

# JUNIOR LYCEUM ANNUAL EXAMINATIONS 2006

Educational Assessment Unit – Education Division

**FORM 1**

**INTEGRATED SCIENCE**

**Time 1hr 30 min**

Name \_\_\_\_\_

Class \_\_\_\_\_

## ANSWER ALL QUESTIONS

- 1 a) This question is about **safety rules**.

Write down THREE important safety rules for the science lab.

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3 marks

- b) Read the following passage. Copy the sentence that describes the **result** of the experiment.

I collected the apparatus. There was a bunsen burner and a heatproof mat. There was also a grey metal ribbon and tongs for holding the ribbon. I lit the burner. It had a blue flame. I heated the ribbon. It gave out a bright white light and turned into white ash. The ribbon is changing into a new chemical because it has changed its looks.

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2 marks

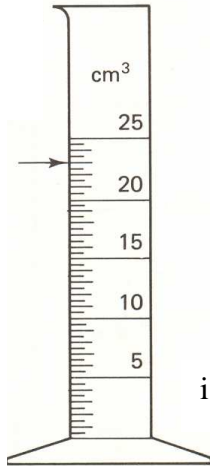
- 2) This question is about **measuring instruments**.

- a) Which measuring instrument would you use to measure the following?

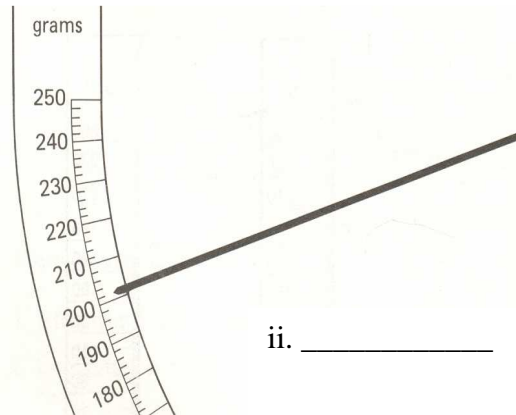
- i) The volume of water in a beaker. \_\_\_\_\_
- ii) How hot is the water in a beaker. \_\_\_\_\_
- iii) The mass of your science book. \_\_\_\_\_
- iv) How long is your desk. \_\_\_\_\_
- v) The time it takes for 10ml of water to boil. \_\_\_\_\_

5 marks

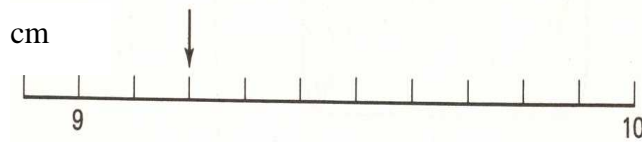
b) What is the reading on the following measuring instruments?



i. \_\_\_\_\_



ii. \_\_\_\_\_



iii. \_\_\_\_\_

3 marks

3) This question is about **living things**.

- a) Peter is learning about living things. Peter said ‘Animals and plants grow...they are living things. The salt crystals also grow, so salt crystals are living things.’

Give Peter FOUR reasons to show him that the salt crystals are not living things.

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

4 marks

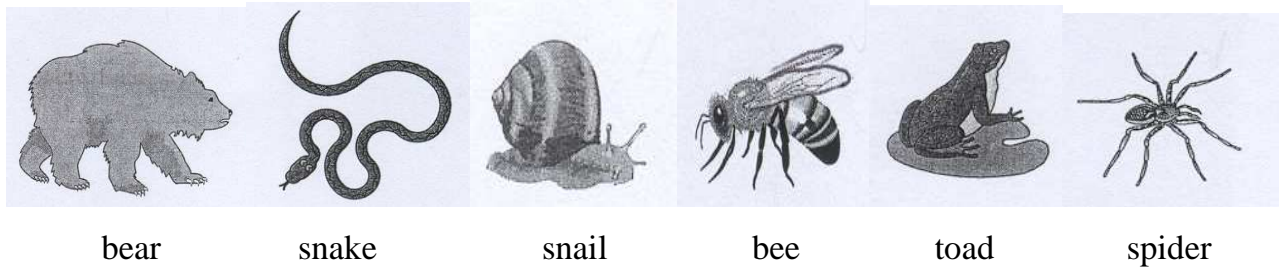
- b) Animals are divided into TWO groups: Vertebrates and Invertebrates. Complete these two sentences:

i) A vertebrate is \_\_\_\_\_

ii) An invertebrate is \_\_\_\_\_

4 marks

c) Look at the following animals. Use the diagrams to answer the questions (i – iv).



i) Give the names of the vertebrates \_\_\_\_\_

ii) Give the names of the invertebrates \_\_\_\_\_

6 marks

iii) Name a mammal. \_\_\_\_\_.

What TWO features make it a mammal? \_\_\_\_\_

\_\_\_\_\_

iv) Name an amphibian. \_\_\_\_\_.

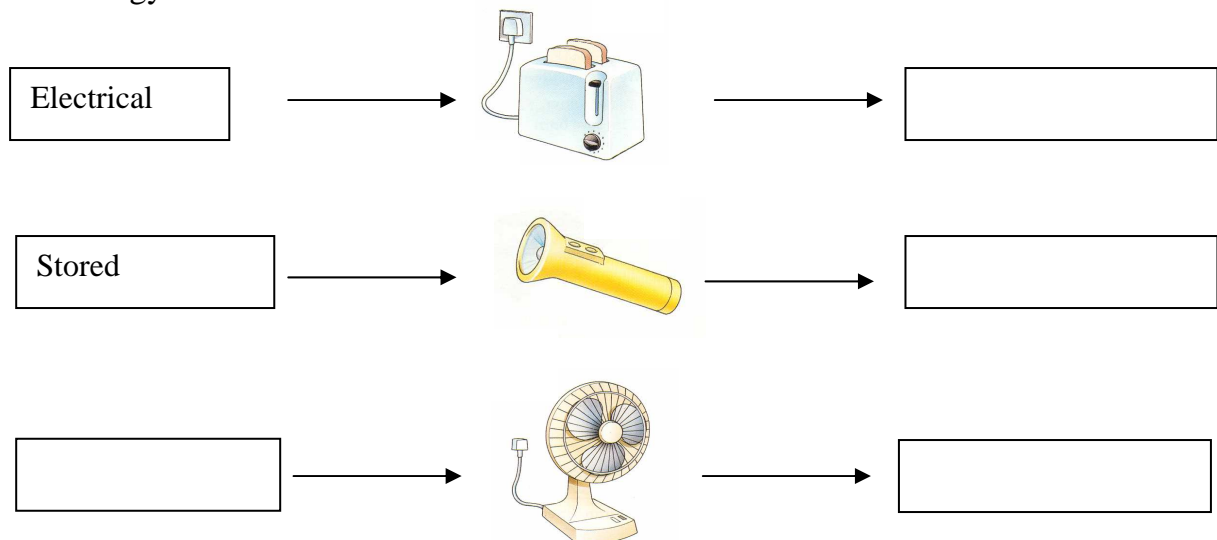
What TWO features make it an amphibian? \_\_\_\_\_

\_\_\_\_\_

6 marks

4. We need energy for many different things. Energy can be transferred from one form to a different form. Look at the following examples. Fill in the blanks to complete the main energy transfer.

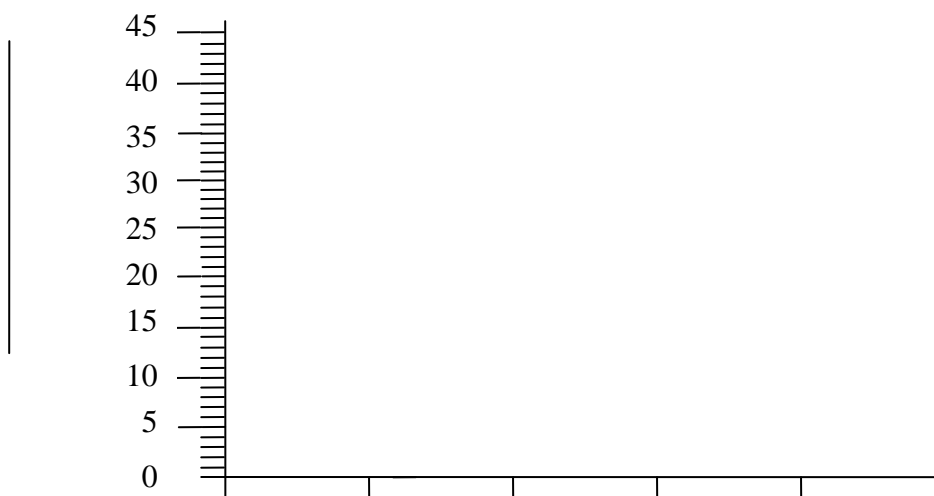
4 marks



5. Most of the world's electrical energy comes from the following five sources:

Fuels	Percentage of world's electrical energy
Coal	35%
Moving water for hydroelectric power	7%
Oil	42%
Gas	11%
Nuclear fuel	5%

Draw a **bar chart** using these figures. Write down all the important information on the bar chart.



7 marks

a. Which THREE are fossil fuels? \_\_\_\_\_

b. Which one does not give off polluting gases? \_\_\_\_\_

c. Which one is renewable? \_\_\_\_\_

d. Name ONE other source which is not mentioned above and can be used to generate electricity. \_\_\_\_\_

6 marks

6. Sam and Anne have some water in a bucket that has been scooped out of the sea. The water has salt, sand, small stones and pieces of seaweed mixed into it. The children want to separate all the different bits out of the water.

These are some different ways of separation:

**Condensing, evaporating, filtering, by hand, distilling**

Use these words to answer the following questions.

- i. Which method should they use first, to separate the pieces of stone and seaweed from the mixture. \_\_\_\_\_
- ii. Then they want to separate the sand. Which method should they use?  
\_\_\_\_\_
- iii. Now they need to get salt. Which method should they use?  
\_\_\_\_\_

3 marks

- iv. Draw the apparatus needed in question (ii) OR (iii).  
Name the separation method being used. \_\_\_\_\_ 2 marks

Label the apparatus.



4 marks

7. Give **ONE** example of each of the following:

Solid: \_\_\_\_\_

Liquid: \_\_\_\_\_

Gas: \_\_\_\_\_

Underline the **THREE properties of solids** by choosing **ONE** from each of i, ii and iii.

- i. do not have a fixed shape / have a fixed shape
- ii. do not have a fixed volume / have a fixed volume
- iii. particles are close together / particles are far from each other

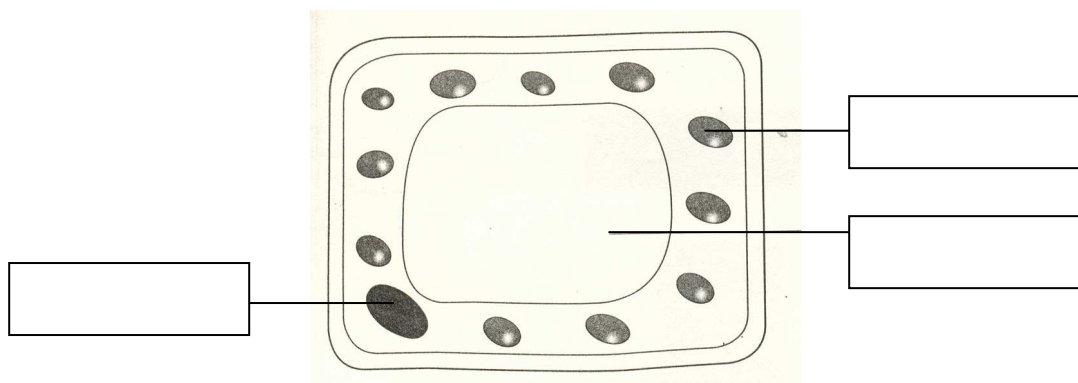
6 marks

8. The diagram below shows a plant cell.

a. (i) The lines from the boxes point to three parts of the cell.

In the boxes, write the names of these three parts.

3 marks



(ii) Each part of the cell has a function. Match the name of part of cell with its function. **Write down the number in the middle column.**

Name of part of cell	answer	Function
1. Cell membrane		Controls what the cell does
2. Cell wall		Controls what goes in and out of the cell
3. Nucleus		Chemical reactions happen there
4. Cytoplasm		Supports the cell

4 marks

b. **Fill the blanks in the sentences below.**

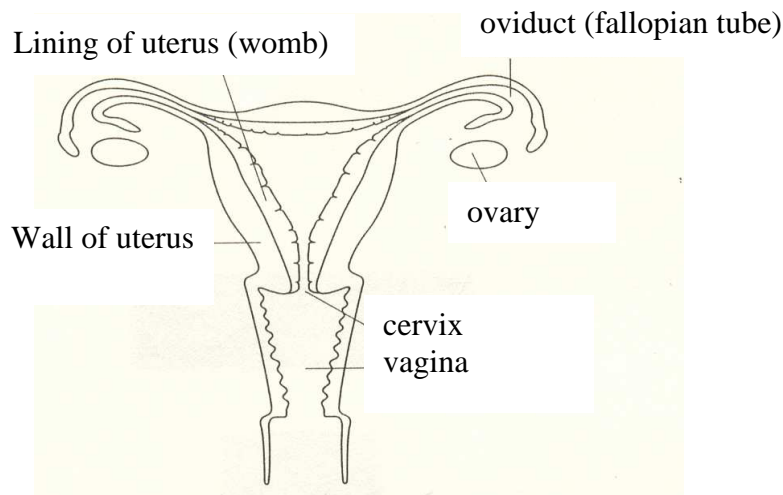
All living things are made from cells.

Cells join together to form \_\_\_\_\_.

These work together in \_\_\_\_\_, for example the heart or brain.

2 marks

9. The diagram below shows the female reproductive system



a. From which labelled part of the female reproductive system are human eggs (ova) released? \_\_\_\_\_

b. Name the two cells that join together at fertilisation.

\_\_\_\_\_ and \_\_\_\_\_

c. When a woman is pregnant, the baby develops in the uterus. Substances, such as nutrients, pass from the mother's blood to the baby's blood.

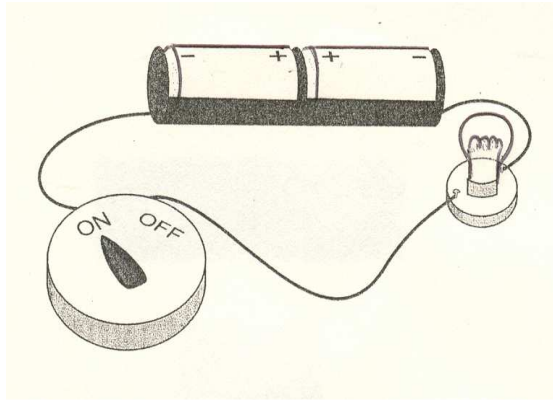
(i) Name ONE other useful substance that passes from the mother's blood to the baby's blood. \_\_\_\_\_

(ii) Name TWO other harmful substances that may pass from the mother's blood to the baby's blood.

\_\_\_\_\_ and \_\_\_\_\_

6 marks

10. Kylie has made a circuit using two new batteries, a new bulb and a switch.



- a. Use symbols to draw a circuit diagram of Kylie's circuit. Label the circuit  
Kylie's circuit:

4 marks

- b. Why is the bulb in this circuit not lit up?

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2 marks

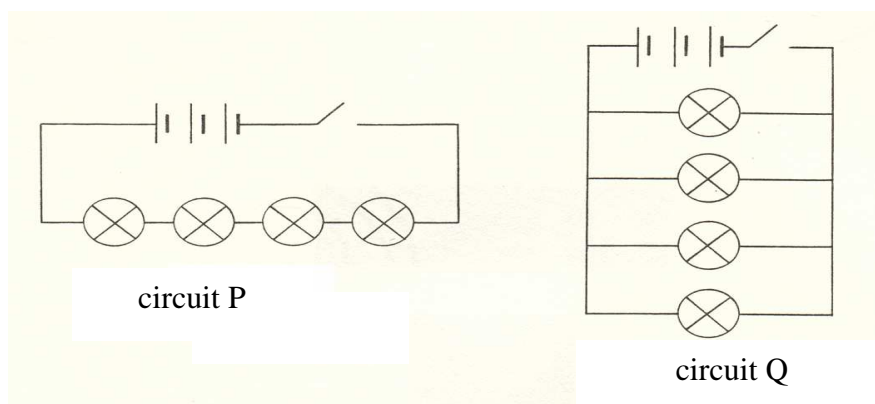
- c. How would you change Kylie's circuit so that the bulb will light up? Draw this correct circuit.

Your correct circuit:

1 marks



11. Joe wanted to use four lamps. He worked out two ways to connect the lamps.



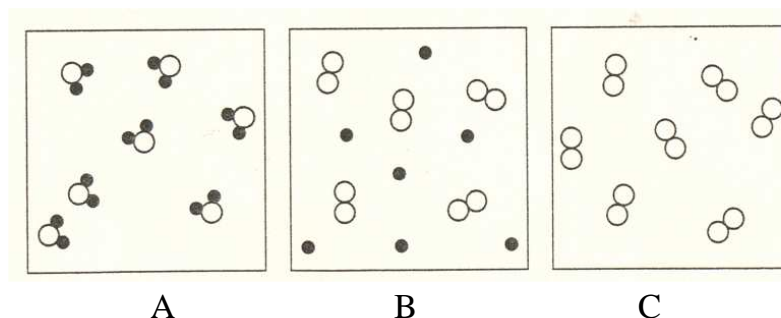
- a. (i) One of the lamps was broken. Which circuit still worked with the other lamps shining? \_\_\_\_\_ 1 marks

- (ii) What type of circuit is this circuit? \_\_\_\_\_ 1 marks

- b. The other circuit did not work with the broken lamp. What type of circuit is this?

\_\_\_\_\_ 1 marks

12. a. The diagrams show the arrangement of molecules in three different chemicals A, B, and C.



Which of the diagrams show a chemical which is a ....

- i. a mixture of two elements \_\_\_\_\_  
 ii. a pure element \_\_\_\_\_  
 iii. a pure compound \_\_\_\_\_

3 marks

- b. Draw diagrams, in the boxes below to show arrangement of water particles in ice, water and steam. Use circles, like this ○ , to represent the water particles.



ice



water



steam

3 marks

- c. Write down the name of TWO elements and TWO compounds.

Elements: \_\_\_\_\_

Compounds: \_\_\_\_\_

4 marks

**END OF PAPER. CHECK YOUR WORK AGAIN**