

Annual Examinations for Middle Schools 2024

YEAR 7

INTEGRATED SCIENCE

TIME: 1h 30min

Name: _____

Class: _____

1. a. The image shows the fire triangle.

In each of the actions below, state **ONE** component of the fire triangle that is being removed.



i.



Throwing water at low temperature over a fire.

(1)

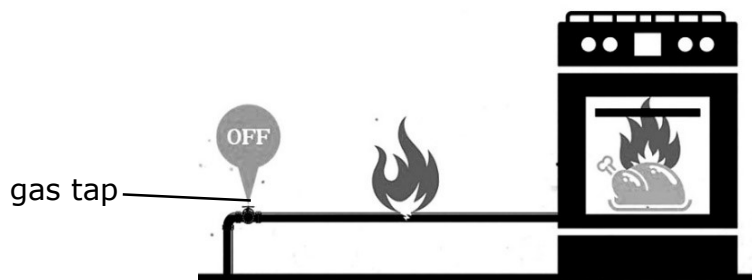
ii.



Placing a fire blanket to completely cover the fire.

(1)

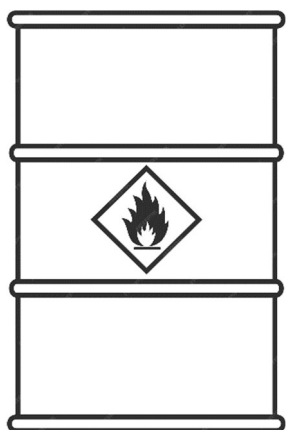
iii.



Closing off the gas supply.

(1)

b. i.



Mario stores this barrel away from a source of flames. Explain why Mario is doing the right thing.

(1)

ii. The chemical inside the barrel is corrosive. From the hazard symbols below, circle the one that Mario should also stick onto the barrel.



(1)

c. A Bunsen burner is used in laboratories for heating. Put the following steps in order, to safely and correctly light up a Bunsen burner. The first (**1**) and last (**7**) steps, have already been marked for you.

STEP	ORDER
Turn on the gas tap.	
Open the air-hole to obtain a hot, blue flame.	
Close the air-hole.	
Place the Bunsen burner on a heat-proof surface.	
Close the gas tap and the air-hole when its use is complete.	7
Put on your safety glasses.	1
Light a match and place it on the chimney.	

(5)

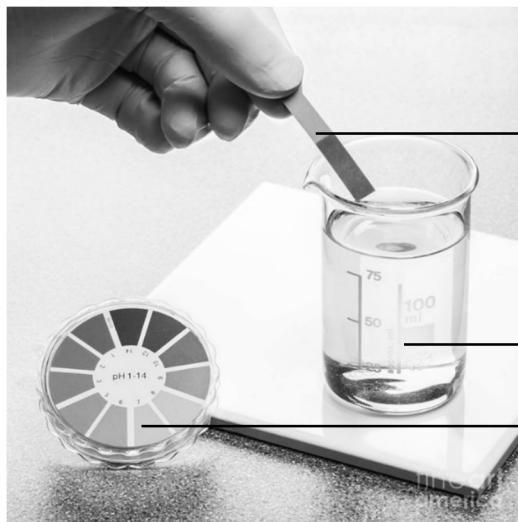
(Total: 10 marks)

2. a. Lemonade is a common **acidic** soft drink. From the three pH values below, circle the likely pH of lemonade.

pH 3	pH 7	pH 8
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 (1)

- b. The picture below shows Universal pH indicator paper being used by a scientist to confirm the pH of lemonade.



Universal pH indicator paper

lemonade sample

pH colour chart

- i. State what observation the scientist must make in this experiment.

_____ (1)

- ii. Explain how the scientist will use this observation and the pH colour chart to find the pH of lemonade.

_____ (1)

- iii. State whether the scientist could use litmus paper instead of Universal pH indicator paper to find the pH of lemonade. Explain your answer.

_____ (2)

- c. Some bakers use lemonade to make a lemon-flavoured cake. They add baking soda to neutralise the cake's acidity created by the lemonade.

- i. From the three pH values below circle the likely pH of baking soda.

pH 1	pH 5	pH 9
-------------	-------------	-------------

 (1)

- ii. Explain how you came to this conclusion.

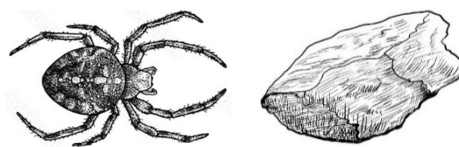
_____ (2)

- d. Apart from soft drinks, name **ONE** other common acid found at home.

_____ (1)

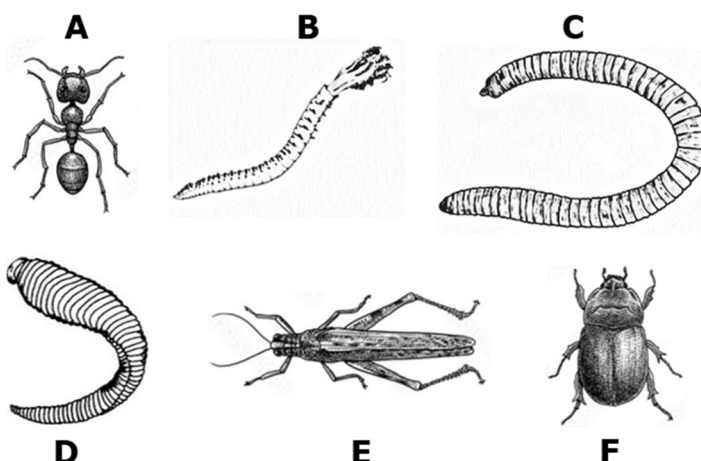
(Total: 9 marks)

3. a. The pictures show a living thing (spider) and a non-living thing (rock).
Mention **TWO** vital functions performed by the spider but not by the rock.



(2)

- b. Living things can be separated into groups. Observe the 6 animals 'A' to 'F'. Suggest how they can be divided into 2 groups of 3 animals each according to their physical features. For each group give **ONE** reason why the three animals have been grouped together.



	Group 1	Group 2
Letters representing animals in each group:		
Reason for grouping animals together:		

(4)

- c. Observe the pairs of pictures below, and for each pair of animals identify:

- i. an adaptation that helps the snail survive predators better than the slug.



snail

slug

(1)

- ii. an adaptation that makes the duck a better swimmer than the hen.



duck feet

hen feet

(1)

(Total: 8 marks)

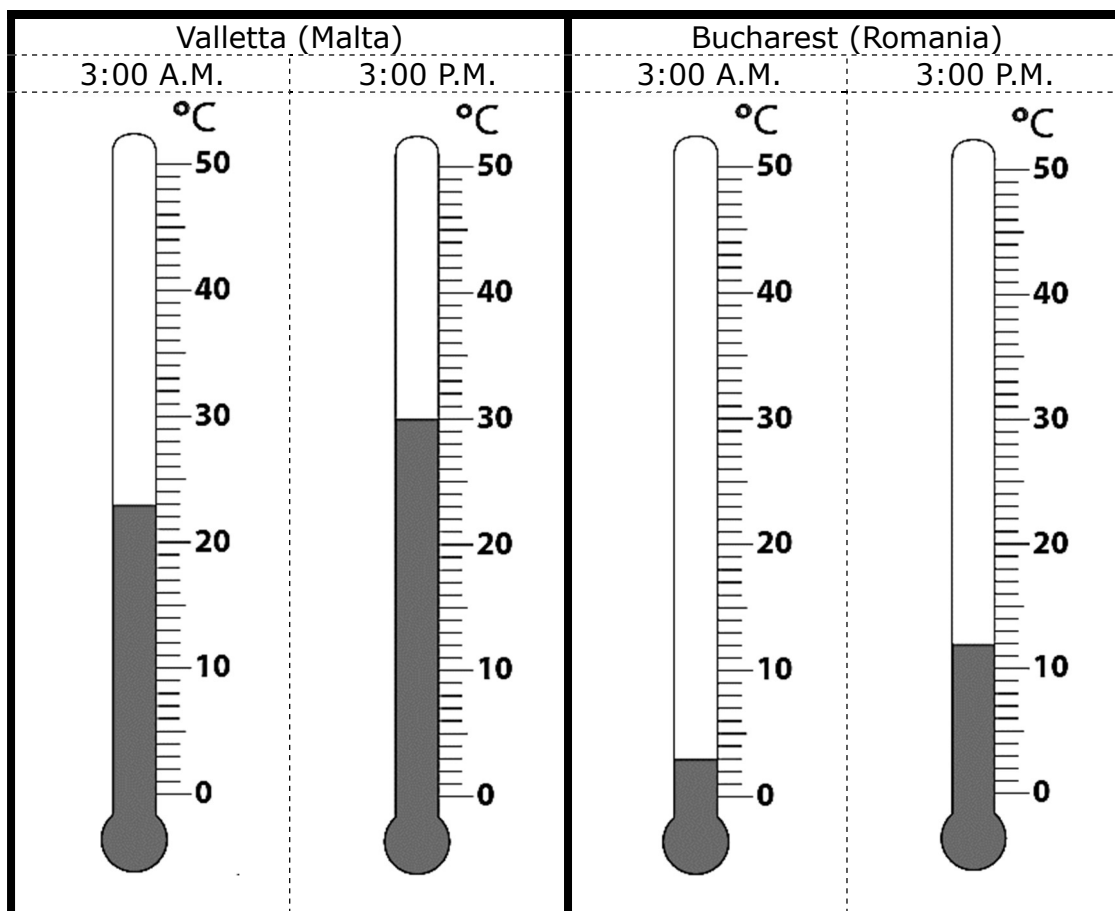
4. The images below show different apparatus found in a science lab.

		
pipette	balance	stop-watch
		
spatula	Round-bottom flask	stirrer
		
measuring cylinder	funnel	test-tube

- a. From the apparatus above name the one:
- i. used to find the volume of a liquid.
- _____ (1)
- ii. that uses grams as units.
- _____ (1)
- iii. used to help you pour liquids into containers with small openings.
- _____ (1)
- b. Explain the difference between the use of the pipette and the spatula.
- _____
- _____ (2)

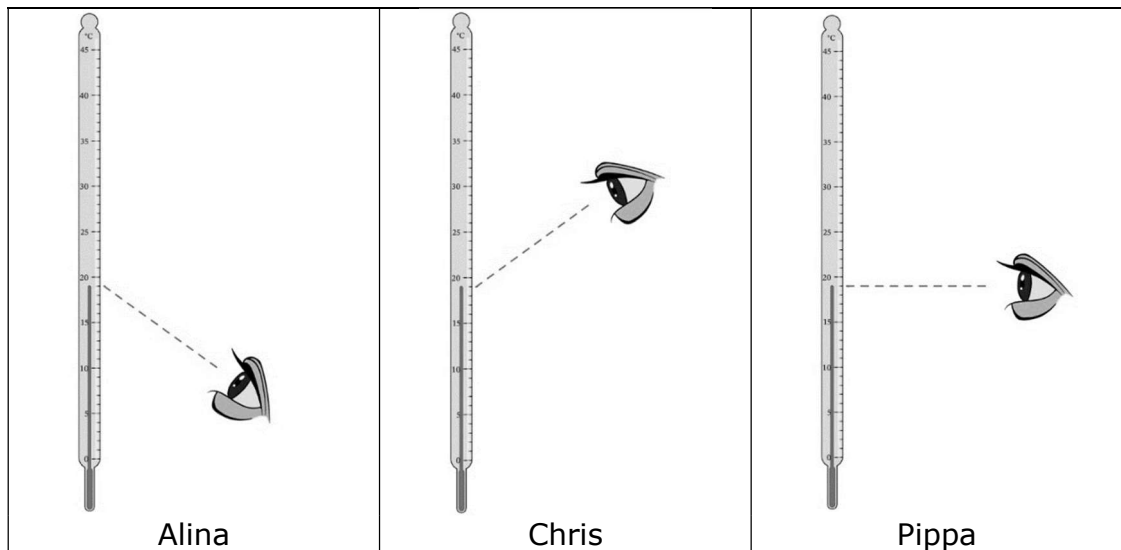
(Total: 5 marks)

5. These measuring instruments show air temperatures in Valletta (Malta), and Bucharest (Romania) at 3.00 A.M. and 3:00 P.M., of the same day.



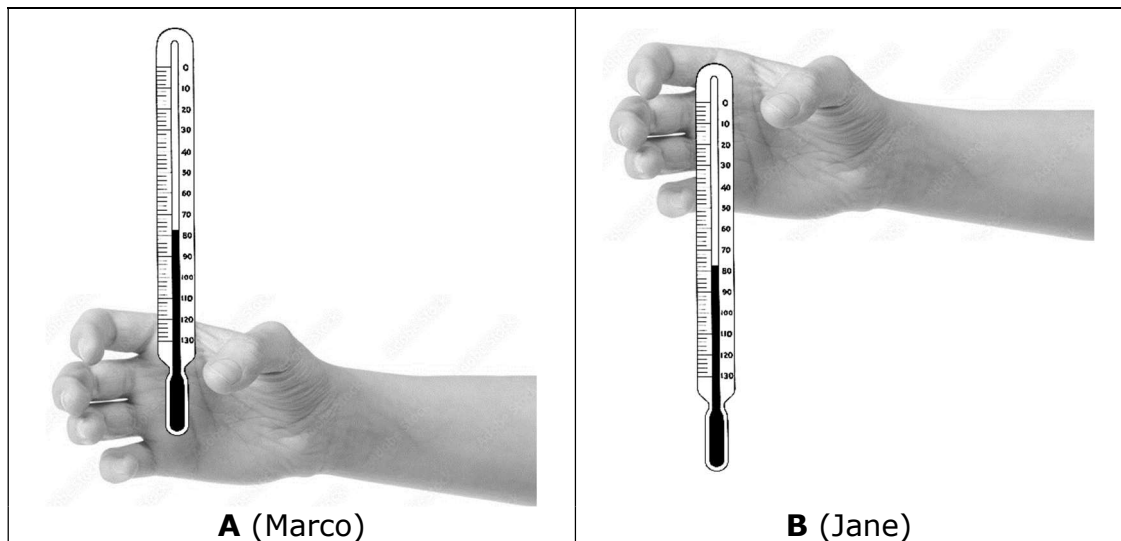
- a. Name the instrument used to measure temperature. (1)
- b. The symbol for the unit used to measure temperature is '°C'. From the list below underline the full name of this unit. (1)
- | | |
|-------------------------|---------------------------|
| A. degrees | B. Celsius |
| C. degrees Celsius | D. centimetres cubed |
- c. In which city was there the biggest rise in temperature between 3.00 A.M. and 3:00 P.M. Show your working. (3)

- d. State who from Alina, Chris and Pippa is reading the temperature most accurately, giving a reason for your answer.



(2)

- e. To measure the air temperature, Marco holds the measuring instrument as shown in 'A', while Jane holds it as shown in 'B'. State who will have the most accurate reading, giving a reason for your answer.



Name: _____

Reason: _____ (2)

- f. i. The highest point in Malta measures 253m above sea level while that in Romania is 2.5km. State which country has the highest point.

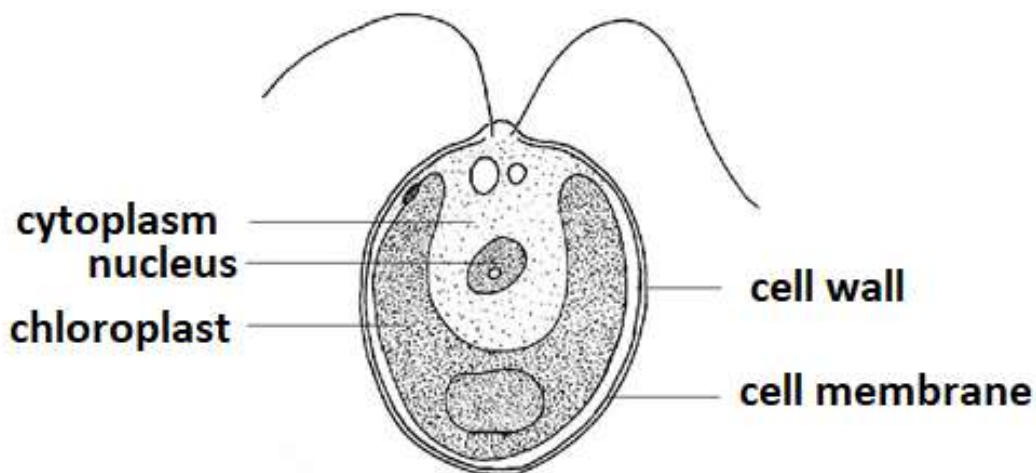
(1)

- ii. Explain how the comparison between the 2 heights can be made easier.

(1)

(Total: 11 marks)

6. During an experiment, students observed the organism shown below under the light microscope. The science teacher explained that this organism is made up of one cell only and it was being observed 100 times larger than its actual size.

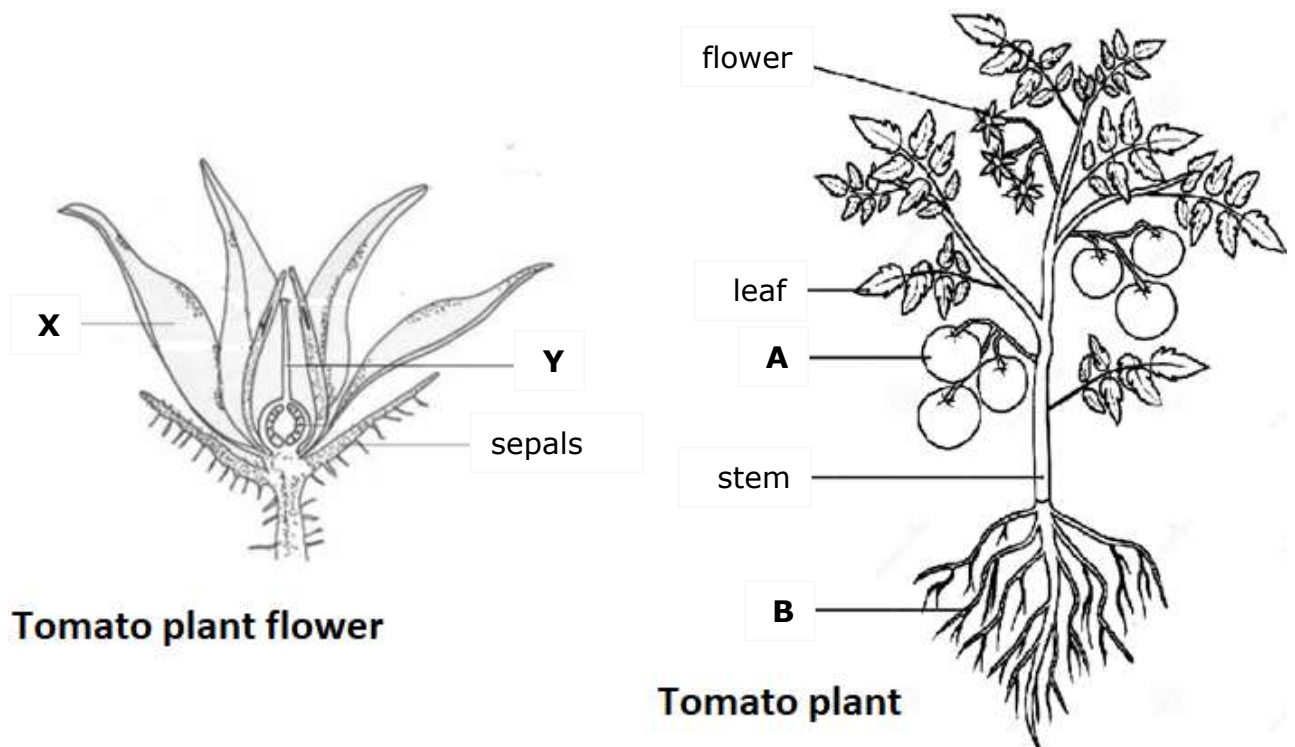


- a. If the objective lens of the microscope was magnifying by 10 times, by how much was the eye-piece lens magnifying the image of the organism?
_____ (1)
- b. The teacher said that this organism is plant-like. Which **TWO** parts of this organism make it plant-like?
_____ (2)
- c. State the function of these parts of the cell.
- i. Cytoplasm:

_____ (1)
- ii. Cell membrane:

_____ (1)

- d. The diagram shows the organs making up a tomato plant and the structure of the tomato plant flower.



- i. Name the parts labelled:
- A:** _____ **B:** _____ (2)
- ii. State the function of each of parts labelled:
- A:** _____
- B:** _____ (2)
- iii. Name the part of the flower that will form the structures labelled 'A'.
- _____ (1)
- iv. Name the parts of the flower labelled:
- X:** _____ **Y:** _____ (2)
- v. State **ONE** way how the tomato plant flower might be adapted to attract insects.
- _____ (1)

(Total: 13 marks)

7. a. The diagram below shows a specialised cell produced by the human male reproductive system.

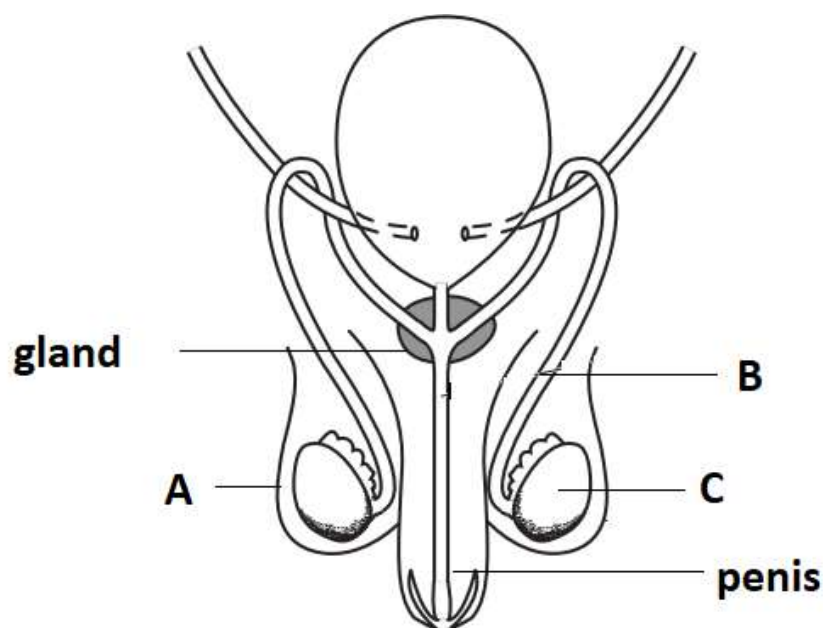


- i. Name this specialised cell. _____ (1)
- ii. State the function of each part of this cell.

Nucleus: _____ (1)

Tail: _____ (1)

- b. The diagram represents the human male reproductive system.



- i. From the diagram, write the letter which shows the structure that produces the specialised cells mentioned in question (a).

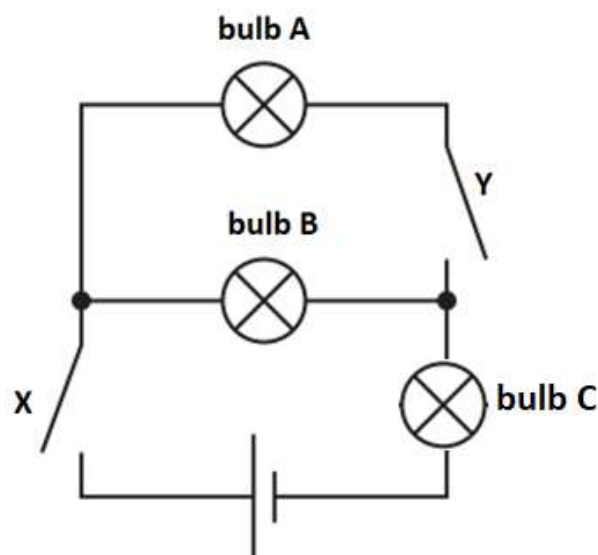
_____ (1)

- ii. State the function of the structure labelled 'B' in the diagram.

_____ (1)

(Total: 5 marks)

8. a. Elisa built up this circuit.



i. State whether each statement about this circuit, in the table below, is TRUE or FALSE.

Statement	True / False
bulb A and bulb B are connected in parallel	
with both switches closed, bulb B will light brighter than bulb A	
with both switches closed, if bulb A breaks, bulb B will light	
bulb B and bulb C are connected in series	

(4)

ii. State which bulbs will light if **switch X** is closed, and **switch Y** is open.

(2)

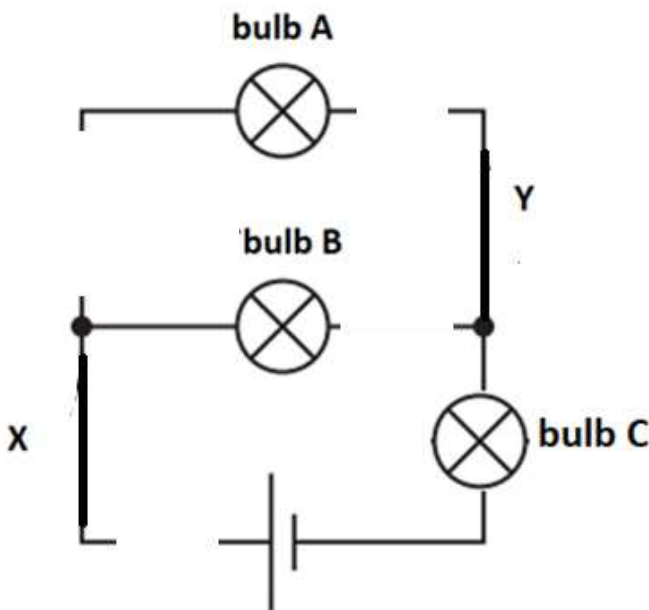
iii. A plastic straw is connected to the circuit instead of **bulb C**. Both switches are closed. Predict what will happen, giving a reason for your answer.

(2)

b. Elisa wants to add another bulb to this circuit. She wants to connect the new bulb in series with bulb A.

i. Complete the diagram by adding the new bulb.

ii. Add any missing parts to make a complete circuit, where **all** bulbs light.

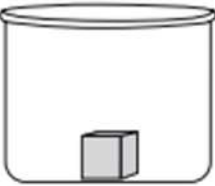
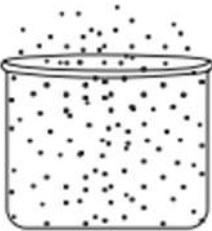


(2)

(Total: 10 marks)

9. The diagram shows water, in three different states, in an open beaker.

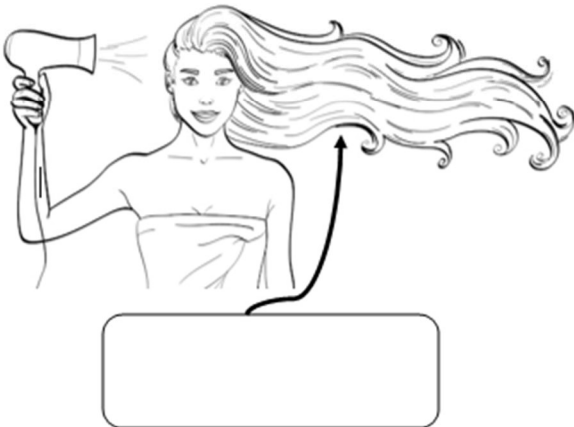
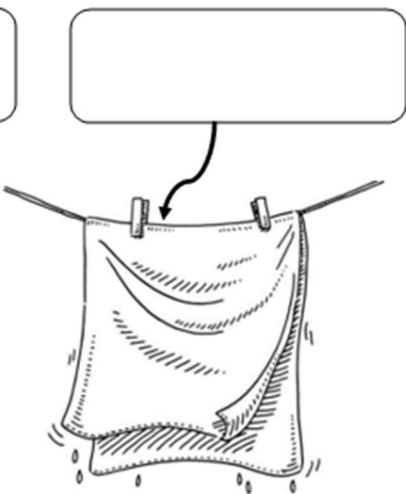
a. Complete each row in the table by answering **YES** or **NO** to each question.

	 solid	 liquid	 gas
Does it have a fixed shape?			
Can it be compressed?			

(6)

b. The pictures below show everyday situations where water changes its state. Fill in the spaces below, using words in the box, to describe which change is taking place in each case. Each word can be used once, more than once, or not at all.

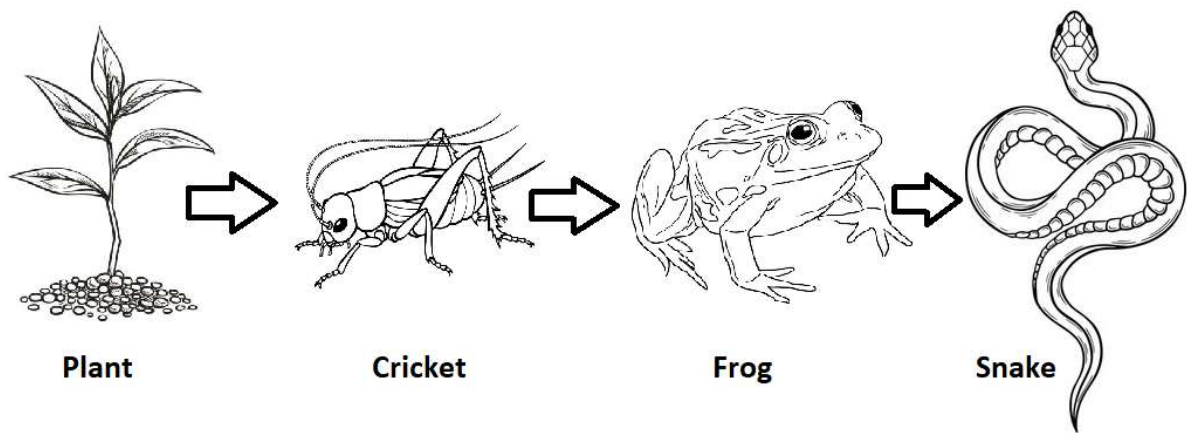
BOILING MELTING FREEZING EVAPORATION CONDENSATION



(5)

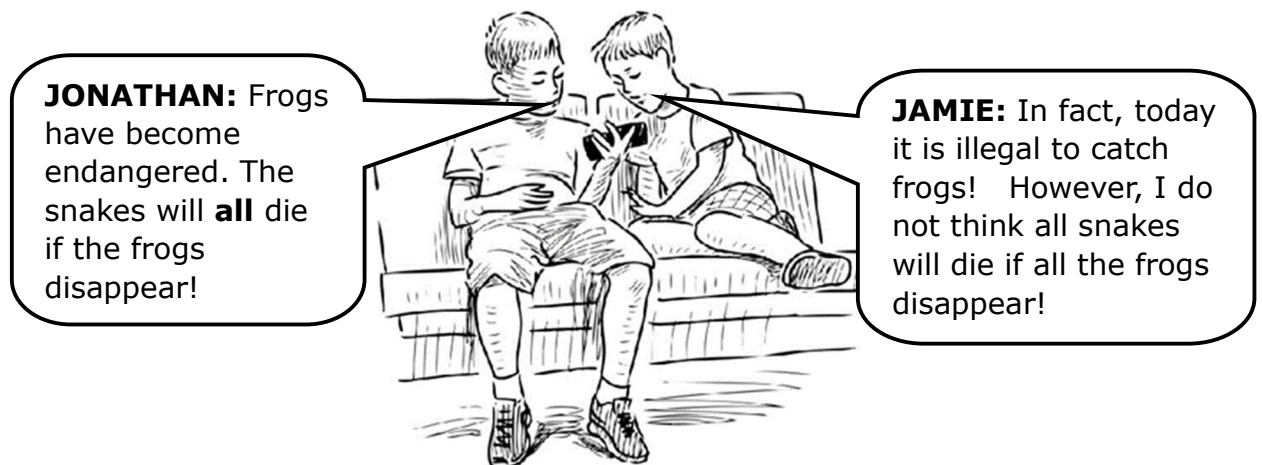
(Total: 11 marks)

10. The diagram shows a food chain typically found in Buskett gardens. The diagram is not to scale.



- a. From the food chain above, name:
- ONE** invertebrate: _____ (1)
 - ONE** consumer: _____ (1)
- b. Only the plant in this food chain can make its own food.
- Name the process used by the plant to make its own food.
_____ (1)
 - Name the gas needed for this process to happen.
_____ (1)
- c. The frog is a vertebrate.
- Name the vertebrate group to which it belongs.
_____ (1)
 - Name **ONE** characteristic common to this group of vertebrates.
_____ (1)
- d. Name:
- ONE** other group of vertebrates which is **NOT** part of this food chain.
_____ (1)
 - the body covering of the group of vertebrates you have named.
_____ (1)

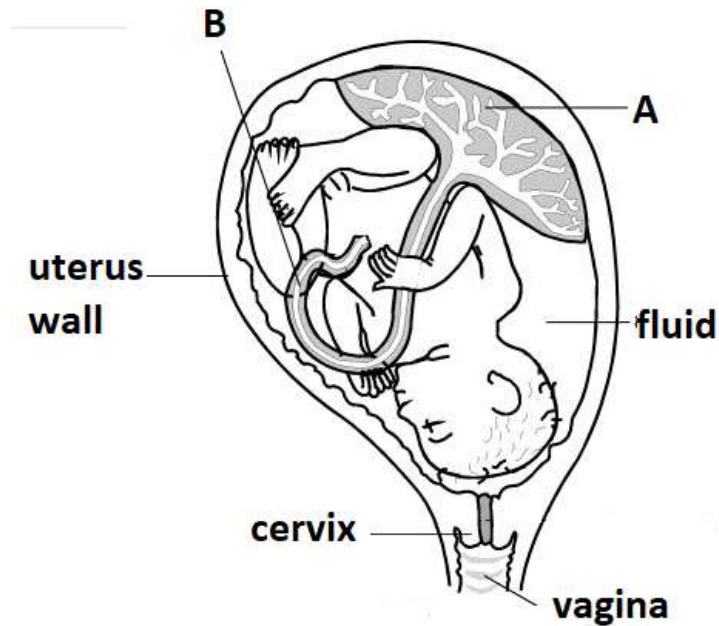
- e. Jonathan and Jamie were doing research on the frog's and snake's diets. Read their conversation in the diagram below.



- i. Explain the term 'endangered'.
- _____ (1)
- ii. State **ONE** way how the frog population might have decreased.
- _____
- _____ (1)
- iii. Jonathan and Jamie are disagreeing about what would happen to the snakes if all frogs died. State which student do you agree with, giving a reason for your answer.
- _____
- _____ (2)
- (Total: 12 marks)**

TURN OVER FOR THE NEXT QUESTION

11. During pregnancy, the mother needs to take special care of herself and of the growing foetus. The foetus takes its nutrients and oxygen from his mother through structures **A** and **B**.



- a. Name the structures labelled **A** and **B** in the diagram above.
- A:** _____ **B:** _____ (2)
- b. Name the part of the female reproductive system:
- i. where the baby grows: _____ (1)
- ii. that protects the foetus from bumps: _____ (1)
- c. Name **TWO** ways how a mother cares for her health during pregnancy.
- _____
- _____
- _____ (2)
- (Total: 6 marks)**

END OF PAPER – CHECK YOUR WORK

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