

JUNIOR LYCEUMS ANNUAL EXAMINATIONS 2000

Educational Assessment Unit – Education Division

FORM 2

INTEGRATED SCIENCE

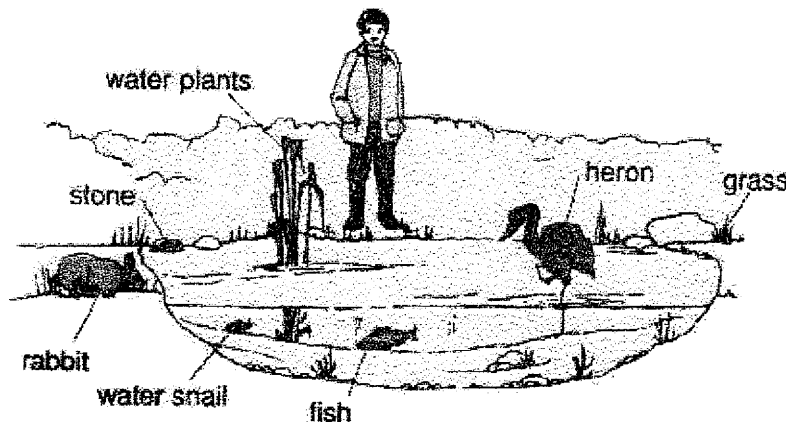
Time 1hr 30 min

Name _____

Class _____

ANSWER ALL QUESTIONS

1. The drawing shows plants and animals around a pond. The living things here depend on each other for their food.



- a. Complete these **food chains** using the living things in the above drawing.

i. Water plants → → → Heron (2)

ii. → Rabbit → (2)

- b. From where are the **plants** getting their **energy**?

_____ (1)

- c. Plants make their own food. What is this process called?

_____ (1)

- d. What two **substances** are used by a plant to make food?

_____ (2)

- e. **Pollution** of the pond kills all of the fish. What might happen to the heron?

_____ (1)

- f. What could be the cause of the **pollution**?

_____ (1)

2. Read the following description of **rubber** and then answer the questions that follow?

Rubber

The material that you call rubber can be either natural or synthetic. Natural rubber is called latex and it comes from the rubber plant. It is collected as it drips from a cut in the tree trunk. In pure form it has a white colour, and it is a polymer made of carbon and hydrogen atoms. Natural rubber is soft, bouncy and very stretchy. This natural rubber can be changed into a harder, less bouncy and less stretchy material by a process called vulcanisation. In this process small amounts of sulphur or carbon are added to the natural rubber.

- a. Find a phrase from the passage, which shows the **appearance** of natural rubber?

_____ (1)

- b. Find a phrase from the passage, which shows one **property** of natural rubber?

_____ (1)

- c. Is natural rubber an **element**? Why?

_____ (2)

- d. Name two **elements** mentioned in the passage and write their **symbols**.

| Element | Symbol |
|---------|--------|
| | |
| | |

(4)

- e. Why do you think rubber is used to make balloons?

_____ (2)

- f. Name an **element** that can be used for each of the following.

- Wedding ring _____
- Thermometer _____
- Disinfecting swimming pools _____
- Electrical wiring _____

(4)

3. Our body is made up of different **organ systems**, which work well together when we are fit and healthy.

a. Fill in the following table.

| Organ | Organ System | Job that the organ does. |
|-------|--------------------|--------------------------|
| | Circulatory system | |
| | | Digests food |
| Lungs | | |

(6)

b. Ann read a leaflet at the Health Centre. She read:

- Eat lots of fresh fruit, cereals and vegetables.
- Wash your hands before touching food.
- Never smoke cigarettes.
- Do not eat fatty foods.
- Get your babies vaccinated.

Each of these can help to prevent an illness.

Write the correct phrase from the above list by each illness.

| illness | prevention |
|----------------|-----------------------------|
| measles | Get your babies vaccinated. |
| lung cancer | |
| food poisoning | |
| heart attack | |
| constipation | |

(4)

4. Five of the seven **basic food substances** are water, minerals, fibre, vitamins and carbohydrates.

a. Name the other two basic food substances.

(2)

b. What is a diet, which contains the correct amount of all the basic food substances called?

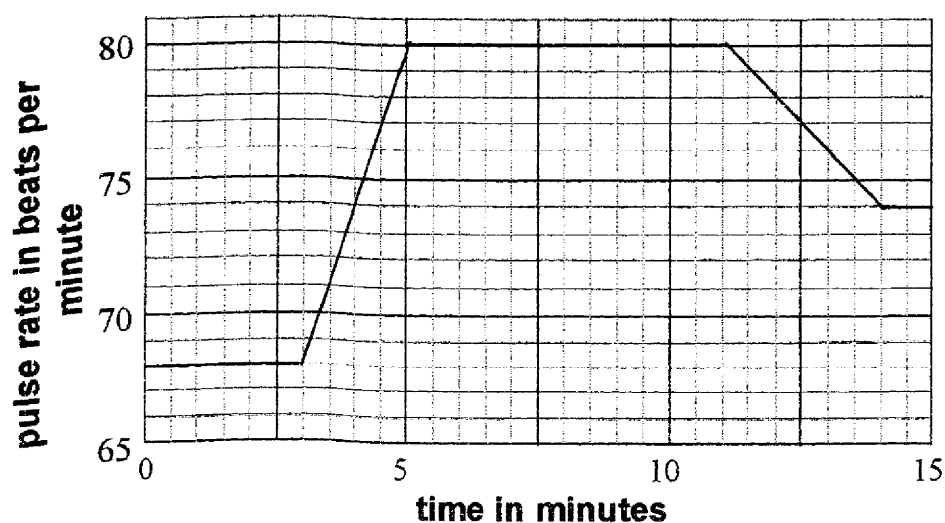
(1)

c. You are given a little soup in a test tube. You add a few drops of **iodine solution** to it. The colour of the soup becomes **blue-black**.

What does this show us about the soup?

(1)

5. Peter is fitted with an instrument that records his **pulse rate**.
The chart shows his **pulse rate** at playtime.



- a. At the beginning of playtime, Peter sat to have a drink and an apple.
How long did he spend sitting down?

(1)

- b. After having his drink, Peter played football with his friends.
How can you tell from the graph when Peter started to play football?

(1)

- c. Why did Peter's pulse rate change when he started to play football?

(2)

- d. Eleven minutes into playtime Peter's pulse started to go down.
Suggest why this happened.

(2)

- e. What was Peter's pulse rate at the end of playtime?

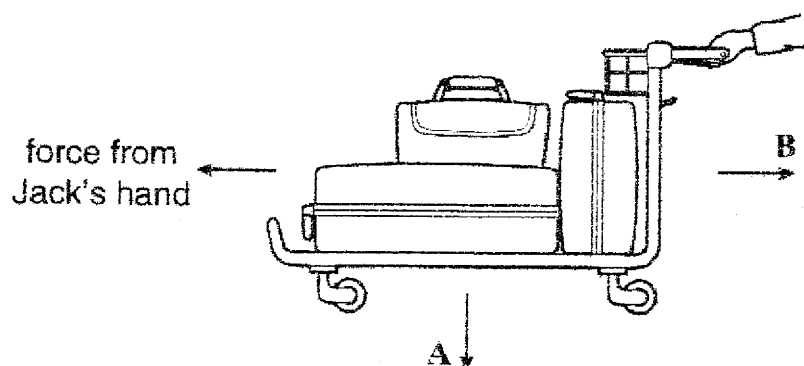
(1)

6a. Forces are used everyday. What force is used in these everyday activities?

| Activity | Force |
|-------------------------------------|-------|
| i. Cutting a piece of cheese. | |
| ii. Picking up pins with a magnet. | |
| iii. An orange falling from a tree. | |
| iv. Tug of war | |

(4)

b. Jack is pushing a luggage trolley along level ground at an airport.



There are three **forces** acting on the trolley.

One of the **forces** is the **push** from Jack's hands.

i. Name the other two **forces** labelled A and B in the diagram?

Force A _____

(1)

Force B _____

(1)

ii. Jack increases his **push** on the trolley.

What happens to the **speed** of the trolley?

(2)

iii. What are the **units** in which force is measured?

(1)

v. The trolley is moving forwards, and it is getting faster. One pair of **forces** is now **unbalanced**.

a. Which two **forces** are unbalanced?

(2)

b. Which of these two forces is bigger?

(1)

- 7a. Sandra wanted to find out what happens when some chemicals are put in a flame. The flame changed colour. This was her result.

| Chemical | Colour of the flame |
|--------------------|---------------------|
| sodium carbonate | yellow |
| copper chloride | greenish blue |
| potassium chloride | lilac |
| sodium sulphate | yellow |

- i. Why do sodium carbonate and sodium sulphate both give the same colour?

(1)

- ii. What will be the flame colour if she puts copper sulphate in the flame?

(1)

- iii. Will potassium sulphate give a greenish blue colour?

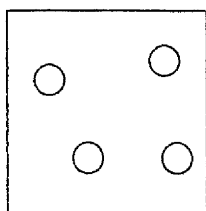
(1)

- b. Fill in the blanks:

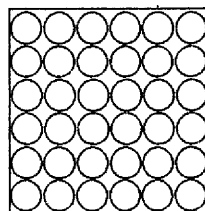
Everything is made of particles. These particles are always _____, they are very _____ and they have _____ between them.

(3)

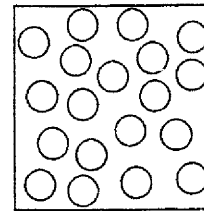
- c. These diagrams show how **particles** can be arranged in different substances.



A



B



C

Fill in the blanks:

The **particles** of oxygen are arranged like those in diagram _____.

(1)

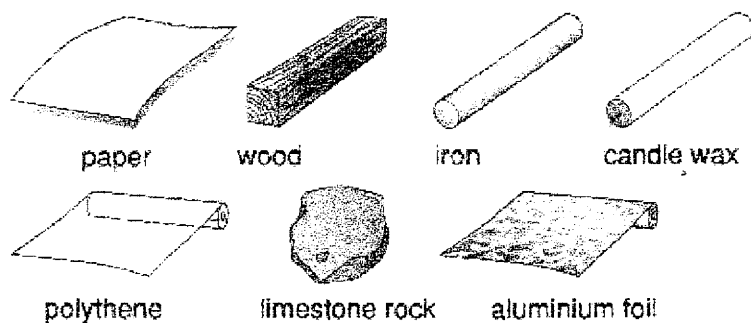
The **particles** of oil are arranged like those in diagram _____.

(1)

Two substances whose **particles** are arranged like those in diagram B are

(2)

8. We use many different materials in everyday life. Here are some of them.



a. Complete the table that shows the properties of these objects.

| object | easy to bend | attracted to a magnet | see-through | conductor of electricity |
|----------------|--------------|-----------------------|-------------|--------------------------|
| candle wax | ✓ | × | × | × |
| tissue paper | | | | |
| polythene bag | | | | |
| limestone rock | | | | |
| aluminium foil | | | | |
| iron rod | | | | |

(10)

b. Which two objects in the table are **metals**?

(2)

c. What **property** from the above table do the **metals** have in common?

(1)

d. Which **metal** rusts?

(1)

e. The following list shows the main **groups of materials**.

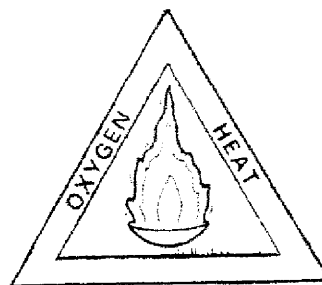
Write down an **object** made from each material, which you find in the **bathroom**.

| Groups of material | Object |
|--------------------|--------|
| metals | |
| fibres | |
| plastics | |
| glass | |
| ceramics | |

(5)

9. The diagram shows the **fire triangle**.

a. What is the missing word in the fire triangle?

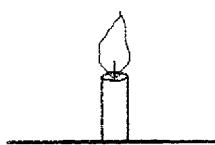


(1)

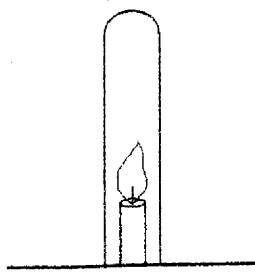
b. What does the diagram of the fire triangle mean?

(1)

c. You have a burning candle as shown in diagram A. You invert a test tube and put it over the burning candle as shown in diagram B.



A



B

What happens to the flame in diagram B after a short while? Why?

(2)

d. Burning a piece of paper is a **chemical reaction**.

The following is a list of changes. Underline the **chemical reactions**.

- | | |
|------------------------------------|-------------------------------|
| • Breaking glass | • Boiling water |
| • Grilling meat | • Eating chocolate |
| • Iron going rusty | • A coal fire giving out heat |
| • An electric fire giving out heat | • Tearing a piece of paper |

(4)

10. **Microbes** are very small living things.

Some **microbes** are helpful to us and are used to make **food, medicines and fuels**.

a. Name 2 types of **food** that are made using **microbes**.

(2)

b. Name 2 **medicines** that are made using **microbes**.

(2)

c. Name 2 new **fuels** that are made using **microbes**.

(2)