

(5 marks)

- 3) a) Nicole thinks that the sun is a living thing.

Anne does not agree. She thinks that the sun is a non-living thing.

- (i) Who is correct, Nicole or Anne?

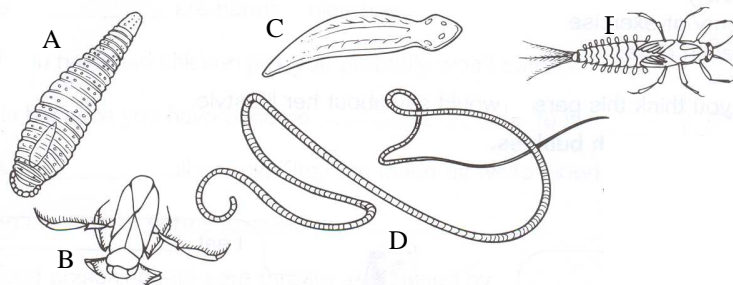
_____ (1 mark)

- (ii) Give THREE reasons for your answer.

(3 marks)

b) These animals were caught in a pond.

(i) Use this **key** to name animals A, B, C, D and E



| | Name |
|---|------|
| A | |
| B | |
| C | |
| D | |
| E | |

1. Has legs

if YES go to 2

if NO go to 3

2. Has hairs on legs

if YES **Water boatman**

if NO **Mayfly larva**

3. Has very long and thin body

if YES **Nematode worm**

if NO go to 4

4. Has a flat body

if YES **Flatworm**

if NO **Leech**

(5 marks)

(ii) **Complete:** These animals are all **invertebrates** because they

_____ (1 mark)

4) Name the five main groups of **vertebrate animals**.

_____ (5 marks)

a) **Tick** (✓) one box to show which sentence is true.

All vertebrates
live on land ☐

All vertebrates
have a backbone ☐

All vertebrates
have four legs ☐

All vertebrates use
lungs to breathe ☐

(1 mark)

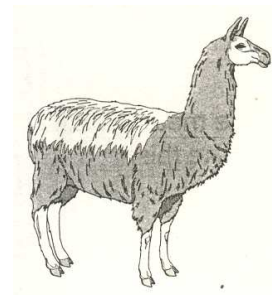
b) The drawing shows a llama, which is a large mammal.

- i) From the drawing, how can you tell that the llama is a mammal?

_____ (1 mark)

- ii) Write down ONE other way that mammals are not like other vertebrate animals.

_____ (1 mark)



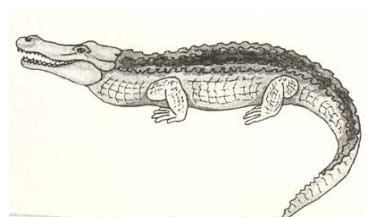
c) The picture shows a crocodile.

- i) Which group of vertebrates does the crocodile belong to?

_____ (1 mark)

- ii) Give TWO characteristics of this vertebrate group.

_____ (2 marks)







5) This question is about **fuels**.

- a) What is a fuel? _____ (2 marks)

- b) The following pictures show examples of some things, which use energy from fuels to work.

In the space provided write down the name of the fuel being used in the picture.

| | | | | |
|--------------|---|---|--|---|
| Picture |  |  |  |  |
| Name of fuel | | | | |

(4 marks)

c) These are some examples of energy sources.

Which THREE are **fossil fuels**. Underline your answers.

- | | |
|----------------|---------|
| a) wood | e) tide |
| b) wind | f) sun |
| c) natural gas | g) oil |
| d) coal | |

(3 marks)

d) Why are fossil fuels described as non-renewable? Use the words below in your answer.

MILLIONS YEARS REPLACED FAST USE

(3 marks)

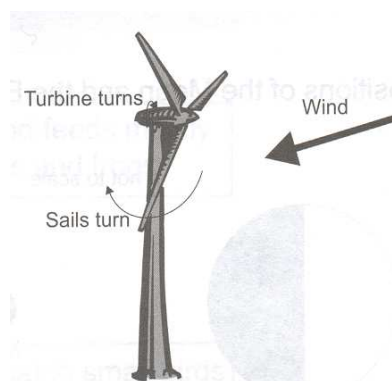
e) What can we do to make our energy supplies last longer? Give 2 suggestions.

(2 marks)

6) **Wind power** can be used to generate electricity, using generators like this one.

- (a) As the wind spins the sails of the windmill, it turns a turbine. The turbine generates electricity.

Write down the energy change, which takes place in this process.



_____ → _____ (2 marks)

- (b) Another renewable source of energy is **Solar energy**.

Apart from cost, write down

- i) ONE advantage of using solar energy.

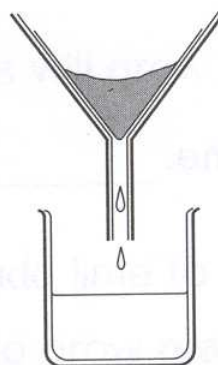
_____ (1 marks)

- ii) ONE disadvantage of using solar energy.

_____ (1 marks)

- 7) a) This question is about **an experiment**.

Some sea water is mixed with sand and passed through a filter paper as shown in the diagram.



Answer the following questions:

- i) What is the name of this process? _____ (1 mark)

- ii) What is collected in the beaker? _____ (1 mark)

- iii) What is collected in the filter paper? _____ (1 mark)

- iv) Is the water now good for drinking? _____ (1 mark)

Why? _____ (1 mark)

b) Which **separating method** would you use to obtain the following:

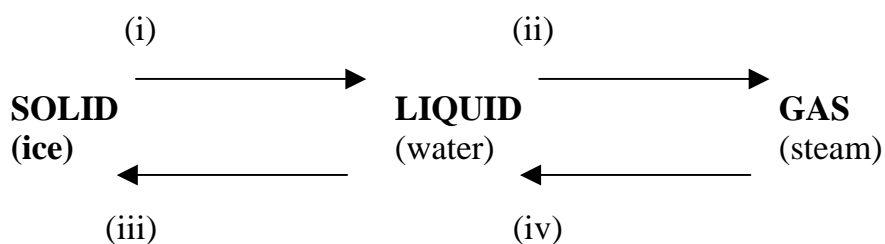
i) **Pure water** from a mixture of sea water. _____ (1 mark)

ii) **Salt** from sea water _____ (1 mark)

iii) **Red colour** from a mixture of different inks _____ (1 mark)

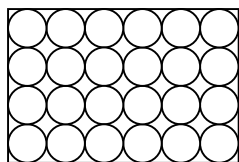
8) Water can be found in **three different states**: Solid, liquid and gas.

a) In the spaces marked (i), (ii), (iii) and (iv), write how water changes into the different states.



(4 marks)

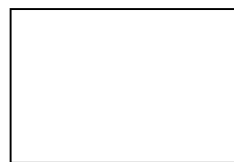
b) Box A shows particles in a solid. Draw the particles in a liquid and a gas in boxes B and C.



A. Solid



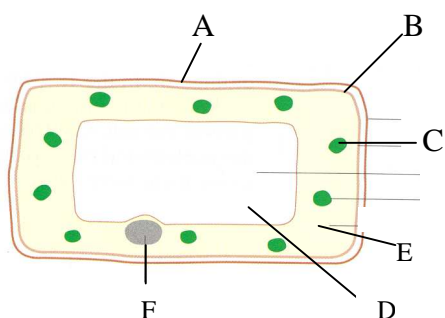
B. Liquid



C. Gas

(2 marks)

- 9) a) The diagram below shows **a cell** from a leaf of a plant.
- (i) Match the name of each part with a letter from the diagram.
- Write your answers in the table



| Part | Letter of part |
|-----------|----------------|
| Cytoplasm | |
| Cell wall | |
| Nucleus | |
| Vacuole | |

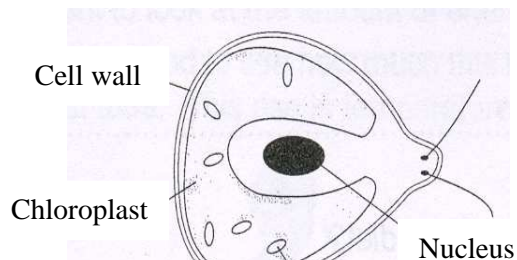
(4 marks)

- (ii) Which two of the labelled parts are also present in an **animal cell**?
Give the correct letters from the diagram.

_____ and _____

(2 marks)

- b) This is a picture of a **single cell organism**, which lives in freshwater lakes.



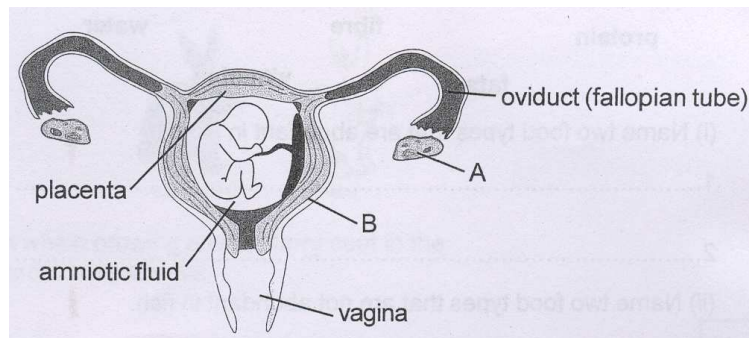
Use the diagram to answer questions (i) and (ii):

- (i) Is this organism more like a plant or animal cell? _____ (1 mark)

- (ii) Explain your answer giving **two** reasons.

(2 marks)

10) The diagram below shows a **baby developing** inside its mother's body.



- (i) Eggs are produced in the organ labelled 'A'.

What is the name of this organ?

_____ (1 mark)

- (ii) The baby is protected by a bag of amniotic fluid, which is inside the organ labelled 'B'.

What is the name of organ B?

_____ (1 mark)

- (iii) One of the parts labelled in the diagram passes food from the mother to the unborn baby. Name this part.

_____ (1 mark)

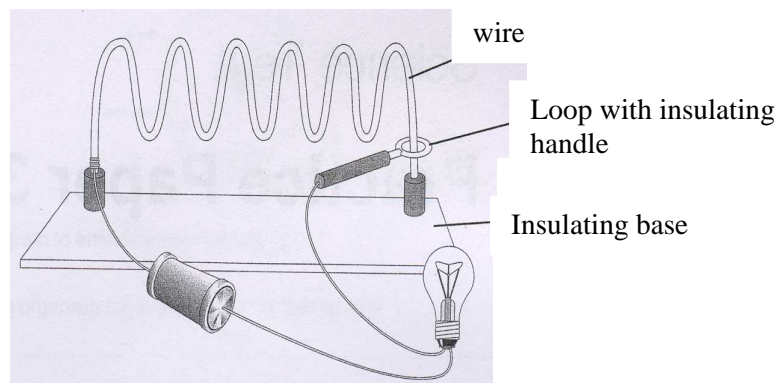
- (iv) Give an example of a **harmful** substance which can pass from the mother to the unborn baby.

_____ (1 mark)

- (v) Give the name of the **organ system** of the mother's body that is shown in the diagram.

_____ (1 mark)

- 11) Dominic has made a 'steady hand' game. The loop has to be taken from one end of the wire to the other without touching it.



- a) The loop is made of a **conducting** material, but the handle is made out of an **insulating** material.

Name a material that could be used to make:

(i) the loop _____ (1 mark)

(ii) the handle _____ (1 mark)

- b) The loop and wire are connected to a bulb and a battery.

The bulb only lights up when the loop touches the wire.
Explain why.

(2 marks)

- c) Dominic paints the loop to match the handle, but then the game stops working.
Suggest why the game doesn't work with a painted loop.

(2 marks)

12) A **circuit** has two bulbs connected in series, a battery and a switch.

- a) Draw this circuit using symbols.
Label each symbol used.

(5 marks)

- b) The battery in the above circuit is then connected the other way round.
What will happen to the bulbs if the switch is closed now?
Tick the correct box

They do not light up

☐

They are brighter

☐

They have the same
brightness

☐

They are dimmer

☐

(1 mark)

13) Look at the following list of words:

oxygen carbon dioxide sulphur dioxide
carbon copper oxide carbon monoxide
nitrogen copper

- (a) Name **two elements** from the words above:

(i) _____

(1 mark)

(ii) _____

(1 mark)

- (b) Name **one compound** from the words above:

(1 mark)

- (c) Name the **two compounds** which are both formed from the same
two elements.

(1 mark)

(1 mark)

14) This question is about **metals**.

These are four properties of most metals.

- Metals are good conductors of electricity.
- Metals are good conductors of heat.
- Metals can be polished and have shiny surfaces.
- Metals are strong.

From these properties, give the main reason why:

i) garden spades are made out of metals;

(1 mark)

ii) rings are made out of metals;

(1 mark)

iii) saucepans are made out of metal;

(1 mark)

iv) wires are made out of metal;

(1 mark)