

NAME:	SCIENCE TEACHER:	9B
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SCIENCE

Year 9 Examination 2007

9B – 80 marks

Make sure that you have answered all the questions in this paper before you start paper 9A or 9C

Time allowed for both examinations: 2 hours

Answer all questions in the spaces provided on the paper.

You may use a calculator.

Show all your working in calculations; marks are awarded for it.

Give units for all answers (eg kg or m) unless they are already provided.


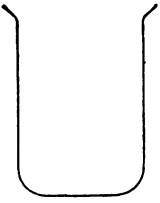
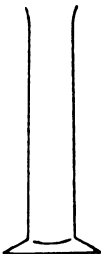
For Teacher Use

<i>Question</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	<i>Total</i>
<i>Marks gained</i>														
<i>Marks available</i>	10	6	3	6	7	9	6	8	5	5	5	8	2	80

Question One: [10 marks]

Fred and Julia are lab partners in a year 9 Science class and are trying to find out which flame (yellow or blue) heats up water the quickest.

- a. Complete the table below to show the equipment they would use during this investigation. Fill in the correct name or scientific symbol as required.

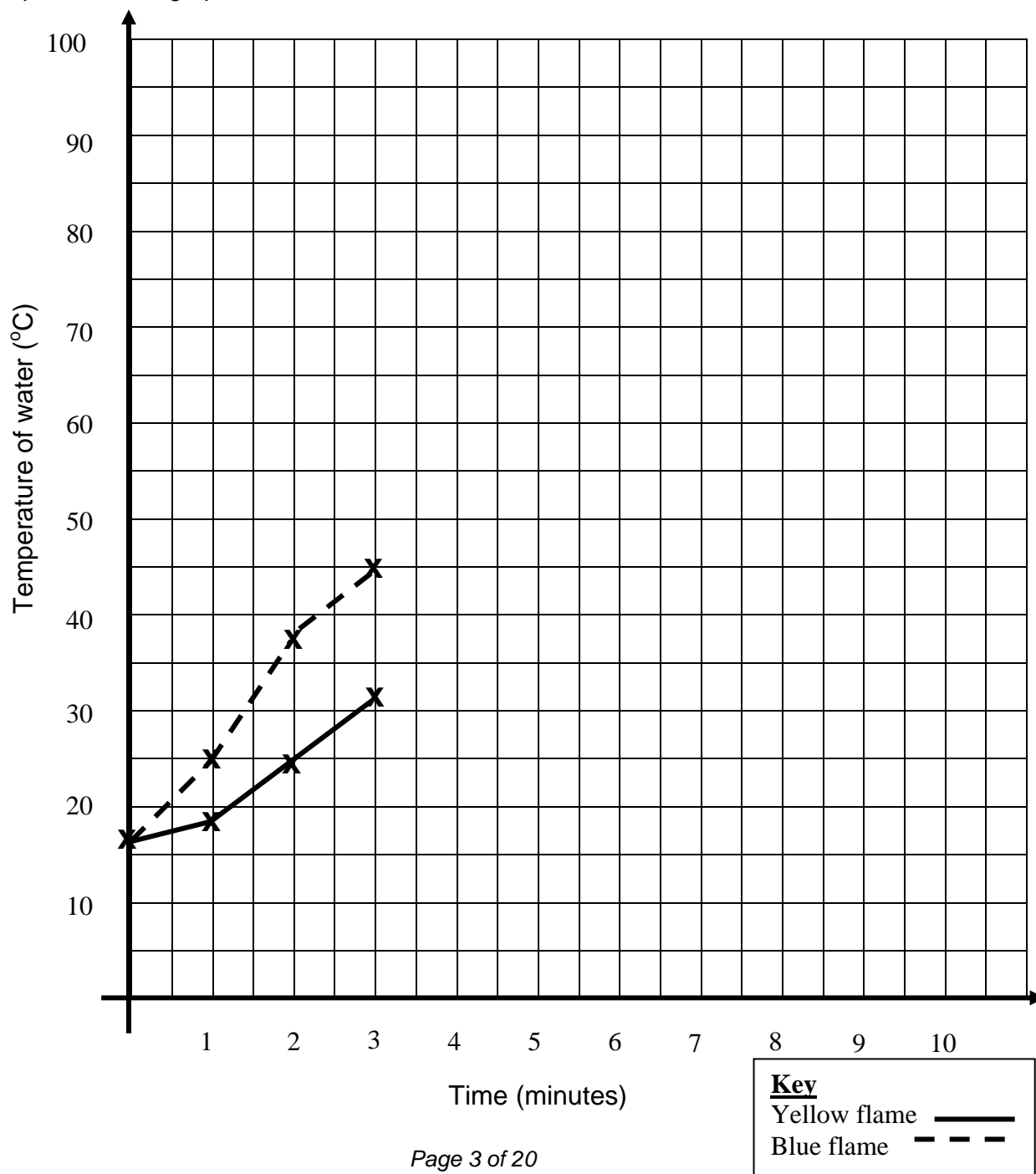
		
Bunsen Burner	Gauze mat	
		
Tripod		Heat mat

- b. Using the scientific symbols, draw a **labelled** diagram to show how you would set up this investigation.

- c. Below is a results table showing the temperature of the water every one minute.

Time (minutes)	Temperature of water ($^{\circ}\text{C}$)	
	Yellow Flame	Blue Flame
0	17	17
1	19	25
2	25	37
3	31	45
4	39	58
5	42	64
6	49	76
7	53	83
8	61	98
9	70	100
10	79	100

Complete the line graph below for the rest of the results.



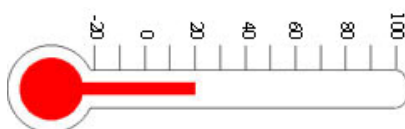
d. Explain how you get a blue flame on the Bunsen Burner.

e. List **THREE** variables (factors) you would need to keep the same during this investigation so that it is a fair test.

f. What is the temperature of the water, when heated by the BLUE flame for five and a half minutes?

g. From these results write a conclusion for this investigation.

Question Two: [6 marks]

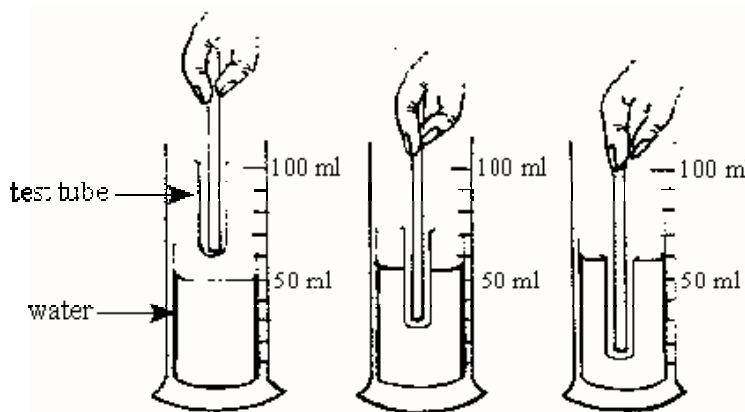


a. What happens to the liquid in the thermometer when it is moved from a cold place to a warm place?

b. What temperature is shown on these thermometers?

°C	°C	°C	°C

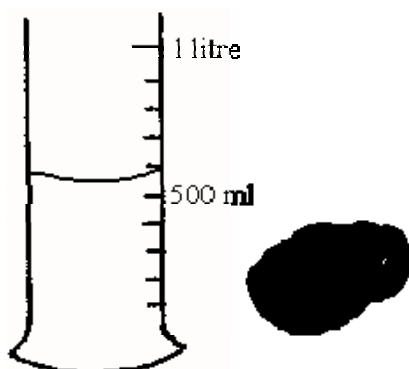
- c. Jason used a pencil to push a small test tube down into a measuring cylinder containing water as shown in the diagram.



The **test tube** will hold about? (Write letter of your answer in the box)

- A 60mL
- B 10mL
- C 5mL
- D 1mL

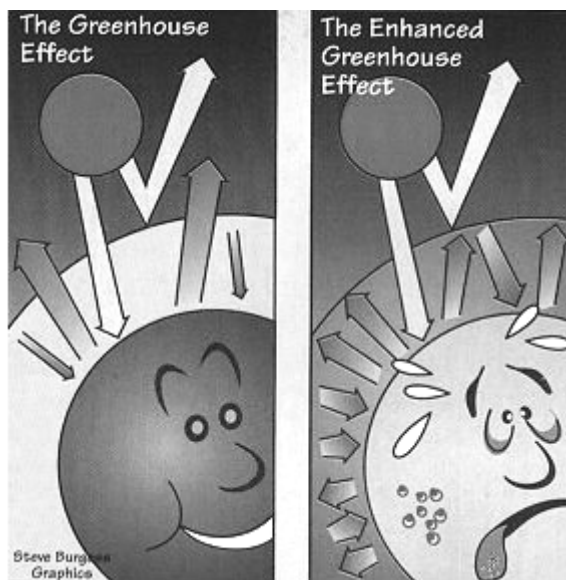
- d. Using the idea from the diagram above, explain why you should not fill a bath up to the very top.



- e. Here is a measuring cylinder and a rock (drawn to same scale). Explain how, using the cylinder, you could find the volume of this rock.

Question Three: [3 marks]

Illustrating the enhanced greenhouse effect



a. These two pictures convey (carry) an important idea about the greenhouse effect. In this context, "enhanced" means: (write letter of your answer in the box)

- A to make something better
- B to increase an effect
- C to clarify something
- D to create something new

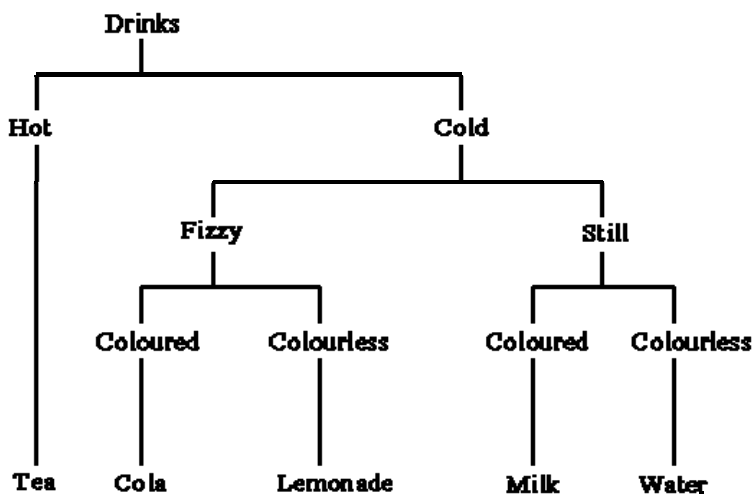
b. What "message" about the greenhouse effect is the artist giving us? Explain this message in a short paragraph.

i. In words the public might read in the newspaper

ii. In scientific words

Question Four: [6 marks]

Key for choosing drinks



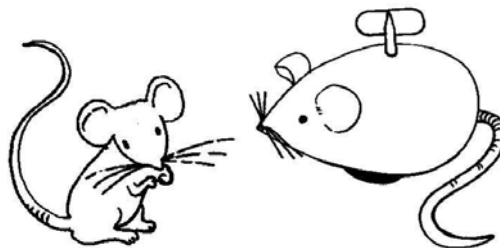
- a. Use this key to find out which drink each student chose. Write down the name of the drink.
- i. Susan chose a cold, fizzy, coloured drink. She chose _____
 - ii. Jane chose a coloured, still drink. She chose _____
 - iii. Peter doesn't want a cold drink. He chose _____
 - iv. Amy doesn't want a hot drink or a coloured drink. She likes still drinks.
She chose _____

We use a mnemonic to remember the seven things that all living things need to do to be classified as living.

- b. Complete the table below by filling in what each letter stands for and drawing a line to match the feature up with its example. Some have already been done for you.

FEATURE		EXAMPLE
Movement	•	• Pollination of flowers to produce seeds
R	•	• Dogs can smell
Sensitivity	•	• Seeds becoming a tree
G	•	• Animals can run
Respiration	•	• Whales eat krill
Excretion	•	• Converting chemicals to warmth & energy
N	•	• Processes to get rid of waste

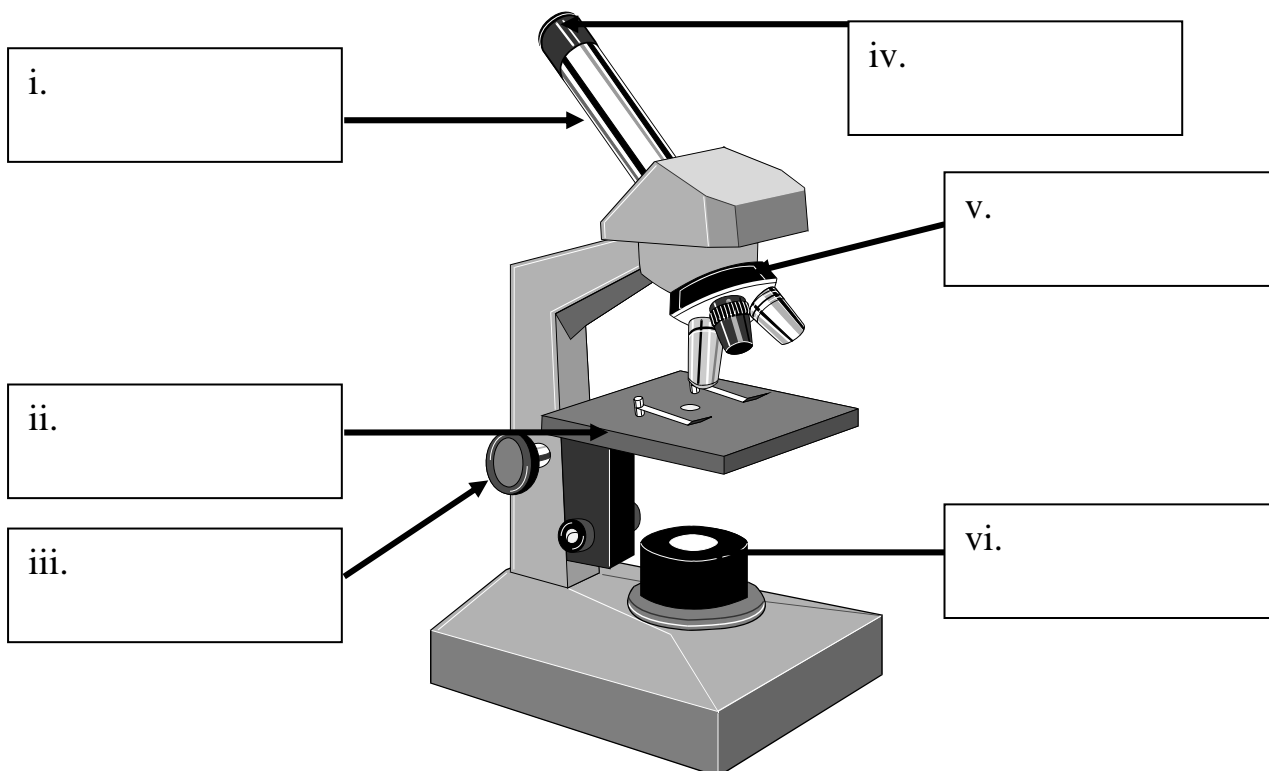
c. With reference to MRS GREN, explain why the real mouse is living and the toy mouse is non-living.



Question Five: [7 marks]

a. Label the following parts of the microscope, (Choose from names below).

- Eye piece lens
- Coarse focus knob
- Revolving nose piece
- Stage
- Clips
- Base
- Lamp
- Barrel
- Low power lens

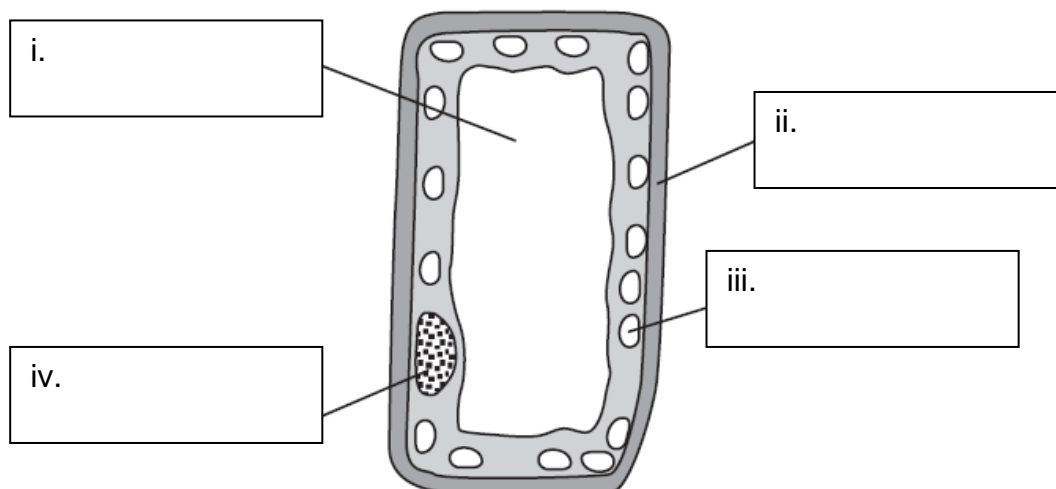


- b. Explain in detail how you would prepare a slide of onion cells ready to be viewed under the microscope. (You don't have to include details of how to focus the microscope etc.)

- c. Is the cell below an animal or a plant cell?

- d. Label the parts of the cell, selecting four labels from the box below.

Cell membrane	Cell wall	Cytoplasm
Chloroplast	Nucleus	Vacuole

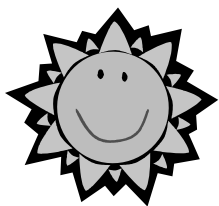


- e. Which cell part controls the movement of substances in and out of the cell?

- f. Which cell part controls all the processes within the cell?

Question Six: [9 marks]

a. Circle the objects which are light sources:



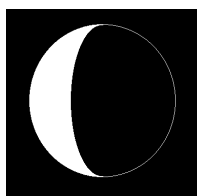
Sun



Light Bulb



Office Desk



Moon



Spoon

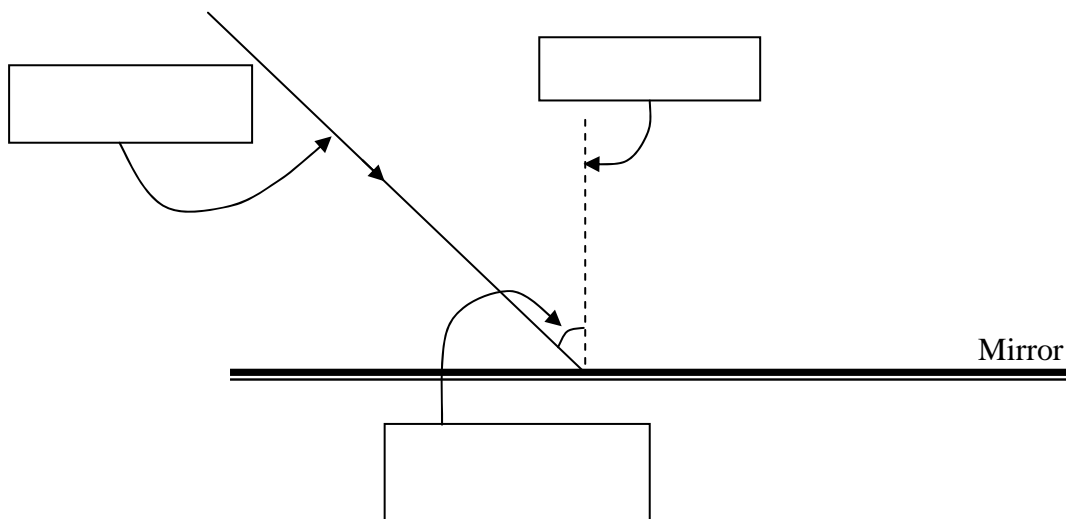


Glow Worm

b. Explain the difference between a light source and a light reflector.

c. The diagram below shows a ray of light hitting a mirror.

i. Complete the three empty label boxes.



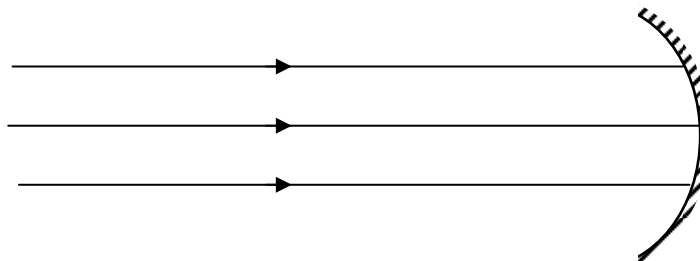
ii. Draw in the reflected ray and clearly label it.

iii. State a law of reflection that helped you to draw in the reflected ray at the correct angle.

d. Three rays hit the surface of a curved mirror as shown below.

i. Name this type of mirror.

ii. Complete the diagram to show how these rays would reflect off the mirror.



e. Curved mirrors have some special uses. State one use of each:

i. concave mirror	ii. convex mirror
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Question Seven: [6 marks]

a. During a class tramp a teacher called out to a group of children. Her shout produced an echo. For her voice to echo, where would the teacher **most probably** have been standing? (Write letter of your answer in the box).

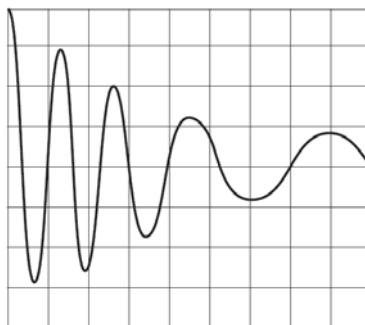
- A Amongst large trees
- B Facing a tall cliff
- C On a hill top
- D In a clearing in the bush

b. Describe what happens to the sound when you hear an echo. You may use a diagram to help you.

c. Brian is building a music recording studio in a place where there is no echo and sound proofing. List the types of materials he would use on the walls of his recording studio so that the room will be sound proof and echo free.

d. Explain why some materials are better at keeping noise levels down than others?

e. A microphone connected to an oscilloscope picked up the sound from a siren. The trace produced on the oscilloscope screen is shown below.



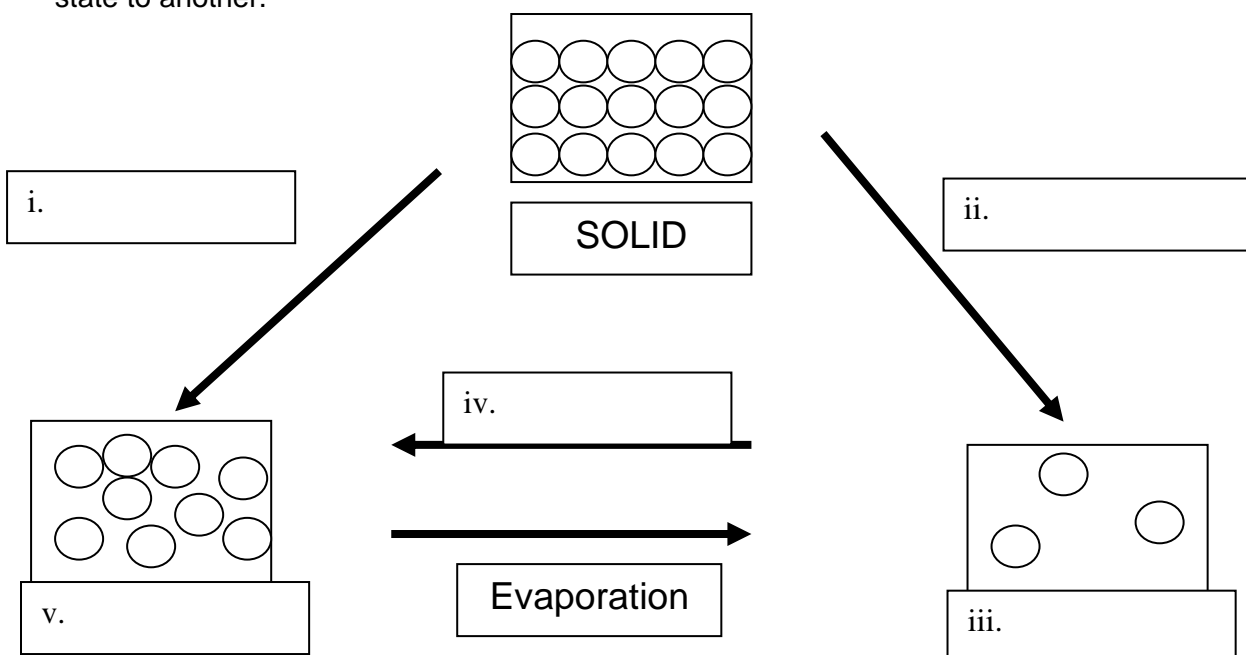
Look at how the wave changes as it goes across the screen from left to right (→). Complete the statements below to describe how the sound of the siren changed.

The volume of the siren...

The pitch of the siren...

Question Eight: [8 marks]

a. Complete the diagram below to show what happens to particles when they change from one state to another.



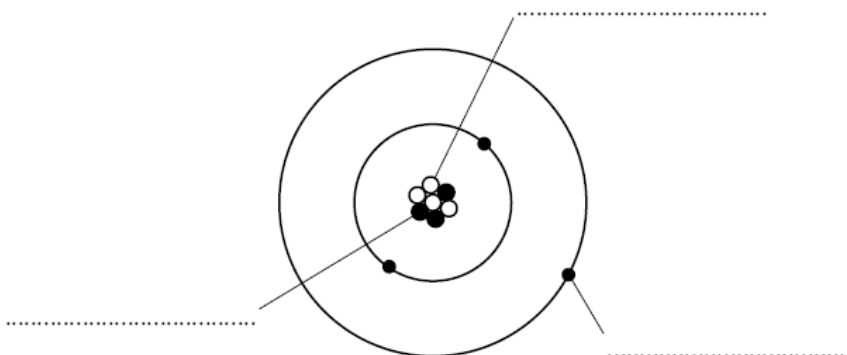
- b. Are these things examples of melting, freezing, evaporation or condensation? Circle the correct word.

i.	The ice cubes in my drink have disappeared.	melting freezing evaporation condensation
ii.	The mirror in the bathroom has misted up.	melting freezing evaporation condensation
iii.	The cold night has left ice on the road.	melting freezing evaporation condensation

- c. Joe and Eve run to the swimming pool. They have races running in the pool. However hard they try, they run much slower through the water than through the air.

Using your knowledge of particles explain why it is easier to run in air than it is to run in water. You may use diagrams to help you.

- d. The diagram represents an atom of lithium.



Complete the diagram by writing in the spaces the name of each type of sub atomic particle. Use only words given in the box. Each word may be used once or not at all.

electron	neutron	nucleus	proton
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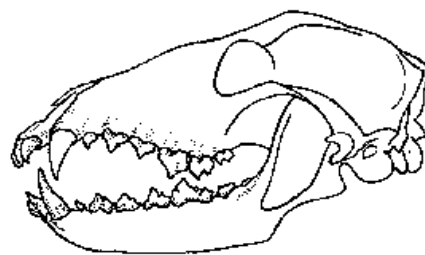
- e. Which type of particle found inside the atom is uncharged?

- f. Elements in the periodic table are arranged in order of: (Write letter of your answer in the box)

- | | |
|-----------------------|-----------------------------------|
| A chemical reactivity | C atomic number |
| B date of discovery | D percentage in the Earth's crust |

Question Nine: [5 marks]

- a. When visiting his cousin's farm John found this skull in one of the paddocks.



What type of food did this animal **most** likely eat? (Write letter of your answer in the box).

- A Flesh of other animals
- B Tough vegetation
- C Both flesh and plants
- D Grass and low-growing plants

- b. Hamish found this skull of an animal. What did this animal **most** likely eat? (Write letter of your answer in the box).



- A Flesh of other animals
- B Tough vegetation
- C Both flesh and plants
- D Grass and low-growing plants

- c. There are many differences between the two skulls above. Give **TWO** differences and explain the reasons for the differences, in terms of the diet and/or lifestyle of the animal.

Difference One:

Reason for difference

Difference Two:

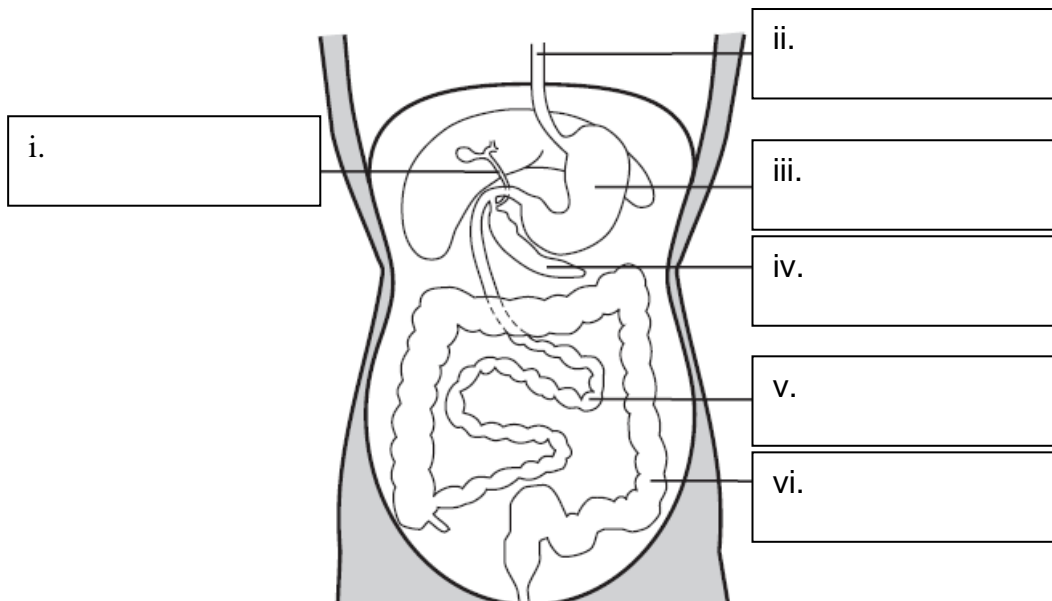
Reason for difference

Question Ten: [5 marks]

This diagram shows part of the human digestive system

a. Label the parts of the digestive system using the words in the box below.

Stomach	Liver / gall bladder	Small intestines
Oesophagus	Pancreas	Large intestines



b. Which part of the digestive system produces Hydrochloric acid?

c. Which part of the digestive system is where:

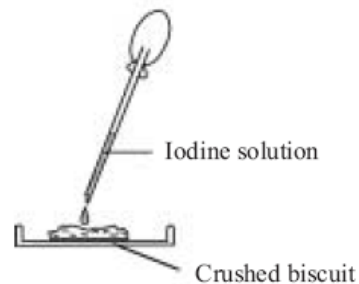
i. the soluble products are absorbed? _____

ii. most of the water is absorbed? _____

The table below shows the information on a packet of biscuits.

Chocolate Biscuits Nutritional Information <i>Each 100g of biscuit gives</i>	
ENERGY	1895Kj
PROTEIN	7.3g
CARBOHYDRATES	39.5g
of which STARCH	26.5g
SUGAR	12.9g
FAT	23.5g

d. A student did the test shown opposite on the biscuits. What is the student testing in this test?

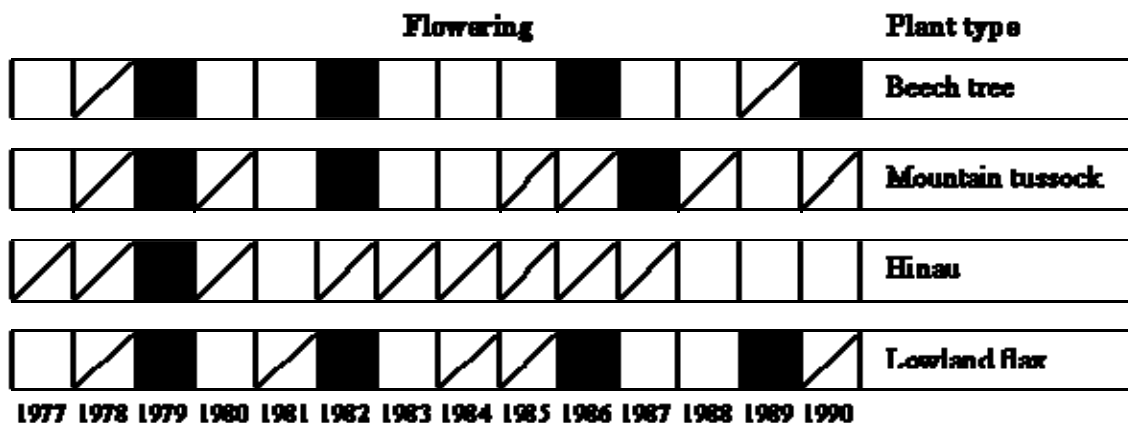


e. i. Describe how you would test this biscuit for **sugar** (glucose).

ii. State what you would see if the food contained sugar.

Question Eleven: [5 marks]

This chart shows the flowering of four plants over a number of years.



Key

<input type="checkbox"/>	No flowering	<input checked="" type="checkbox"/>	Light flowering	<input type="checkbox"/>	Heavy flowering
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a. Which year was the **BEST** for flowering for all the plant types?

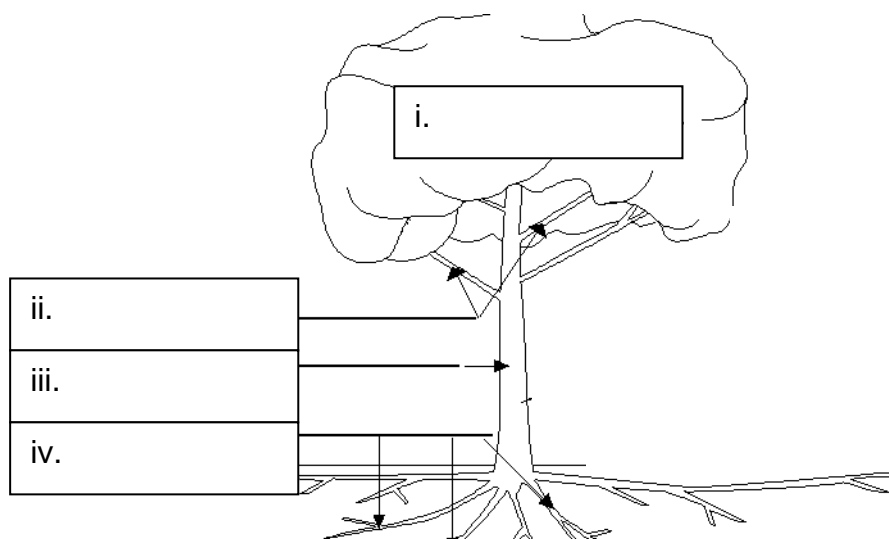
b. Which plant type flowered the most consistently over all 14 years?

c. Choose ONE of the four plant types; Write a general statement about its flowering pattern:

Plant type chosen: _____

d. Label the following parts of the plant below:

roots	branch	leaves	trunk
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e. Choose **TWO** of the tree parts from d. and explain in detail what job this part does for the plant.

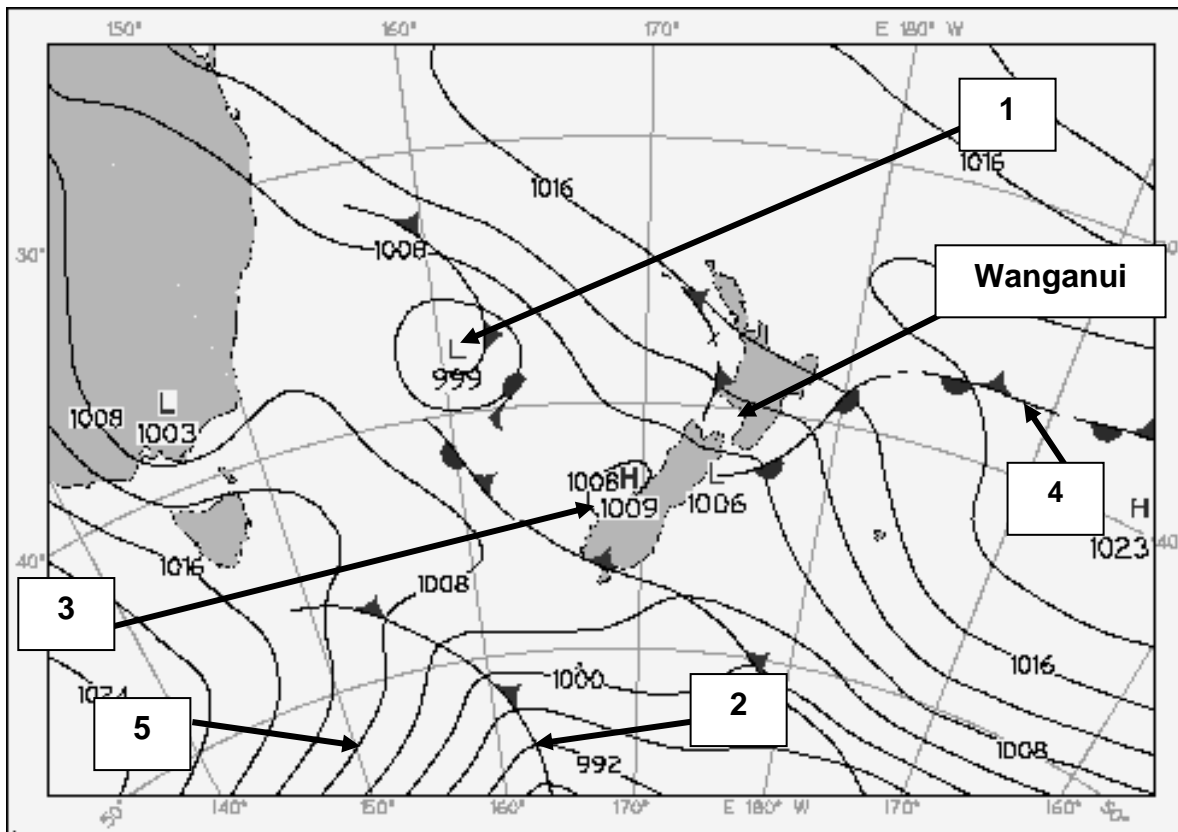
Plant Part: _____

Function:

Plant Part: _____

Function:

Question Twelve: [8 marks]

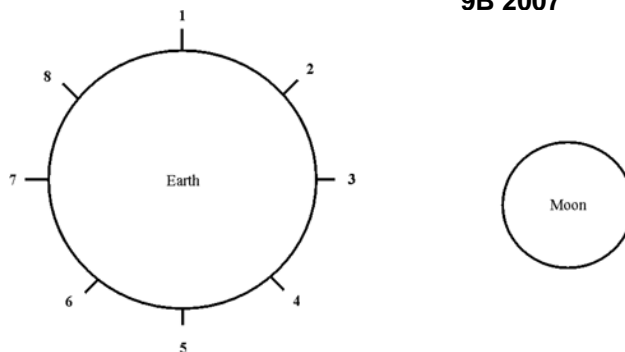


a. From the weather map select the number that best matches the weather features described below.

	Weather	Number
i.	A region where the weather is not really changing at the moment	
ii	A cold front	
iii	Centre of a low pressure air mass	
iv	Isobar	
v	Anticyclone	

b. Describe what the weather will be like in Wanganui.

High tides in the sea are caused by the movement of the Earth and the Moon.



c. There are two places on the Earth that would have a high tide when the Moon is in the position shown in the diagram.

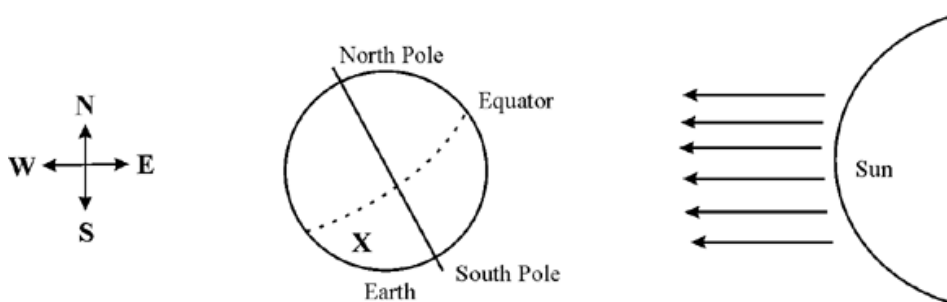
There would be a high tide at positions number _____ and _____

d. High tides occur approximately (write letter of your answer in the box)

- A once every 24 hours
- B twice every 24 hours
- C once every lunar month
- D once every year

e. While the Earth orbits the Sun it is also spinning on its axis.

How long does it take for the Earth to complete one rotation on its axis? _____



New Zealand is located at point X on the map. The Earth spins in a West to East direction. Use the diagram to answer the following questions.

f. According to the diagram, what time of day is it in New Zealand? (Write letter of your answer in the box).

- A In the evening, just after sunset
- B Nearly midnight
- C In the morning, just before sunrise
- D Late morning, around 11am
- E Approaching late afternoon, around 4pm

g. i. According to the diagram, what season is it in New Zealand? _____

ii. Explain how you know this.

Question Thirteen: [2 marks]



Some saucepans are made entirely from stainless steel except for their handles which are made of plastic or wood.

a. Write down two qualities of stainless steel which make it a suitable material for saucepans.

●

●

b. Why is wood a suitable material for saucepan handles?

Extra paper for continuation of answers if required. Clearly number the question.
