

# SECONDARY SCHOOL ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

FORM 2

INTEGRATED SCIENCE





Time 1hr 30 min

Name \_\_\_\_\_

Class \_\_\_\_\_

## ANSWER ALL QUESTIONS

1) The pictures below show **situations** where there is **too much acid**.

 <p>The fish in this lake are dying.</p>	 <p>Bacteria and bits of food cause tooth decay.</p>	 <p>Eating too quickly can cause indigestion.</p>	 <p>The cabbages in this field aren't growing very well.</p>
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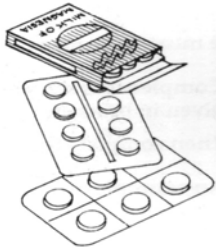

A

B

C

D

The pictures below show how to **neutralise** the acid in the above pictures.

			
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1

2

3

4

Write down the number of the picture used to neutralise the above acid situations.

Picture with acid situation

Picture used to neutralise the acid situation

A

\_\_\_\_\_

B

\_\_\_\_\_

C

\_\_\_\_\_

D

\_\_\_\_\_

4 marks

2) Chris is given seven different liquids and he finds their pH number.

liquid	A	B	C	D	E	F	G
pH of the liquid	4	9	3	2	13	7	5

- a) Which liquid is **neutral**? \_\_\_\_\_ 1 mark
- b) Which liquid is the **most acidic**? \_\_\_\_\_ 1 mark
- c) Which liquid is the **most alkaline**? \_\_\_\_\_ 1 mark
- d) Name a substance which could be:
- i) liquid A \_\_\_\_\_
- ii) liquid B \_\_\_\_\_ 2 marks

3) Theresa and Paul wanted to find out whether 3 liquids A, B, C were an acid, an alkali or neutral. Theresa used red litmus paper and Paul used universal indicator. Here are their results.

substance	Theresa using red litmus paper	substance	Paul using universal indicator
A	remained red	A	changed to light green
B	turned blue	B	changed to dark blue
C	remained red	C	changed to red

Which of the 3 substances was?

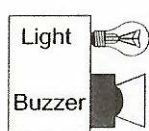
an acid \_\_\_\_\_

an alkali \_\_\_\_\_

neutral \_\_\_\_\_

3 marks

4) It is night time and there are three people A, B and C.



- a) For which person A, B and C, would the light be the **brightest**? \_\_\_\_\_ 1 mark
- b) For which person A, B and C, would the buzzer be the **quietest**? \_\_\_\_\_ 1 mark
- c) Draw one ray of light from the lamp to one leg of person A. 2 marks

5) The picture below shows Susan and David playing 'pin the tail on the donkey'.



a) Name one **luminous** object you can see in the picture. \_\_\_\_\_  
1 mark

a) Name one **non-luminous** object you can see in the picture. \_\_\_\_\_  
1 mark

b) Why is Susan unable to see where she must pin the tail on the donkey?

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

6) A field is a **habitat** of many living things.  
Some of them are: insects, worms, plants with flowers, trees, birds, mice and hedgehogs.

a) What is the meaning of the word **habitat**?

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

b) Some insects and worms eat leaves from plants or trees. Birds look for insects and worms to eat.

Mice also eat plants. Hedgehogs catch mice.

Using the above information write **two** food chains with 3 living things in each.

i) \_\_\_\_\_ ® \_\_\_\_\_ ® \_\_\_\_\_  
2 marks

ii) \_\_\_\_\_ ® \_\_\_\_\_ ® \_\_\_\_\_  
2 marks

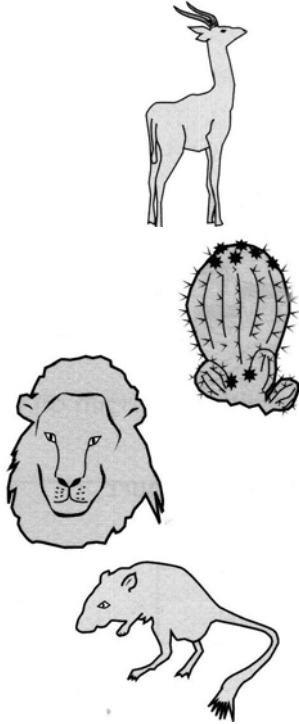
c) From **your** food chains find:

i) one producer \_\_\_\_\_  
1 mark

ii) one prey \_\_\_\_\_  
1 mark

iii) one predator \_\_\_\_\_  
1 mark

- 7) These living things are adapted to live in hot, dry countries.  
Draw lines to match each living thing with one of its adaptations.



It has spines instead of leaves to stop animals eating it.

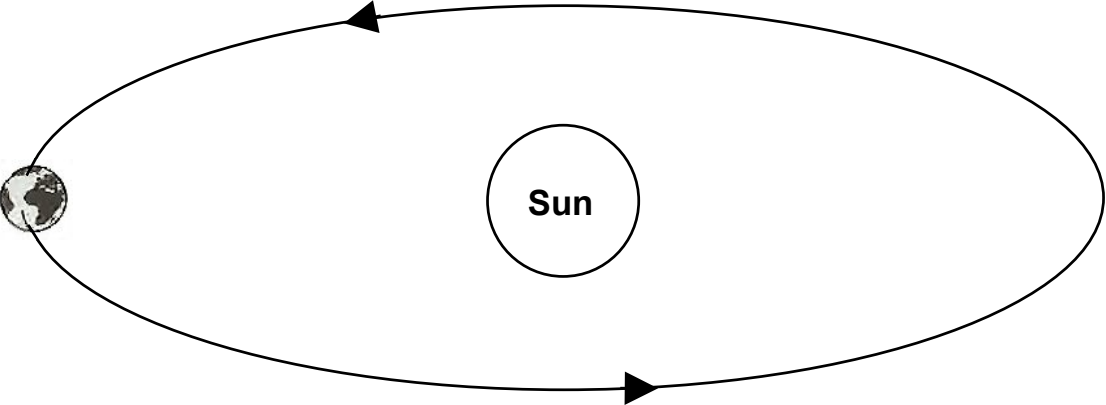
It runs fast and has sharp teeth to kill prey.

Lives in a burrow during the hot part of the day.

It runs fast to avoid danger

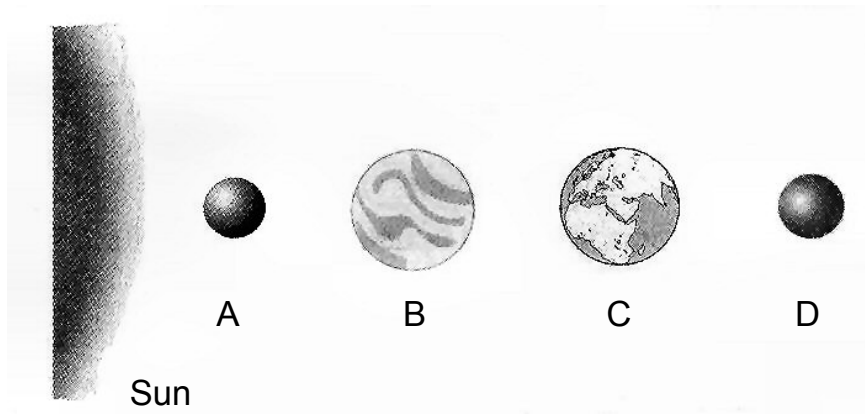
4 marks

- 8) The following diagram shows the Earth going round the Sun.



- a) What do we call the line marked with arrows? \_\_\_\_\_ 1 mark
- b) How long does the Earth take to move round the Sun once? \_\_\_\_\_ 1 mark
- c) On the diagram draw the Earth's Moon and show the path along which it moves. 2 marks
- d) On the diagram draw and label the planet Venus and the path along which it travels. 2 marks

9) The diagram shows part of our Solar System.



- a) What is the name of planet A? \_\_\_\_\_ 1 mark
- b) Write the correct letter near each question.
- i) Which planet is Mars? \_\_\_\_\_ 1 mark
- ii) On which of the above planets do we live? \_\_\_\_\_ 1 mark
- iii) Which is the hottest planet? \_\_\_\_\_ 1 mark

10) Write True or False near each of the following statements.

- a) In our Solar System there are 11 planets. \_\_\_\_\_
- b) The biggest planet is Jupiter. \_\_\_\_\_
- c) The two planets nearest to Earth are Venus and Mars. \_\_\_\_\_
- d) All planets are very cold. \_\_\_\_\_
- e) Earth is the smallest planet. \_\_\_\_\_
- f) The Earth takes 24 hours to spin once on its axis. \_\_\_\_\_
- g) Pluto is the planet nearest to the Sun. \_\_\_\_\_
- h) The Moon takes 28 days to orbit the Earth. \_\_\_\_\_

8 marks

11) These are some of the nutrients which make up a balanced diet.

proteins                  fibre                  water                  carbohydrates                  vitamins

a) i) Name two nutrients from the above list that are abundant in fish.

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

2 marks

ii) Name two nutrients from the above list that are **not** abundant in fish.

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

2 marks

b) Name two more nutrients that are **not** in the list.

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

2 marks

c) If you do not eat a balanced diet, you can have problems with your health.

Finish off these sentences by choosing the correct phrase from the box below.

poor growth	low energy	memory loss	tooth decay
hair loss	heart disease	greasy skin	

i) Too much sugar can cause \_\_\_\_\_

ii) Too much fat can cause \_\_\_\_\_

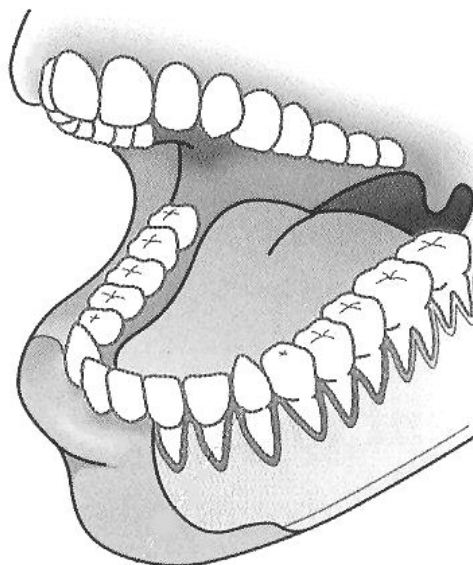
iii) Not enough carbohydrates can cause \_\_\_\_\_

iv) Not enough proteins can cause \_\_\_\_\_

4 marks

12) This picture shows a set of adult teeth.

Label one incisor, one canine and one molar.



3 marks

13) Oxygen and Hydrogen are two important gases.

Tick  the correct statement in these pairs.

Both gases are transparent.

Oxygen is transparent, Hydrogen is green.

1 mark

Hydrogen is found in air.

Oxygen is found in air.

1 mark

Hydrogen has a bad smell.

Both gases have no smell.

1 mark

Only oxygen is needed for things to burn.

Both gases help things to burn.

1 mark

14) New materials are often made by heating one or more substances so that a chemical reaction takes place.

Tick  the three boxes which show a chemical reaction taking place.

Heating wax to make it melt

Heating the ingredients of a cake in an oven

Boiling a kettle filled with water

Grilling some bread to make toast

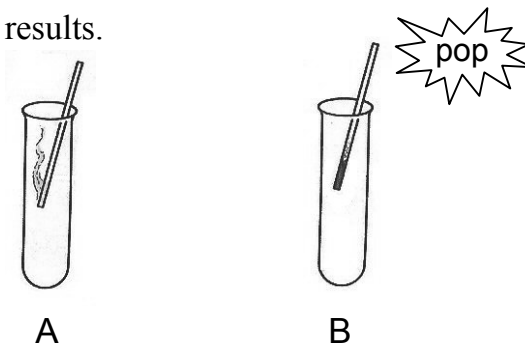
Burning gas on a stove

3 marks

15) Mary was given a test tube of oxygen and a test tube of hydrogen without a label on them. She had to find out in which test tube there was **hydrogen**.

She put a lighted splint in each test tube.

The diagrams below show her results.



a) Which test tube contained hydrogen? \_\_\_\_\_

1 mark

b) Explain what happened.

2 marks

16) Jane lighted a candle and placed a beaker upside down on top. After a few seconds the candle went out and there was smoke inside the beaker.



a) Why did the candle stop burning?

1 mark

b) The smoke produced, also contains a gas called carbon dioxide. Where does the carbon dioxide come from: Put a tick  near the correct answer.

from the beaker and the air inside

from the air outside the beaker

from the candle and the air inside

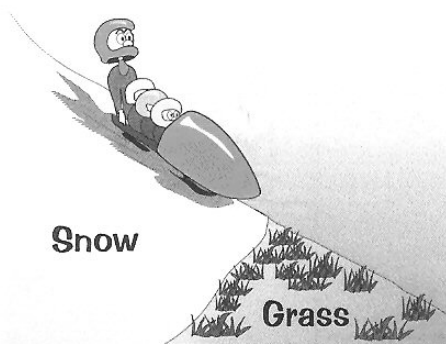
1 mark

c) Complete this word equation.

\_\_\_\_\_ + oxygen → carbon dioxide

2 marks

17) Henry is sledging down a snow – covered hill when he hits a patch of grass.



a) Draw an arrow to show the **direction** in which the sledge is **moving**. Label it A.

1 mark

b) Draw an arrow to show the **direction** in which **friction** is acting. Label it B.

1 mark

c) What happens to the **frictional force** on the sledge when it hits the grass?

Tick  the correct answer.

it remains the same

it gets smaller

it gets bigger

1 mark

d) What happens to the **speed** of the sledge when it hits the grass?

Tick  the correct answer.

it remains the same

it becomes less

it becomes more

1 mark



18) James rides a motorbike to work everyday.

The diagram shows two forces that affect its movement.



Complete these sentences by choosing the correct phrase or word from the box below.

increasing	smaller than	equal to
bigger than	decreasing	

- a) When the bike is **speeding up**, the forward force is \_\_\_\_\_ the air resistance.
- b) When the bike is **moving at a steady speed**, the forward force is \_\_\_\_\_ the air resistance.
- c) When the bike is **slowing down**, the forward force is \_\_\_\_\_ the air resistance.

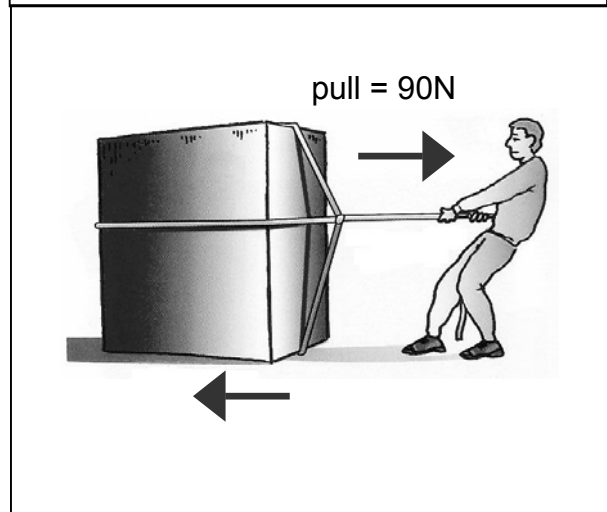
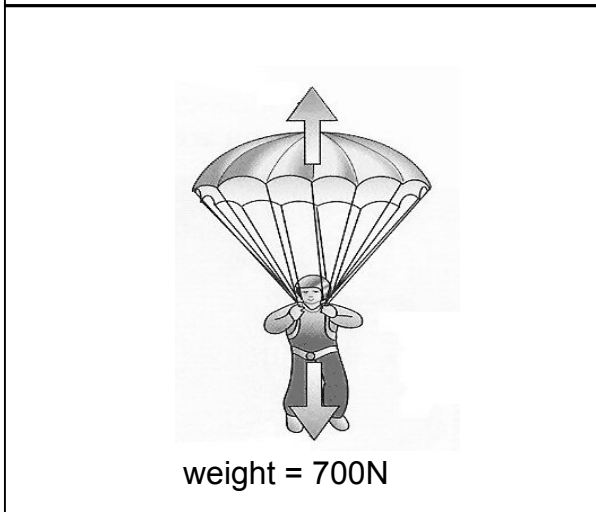
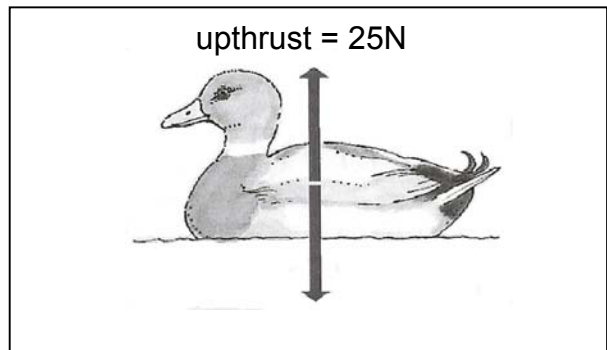
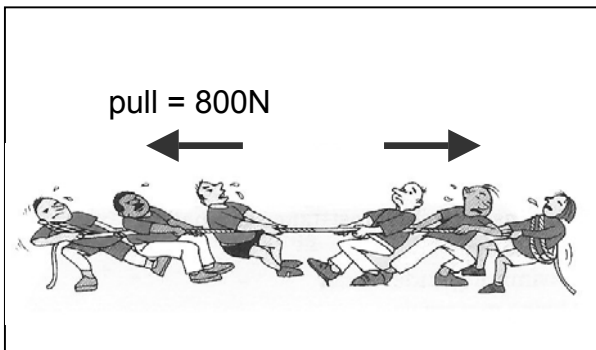
3 marks

19) In each of the diagrams below, the forces are shown by **2 arrows**.

**The two forces are balanced.**

On each diagram,

- write the name of the other force.
- write the size of the other force in newtons



8 marks

20) Match the clues in the first column to the words in the last column.  
Write the correct number in the middle column.

clues		matching words
1. part of the ear connected to the brain		air
2. vibrations can pass through gases like this		vacuum
3. these vibrate when a violin is played		bones
4. sound cannot pass through this		nerve
5. when sound enters the ear, this part vibrates first		deaf
6. in the middle ear there are three small _____		noise
7. someone who cannot hear is called like this		strings
8. unwanted sound is called _____ pollution		eardrum

8 marks