JUNIOR LYCEUM ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

FORM 2 INTEGRATED SCIENCE Time 1hr 30 min

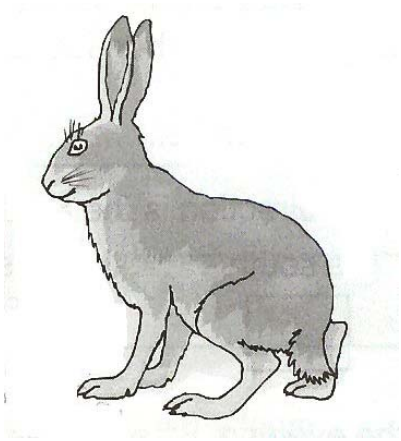
Name _____ Class _____

ANSWER ALL QUESTIONS

1) Hares live underground in tunnels which they dig themselves.

They are good at digging, and they eat grass, vegetables and tree bark.

They are chased by various predators like the fox.



a) i) Write two food chains using the above information.

1.

2.

4 marks

ii) What is the difference between these two food chains?

_____

1 mark

b) Hunters killed many foxes in a forest.
What might happen to the **number** of hares in that forest?

_____

1mark

c) Look at the drawing of the hare.
Describe **one** way the hare is adapted to dig in the soil.

_____

_____

1 mark

d) i) Finish the sentence below.
Hares use their all-round eyesight to help them to _____

_____

1 mark

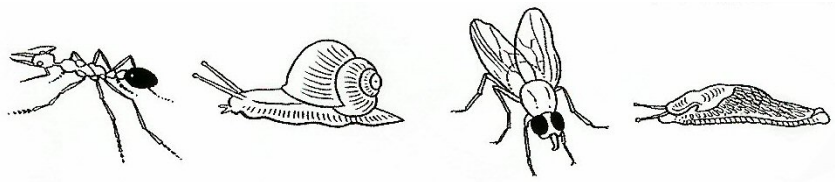
ii) How are hares adapted to **run quickly**?

_____

_____

1 mark

2) Peter observed what a garden **bird** was eating and counted the number as follows.



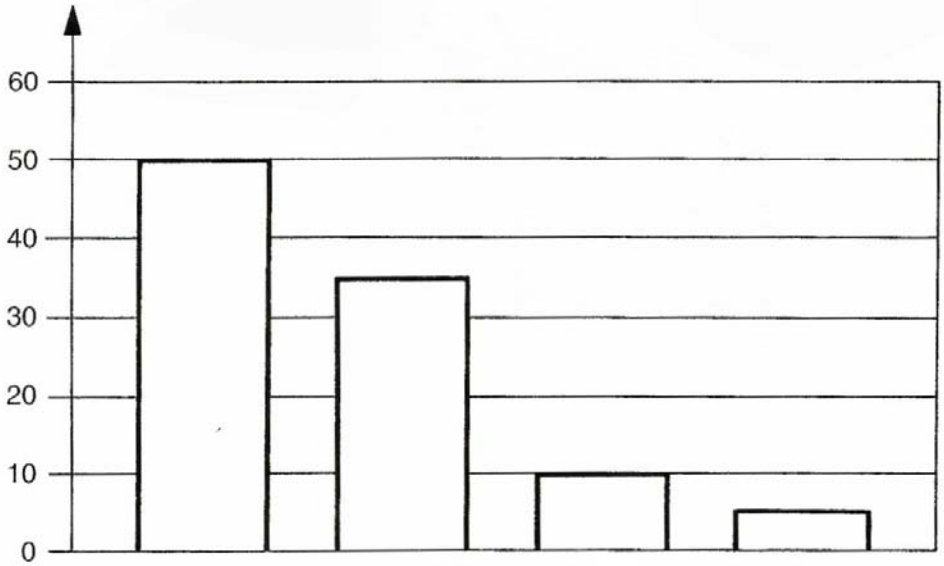
50 ants
A

5 snails
B

35 flies
C

10 slugs
D

He plotted the following graph using these numbers.



a) Write the correct letter (A-D) in each bar of the bar chart.

4 marks

b) A hedgehog moved in to the garden and was observed to eat slugs.
How might this affect the garden bird?

_____

_____

1 mark

c) The gardener sprayed the garden with a fly and ant killer.
Describe one effect this might have on other wildlife in the garden.

_____

_____

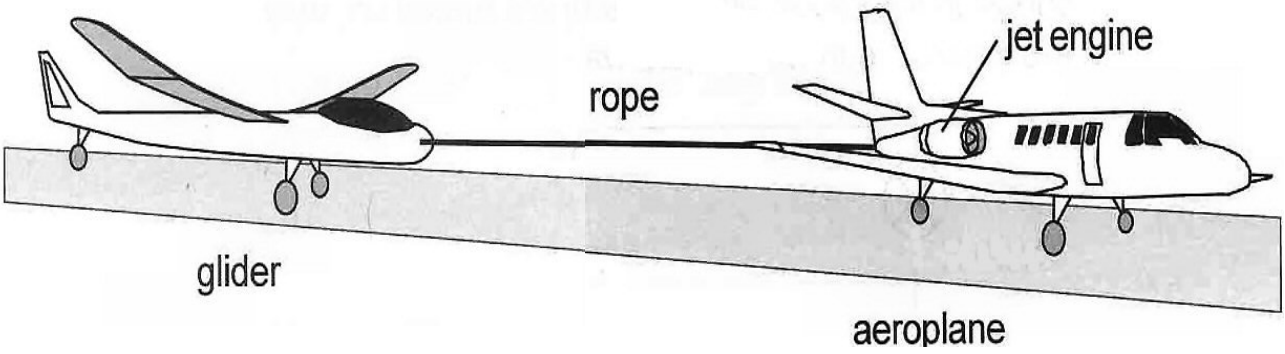
1 mark

d) The above animals all form part of different food chains.
Name one living thing that can be a producer in these food chains.

_____

1 mark

3) The picture below shows a glider which is being pulled by an aeroplane along a runway.



a) The rope is pulling the glider.

i) Draw an arrow labelled X to show the direction of this force.

1 mark

ii) Draw an arrow labelled Y to show the direction of the glider's weight.

1 mark

b) Write down **two other** forces which are acting on the glider.

1. _____

2. _____

2 marks

c) The rope which pulls the glider is also making a force on the aeroplane.
Draw an arrow **on the rope** to show the direction of this force. Label it Z.

1 mark

d) The force of the engine of the aeroplane is increased.
What effect will this have on the speed of the aeroplane?

_____

1 mark

4) 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

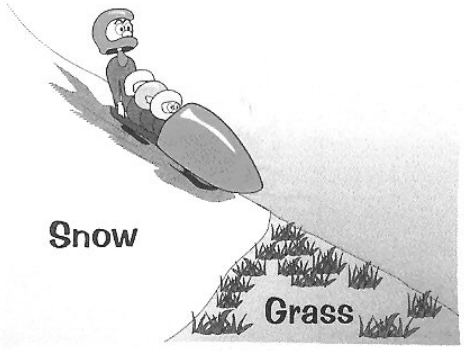
_____ the air resistance.

c) When the bike is **slowing down**, the forward force is

_____ the air resistance.

3 marks

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



a) What happens to the frictional force on the sledge when it hits the grass? Why?

_____

2marks

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

_____

1 mark

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

liquid	A	B	C	D	E	F	G
pH of the liquid	4.0	10.0	3.5	2.0	13.0	7.0	8.0

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 that could be liquid A. _____

1 mark

e) Name a substance that could be liquid G. _____

1 mark

f) What happens if liquid A is added to liquid B?

_____

2 marks

7) Louise tested six different liquids to see which are **acidic, alkaline** or **neutral.**
She dipped pieces of red and blue litmus paper into each liquid in turn.

She started writing her results in the table below.
Fill in the missing results to finish off her table.

liquid	What happens to red litmus paper	What happens to blue litmus paper	Liquid is acidic, alkaline or neutral
sodium hydroxide solution	became blue	stayed blue	alkaline
alcohol	stayed red	stayed blue	
sour milk	stayed red	became red	
distilled water			neutral
lemon juice		became red	
ammonia solution	became blue		

8 marks

8) 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 _____

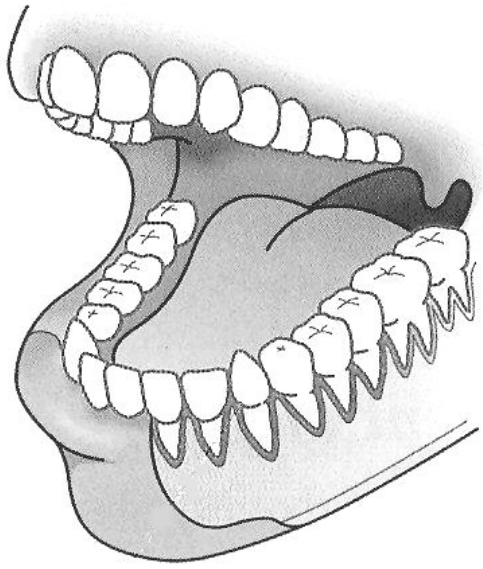
ii) Too much fat can cause _____

iii) Not enough carbohydrates can cause _____

iv) Not enough proteins can cause _____

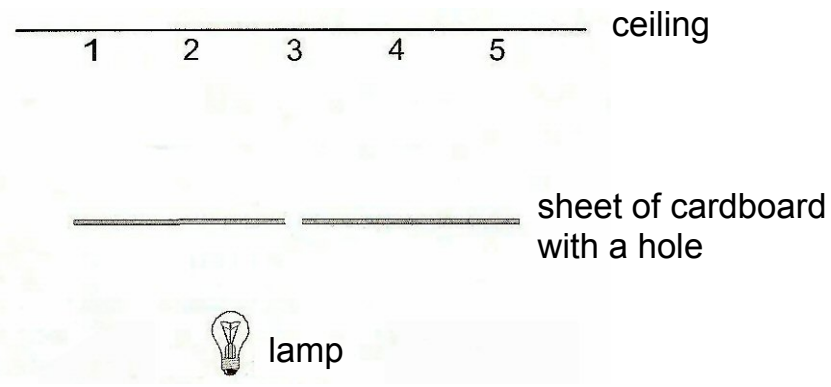
4 marks

9) This picture shows a set of adult teeth.
Label one incisor, one canine and one molar.



3 marks

10) The diagram shows a sheet of cardboard and a lamp.
The sheet of cardboard has a pin hole in it.
Light from the lamp passes through the hole and makes a spot of light on the ceiling.



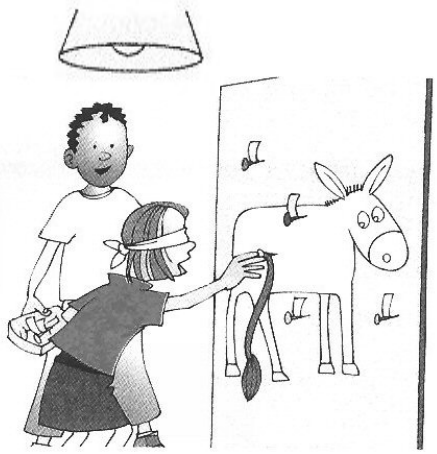
a) i) Which of the 5 points on the ceiling is lit up by the lamp? _____
1 mark

ii) Explain why the **other** points on the ceiling are not lit up by the lamp.

_____

_____
1 mark

11) 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

b) Name one **non-luminous** object you can see in the picture. _____
1 mark

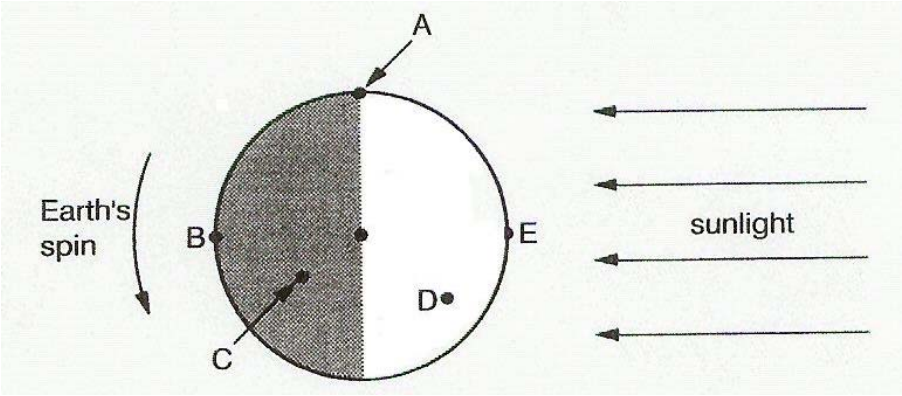
c) Why is Susan unable to see where she must pin the tail of the donkey?

_____
1 mark

d) Draw **rays of light on the picture** above showing how David is able to see the picture of the donkey.
2 marks

12) The diagram shows the Earth seen from a satellite above the North Pole.

Five places on the Earth are labelled A, B, C, D, and E.

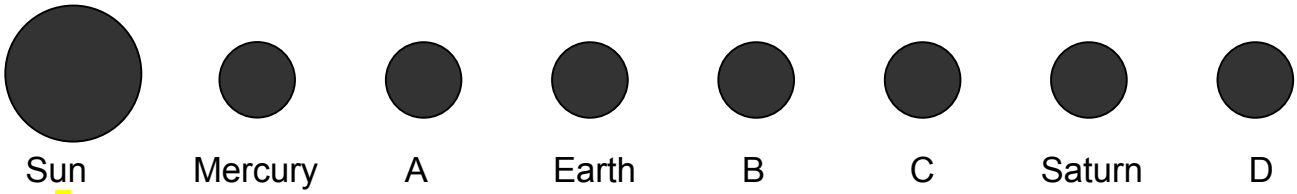


Give the letters of the places described in the table. The first one is done for you. Letters may be used more than once.

description		place
	two places in daytime	D and E
i.	one place at noon (midday)	
ii.	one place at midnight	
iii.	one other place at night	
iv.	one place at sunset	
v.	two places from which you can see the stars	

6 marks

13) The diagram shows the Sun and the first seven planets in the Solar System.(not to scale)



a) What is the name of planet A? _____

1 mark

b) Which planet is Mars? Circle the correct letter:

B C D

1 mark

c) How long does it take the Earth to orbit the Sun? _____

1 mark

d) Give the name of the force which keeps the planets in their orbit?

_____

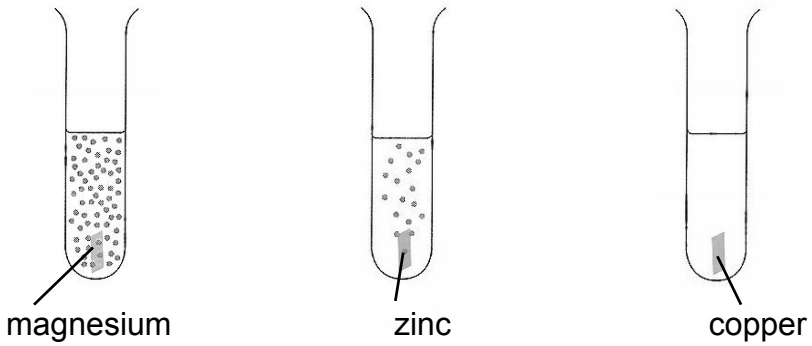
1 mark

e) Imagine you are looking at the sun from the planet **D**.
Describe **two** differences in the appearance of the Sun seen from this planet compared with the appearance of the Sun seen from the Earth.

_____

2 marks

14) Sharon was doing some experiments to find out what acids can do to metals. She was using magnesium, zinc and copper.
She put a piece of each metal in a test tube and added acid to them.
Two of the metals gave out bubbles of gas.



a) Which metals gave out bubbles of gas? _____ _____

2 marks

Sharon put a lighted splint at the mouth of the test tubes where gas was coming out.
She heard a loud 'pop'.

b) What was the gas coming out? _____

1 mark

c) Complete this word equation.

acid + _____ ⟶ _____

2 marks

d) What did Sharon learn about copper?

_____

2 marks

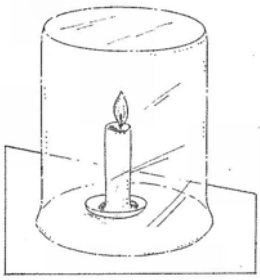
15) New materials are often made by heating one or more substances so that a chemical reaction takes place.

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

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.
Jane knew that oxygen is needed for things to burn.



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

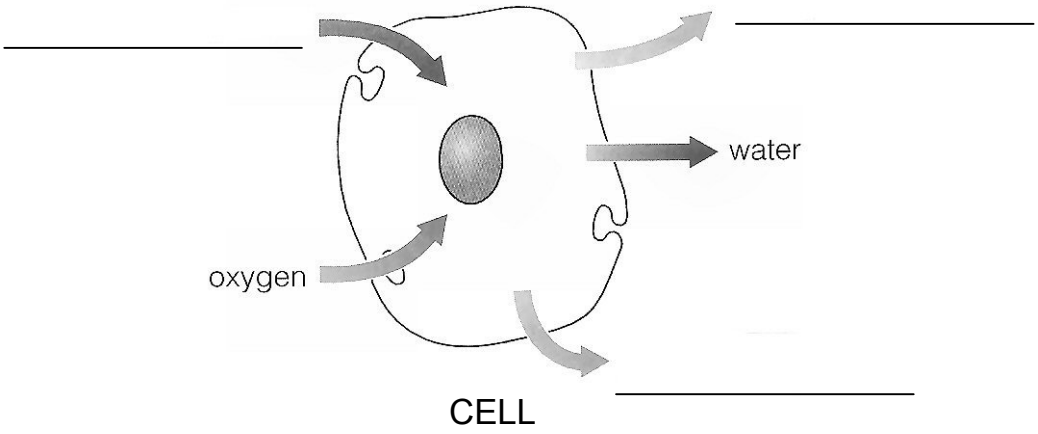
c) Complete this word equation.

_____ + oxygen ⟶ carbon dioxide

1 mark

17) The diagram below shows what happens during respiration.

a) Fill in the missing words in the diagram.

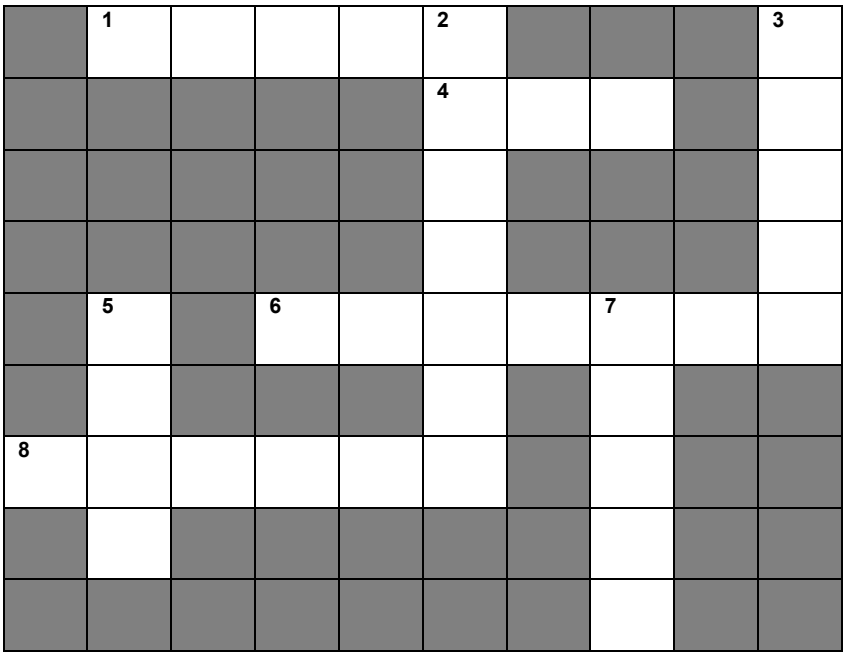


3 marks

b) Write the word equation for the above process.

1 mark

18) Work out the following crossword.



Clues: Across

1. Part of the ear connected to the brain. (5)
4. Vibrations can pass through gases like this. (3)
6. These vibrate when a violin is played. (7)
8. Sound cannot pass through this. (6)

Down

2. When sound enters the ear, this part vibrates first. (7)
3. In the middle ear there are three small _____. (5)
5. Someone who cannot hear is called like this. (4)
7. Unwanted sound is called _____ pollution. (5)

8 marks