

JUNIOR LYCEUM ANNUAL EXAMINATIONS 2003

Educational Assessment Unit – Education Division

FORM 2

INTEGRATED SCIENCE

Time 1hr 30 min

Name _____

Class _____

ANSWER ALL QUESTIONS

- 1) a) This question is about indicators.
Use the following words to fill in the spaces.

blue colour red

- i) Indicators change _____ in acids and alkalis.
ii) Litmus becomes _____ in acids.
iii) Litmus becomes _____ in alkalis.

3 marks

- b) Acids and alkalis are measured on the **pH** scale.
This scale is shown below:

1	2	3	4	5	6	7	8	9	10	11	12	13	14
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- i) Draw a line to link each solution to its **pH** value.

Solution	pH value
strong acid	7
weak acid	6
strong alkali	9
neutral	14
weak alkali	2

5 marks

- ii) Name 2 acids. _____

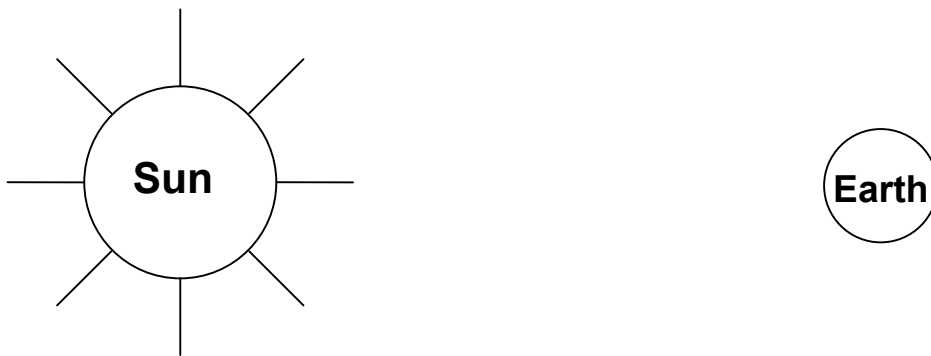
- iii) Name 2 alkalis _____

4 marks

- c) Explain why toothpaste contains a weak alkali.

2 marks

2) Matthew is making a model of the Earth, the Sun and the Moon.



He uses a **lamp** for the **Sun** and a **football** for the **Earth**.

a) On the diagram shade the part of the Earth that is in darkness. 1 mark

b) Matthew wants to show his friend how **day** becomes **night**.
What should Matthew do to show this?

_____ 1 mark

c) i) What object could Matthew use for the Moon? _____ 1 Mark

ii) Draw the Moon in the correct place on the Diagram. 1 Mark

d) Matthew was reading about the **planets** and he found the following information.

Planet	Diameter in thousands of km	Distance from Sun in millions of km	Temperature at surface
Jupiter	143	780	-150 °C
Mars	7	228	-23 °C
Mercury	5	58	430 °C
Neptune	50	4504	-220 °C
Pluto	2	5900	-220 °C
Saturn	121	1427	-180 °C
Uranus	51	2871	-214 °C
Venus	12	108	480 °C

Use the above information to answer these questions.

i) What shape are the planets? _____ 1 mark

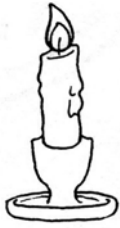
ii) Which of the planets in the table is closest to the sun? _____ 1 mark

iii) Which of the planets in the table is the hottest? _____ 1 mark

iv) Which of the planets in the table is the largest? _____ 1 mark

v) Which of the planets in the table has the longest year? _____ 1 mark

3) a) Which of the following are **light sources**? Put a circle round the correct answers.



candle



diamond



Light bulb



mirror

4 marks

b) Here is a picture of a boy shining a torch onto a burglar.
Draw a **ray of light** shining from the **torch** onto the **burglar**:



1 mark

c) A surface can either **reflect** light or **scatter** light.
Underline the objects that will **scatter** light.

sandpaper

a knife blade

a mirror

soil

2 marks

d) James sent this message to his friend Tony.

I am going home

i) What should Tony do to read this message easily?

_____ 1 mark

ii) What does the message say?

_____ 1 mark

iii) Where might you see a sign written like this?

_____ 1 mark

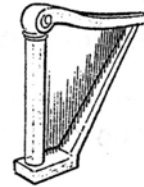
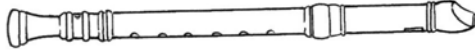
4) a) Sound is made when something **vibrates**.

What is vibrating when a sound is made on each of the following musical instruments?



i) Drum _____

ii) Violin _____



iii) Recorder _____

iv) Harp _____

4 marks

b) The following is a list of different sounds.

doorbell **stirring tea** **an aeroplane taking off** **an ambulance siren**

i) Put the above sounds in order starting with the **loudest** sound.

1st _____ 2nd _____

3rd _____ 4th _____

4 marks

ii) Which of the sounds above is so **loud** that it is **harmful**? _____

1 mark

iii) What should we do to protect our ears from **loud sounds**? Why?

2 marks

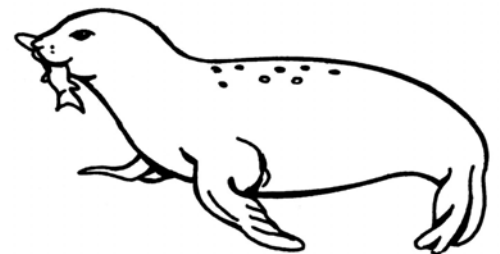
5) Here is a picture of a seal.

a) Why does the seal **need** to be able to swim?

_____ 1 mark

b) Name a **part of the body** that the seal uses to **push** itself through the water?

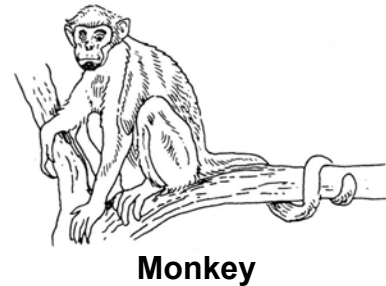
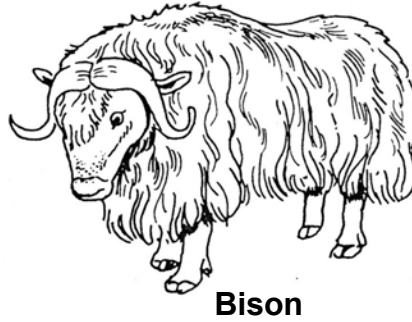
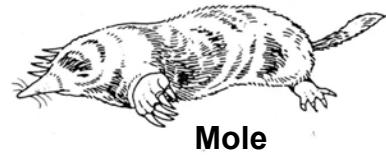
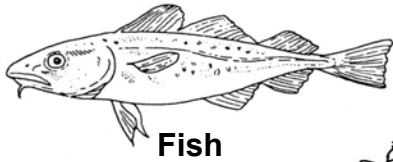
_____ 1 mark



c) Seals have a thick layer of fat underneath the skin.
How does this help them to survive in the cold sea?

_____ 1 mark

6) Here is a picture of some animals, which are **adapted to their way of life**.

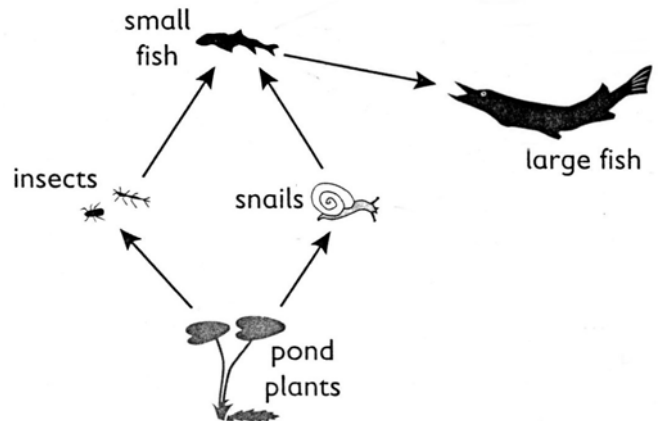


Write the name of:

- a) An animal adapted for digging. _____
- b) An animal adapted for swimming. _____
- c) An animal adapted for climbing. _____
- d) An animal adapted for eating meat. _____
- e) An animal adapted for living in cold places. _____

5 marks

7) The diagram shows part of a food web in a pond. Use the information given in the diagram to answer the following questions.



a) What other living things are **competing** with the snails for food?

_____ 1 mark

b) If most of the **snails** died because of a disease. What might happen to the **number** of **insects**? Why?

 _____ 2 marks

c) Name **one** predator and **its** prey.

Predator _____ Prey _____

2 marks

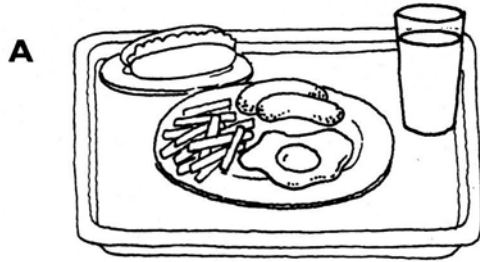
d) Which animal in the food chain is **both** a prey and a predator? _____

1 mark

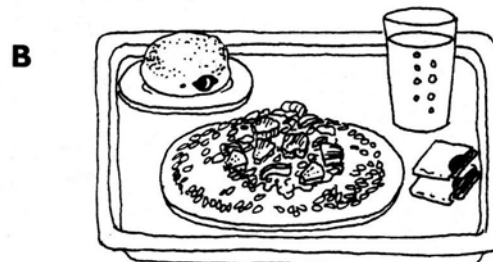
8) a) Healthy meals provide a **balanced diet**. What is a **balanced diet**?

2 marks

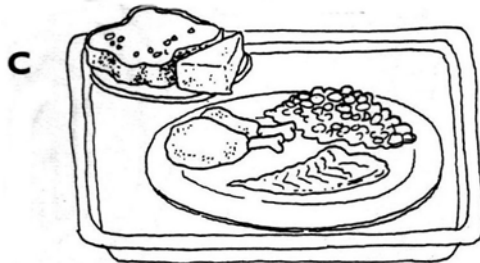
Four meals are shown below.



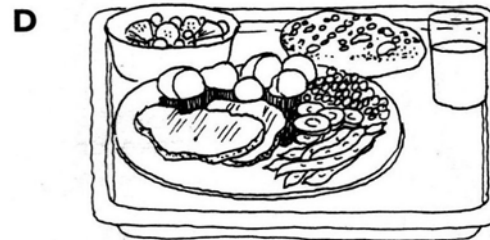
sausages, chips, fried egg, cream cake, glass of full cream milk



pork stew, white rice, jam doughnut, mint chocolate, lemonade



lean fish and lean chicken, baked beans, Cheddar cheese, wholemeal bread



roast chicken, vegetables, wholemeal bread, new potatoes, fresh fruit salad, orange juice

Carbohydrates, fats, proteins, vitamins and minerals are nutrients we get from food.

b) Tick the **correct box** for each question.

Which of these four meals:

is the healthiest?

meal A meal B meal C meal D

contains too much sugar?

contains too much fat?

provides the most fibre?

is rich in proteins?

provides the most materials for growth?

could lead to heart disease?

causes the most tooth decay?

provides the most vitamin C?

9 marks

c) Why do we need fibre?

2 marks

9) Rebecca has just finished a 1000 metre race. She has become hot and sweaty.

a) Name two **other** things that had happened to her as a result of running the race.

i) _____

ii) _____

2 marks



b) Choose from these words to complete the passage below.

glucose **blood** **oxygen** **respiration** **cells**
water **lungs** **carbon dioxide**

_____ is the process that provided the energy for Rebecca to run the race.

_____ combines with _____ to release energy.

As a result _____ and _____ are produced.

This process takes place in the _____ in her body.

6 marks

10) **Micro-organisms** can cause **infections** in the body.

a) Match each **disease** to the **micro-organism** which causes it and to the way the disease is spread.

One has been done for you.

Disease	Micro-organism	How the disease spreads
common cold	bacteria	coughing and sneezing
food poisoning	virus	blood contact
Athlete's foot	virus	dirty hands
Aids	fungus	public showers

6 marks

b) Name **two parts of the body** that help to prevent or fight infections.

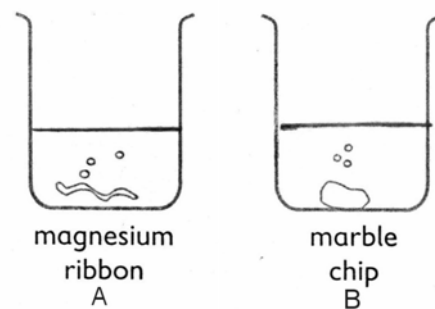
2 marks

11) Cristina is investigating acids. She does two experiments.

In A she puts some **acid and magnesium ribbon**.

In B she puts some **acid and a marble chip**.

She writes her results as shown in the table below.



Experiment	Result
A	Magnesium ribbon fizzes and bubbles of gas are given off.
B	Marble chips fizzes and bubbles of gas are given off.

a) i) Name the gas given off in experiment A? _____ 1 mark

ii) How would you test the gas given off in experiment A to identify it?

2 marks

b) i) Name the gas given off in experiment B? _____ 1 mark

ii) How would you test the gas given off in experiment B to identify it?

2 marks

12) When magnesium burns in oxygen, magnesium oxide is formed.

a) Write a **word equation** to show this change.

3 marks

b) Is this a **chemical reaction**? Give a reason for your answer.

2 marks

c) Complete the following **word equations**.

_____ + oxygen → water

iron + _____ → iron oxide

2 marks