Rosyth School
Term Assessment 2023 (Term Two)
SCIENCE
Primary 6

Name: _____ Total Marks: 28

Class: Pr 6 _____ Register No. _____

Date: 10 May 2023

Duration: Total time for Booklets A and B: 1 h

Booklet A

Instructions to Pupils:

For each question from 1 to 14, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Write the correct answer in the OAS provided.

(28 Marks)

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1 Which of the following best shows the movement of water in the water- carrying tubes of a plant?

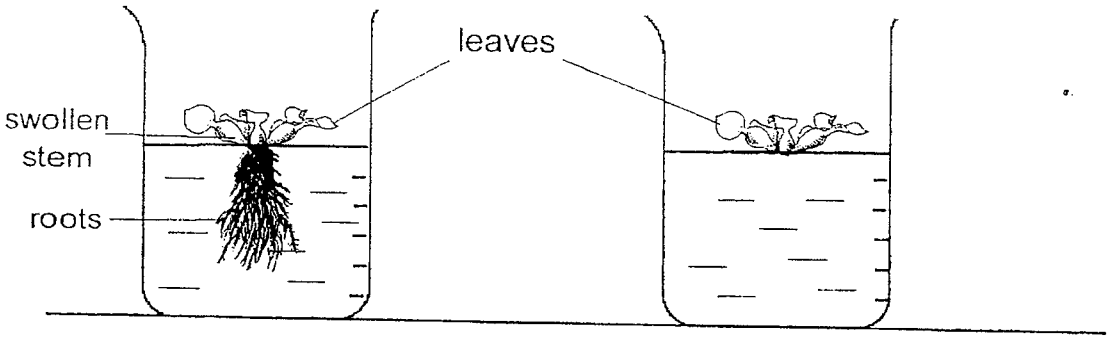
(1) roots → stem

(2) roots → leaves

(3) leaves → stem → roots

(4) stem → leaves → roots

2 Alvin carried out an experiment with two similar floating plants as shown in the diagrams below.



He added the same volume of water in the beaker at the start of the experiment and measured the volume of water in the beaker every day for one week. What is the aim of Alvin's experiment?

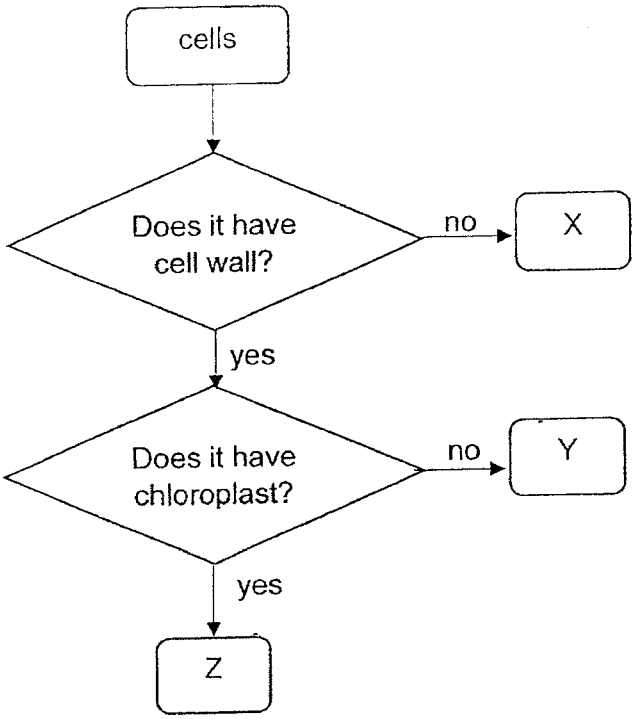
(1) To find out if roots absorb water

(2) To find out if the stem helps the plant to float

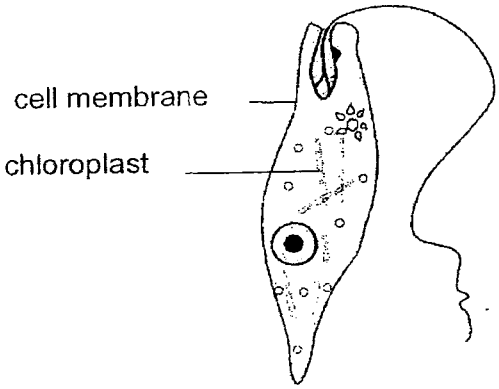
(3) To find out if the stem transports water to the leaves

(4) To find out if roots help to hold the plant firmly in the water

3 Refer to the flowchart shown below.



Study the picture of a unicellular microorganism shown below.



Based on the flowchart, which cell/s represent/s the unicellular microorganism?

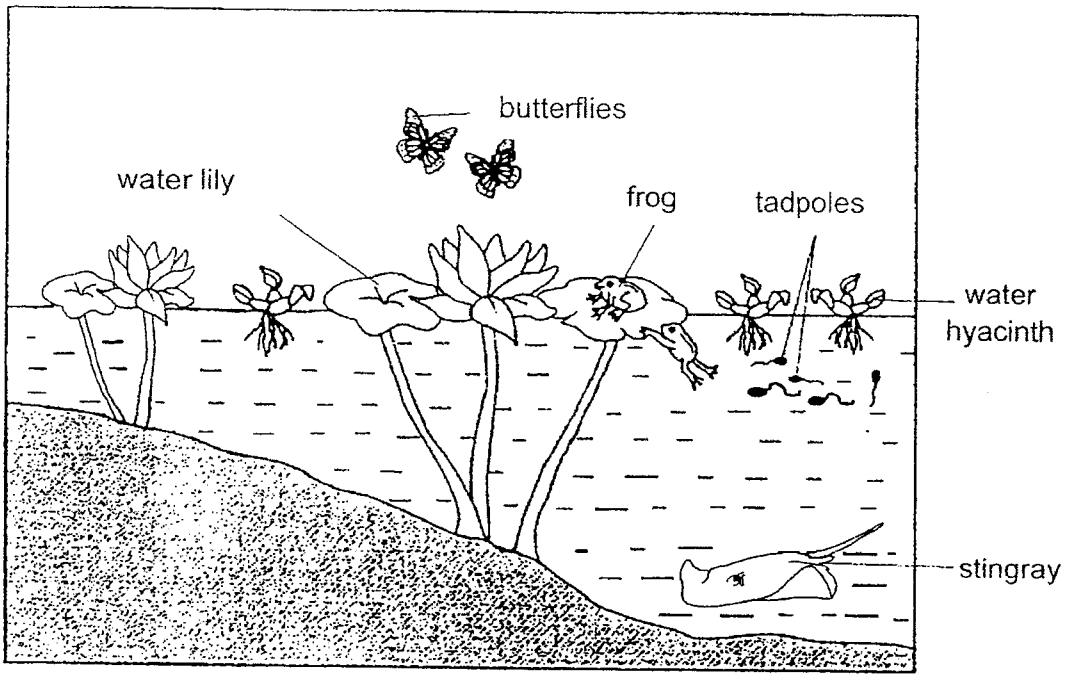
(1) X only

(2) Z only

(3) X and Z only

(4) Y and Z only

4 The picture below shows a pond habitat.



How many populations are there in the pond ?

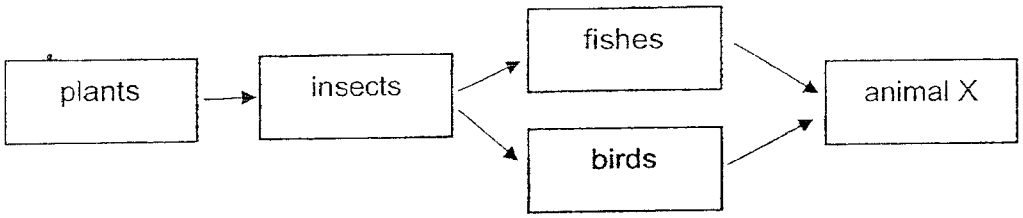
(1) Five

(2) Two

(3) Three

(4) Four

5 The figure below shows a food web.



Based on the food web, which of the following is true?

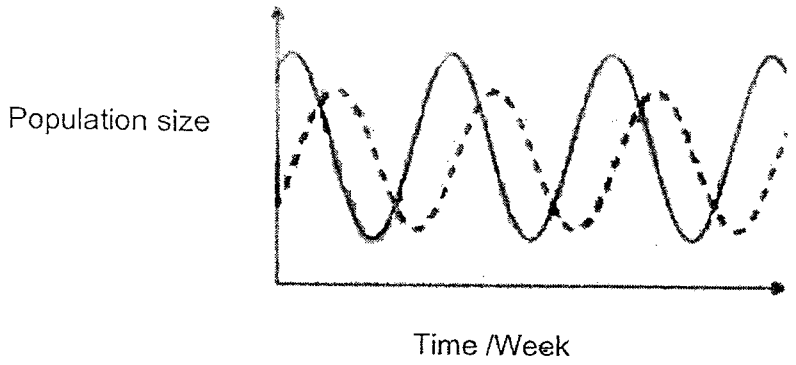
(1) The insect is a predator.

(2) The birds are both a prey and a predator.

(3) There are four food chains in the food web.

(4) An increase in the population of animal X will only affect the fishes and birds.

6 The graph below shows the population size over time for two organisms.



What relationships most likely exist between the two organisms?

	———	- - - - - - - - - -
A	Prey	Predator
B	Consumer	Producer
C	Producer	Consumer
D	Predator	Prey

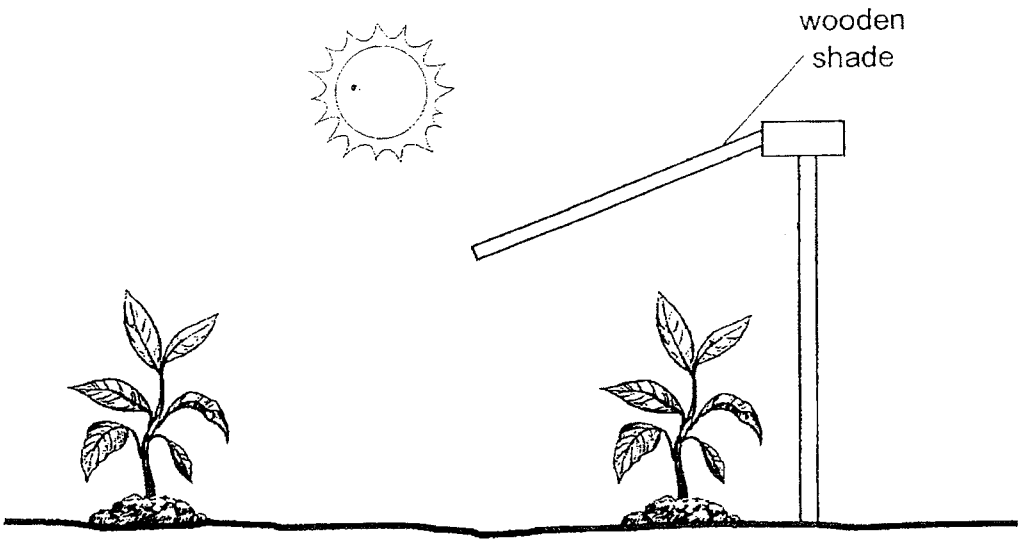
(1) A and B only

(2) A and C only

(3) B and D only

(4) C and D only

7 A scientist conducted an experiment to grow the same type of plants in two different conditions.



The plant in set-up A was grown under the sun while the plant in set-up B was grown in the shade. He grew the plant for three weeks, then he looked at the leaf cells under the microscope.

Which of the following change will the scientist observe in the cells of the plant in set-up B?

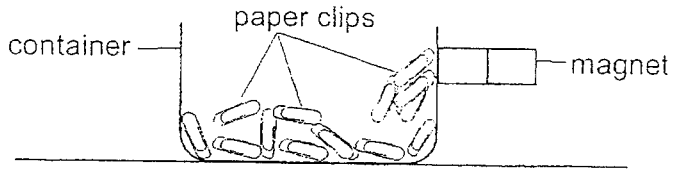
(1) The cells will shrink in size.

(2) The cells have thicker cell walls.

(3) The cells have thinner cell membrane.

(4) The cells have more chlorophyll in their chloroplasts.

8 The diagram shows a magnet attracting a few paper clips.



Based on the observation above, which of the following statement is most likely true?

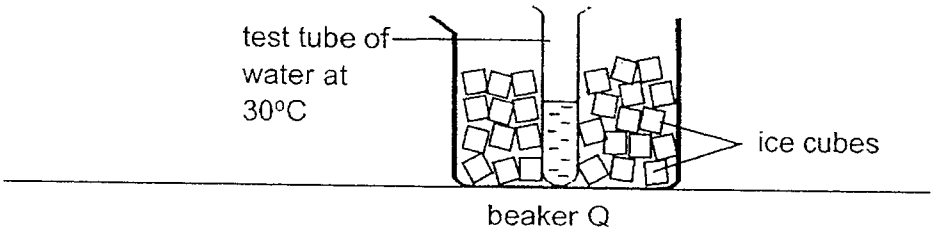
(1) The container is made of a magnetic material

(2) The paper clips are made of non-magnetic material

(3) The south pole of the magnet is facing the container

(4) The magnet is not strong enough to attract more paper clips

9 Randy added a test tube of water and 200g of ice cubes into beaker Q and placed beaker Q at a place where the surrounding air is at 30°C.

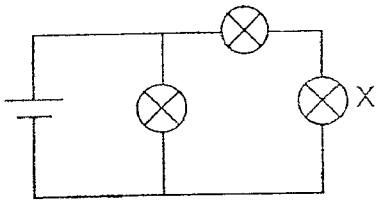


What will most likely happen to the temperature of the ice cubes and water in the test-tube after five minutes.

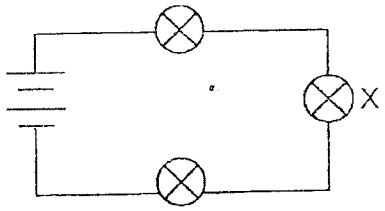
	Temperature of melting ice	**Temperature of water in the test tube**
(1)	Remains the same	Remains the same
(2)	Remains the same	Decreases
(3)	Increases	Decreases
(4)	Increases	Remains the same

10 In which circuit would bulb X be brightest?

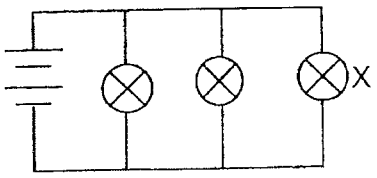
(1)



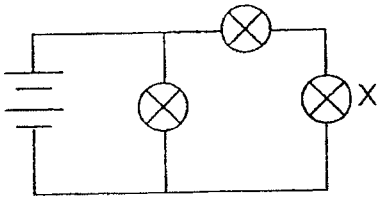
(2)



(3)



(4)



11 Which of the following is not an effect of force?

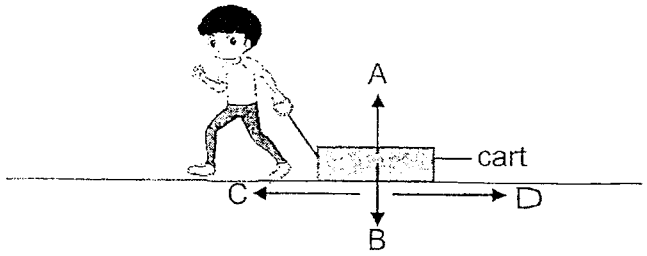
(1) The moving car stops suddenly.

(2) The colour of the car is changed.

(3) The speed of the moving car is faster.

(4) The direction of the car moving is changed.

12 The diagram below shows a boy pulling a cart.



Which arrow A, B, C or D represents the direction that frictional force and gravitational force act on the cart?

	Frictional Force	Gravitational Force
(1)	A	C
(2)	D	A
(3)	D	B
(4)	C	B

13 Bruce placed a box on a wooden plank as shown in diagram 1. He raised the wooden plank and the box started to slide down. He then measured the angle of the plank as shown in diagram 2.

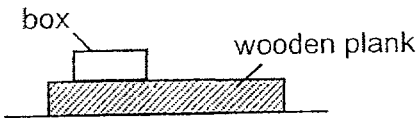


Diagram 1

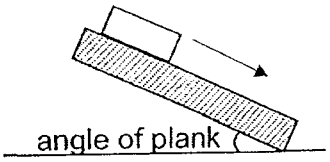


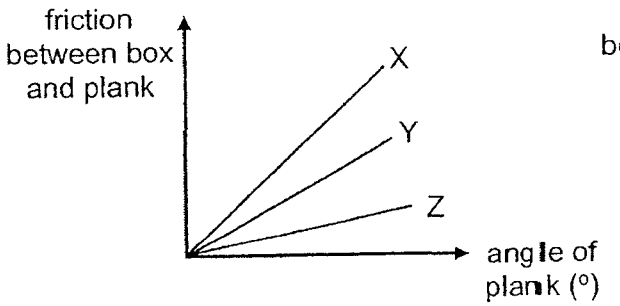
Diagram 2

The table below shows the results for different types of wooden planks. X, Y and Z.

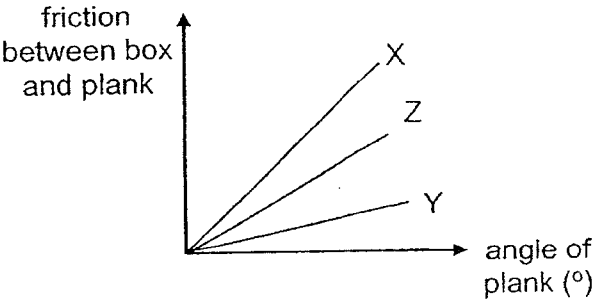
Type of wooden plank	Angle of plank when the box started to slide down (°)
X	15
Y	40
Z	25

Which one of the following correctly shows the relationship between the angle of plank and the amount of friction between the box and plank?

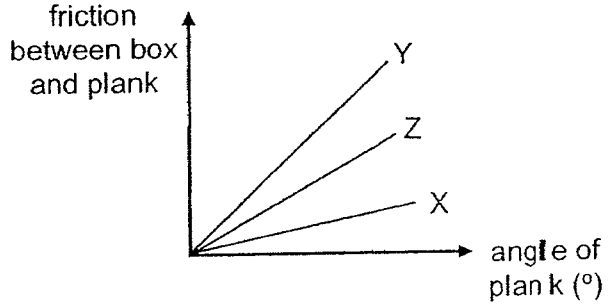
(1)



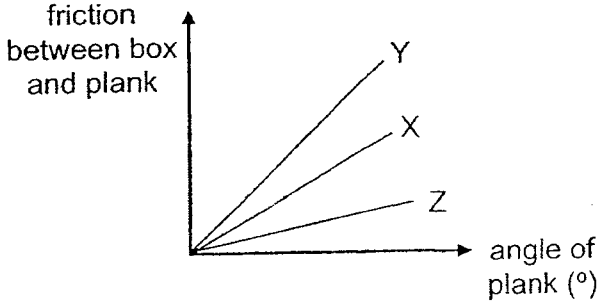
(2)



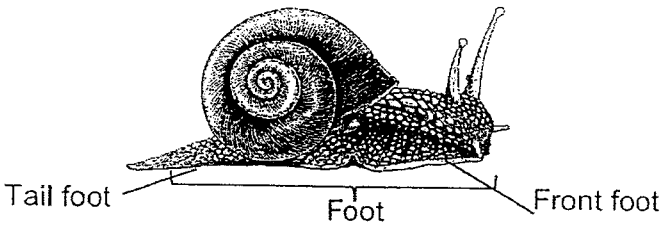
(3)



(4)



14 The diagram below shows animal Y which crawls on its foot. On the underside of animal Y's body, a large amount of slimy liquid is produced.



Which part of animal Y is the slimy liquid produced from and what is the reason for the slimy liquid?

	Part	Reason
(1)	Front	To reduce friction between the body and the ground
(2)	Front	To increase friction between the body and the ground
(3)	Tail	To reduce friction between the body and the ground
(4)	Tail	To increase friction between the body and the ground

(Go to Booklet B)

Rosyth School
Term Assessment 2023 (Term Two)
SCIENCE
Primary 6

Name: _____ Total Marks: /22

Class: Pr 6- _____ Register No. _____

Date: 10 May 2023 Parent's Signature: _____

Duration: Total time for Booklets A and B: 1 h

Booklet B

Instructions to Pupils:

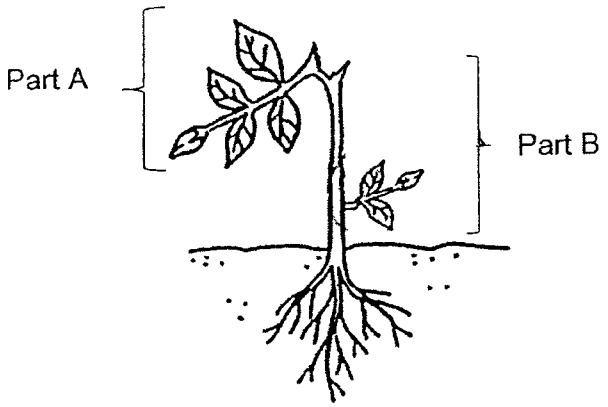
1. Please do not turn this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Use a dark blue or black ballpoint pen to write your answers in the space provided for each question.
5. Do not use correction fluid/tape or highlighters.

	Maximum	Marks Obtained
Booklet A	28 marks	
Booklet B	22 marks	
Total	50 marks	

* This booklet consists of 10 printed pages (including this cover page).

For questions 15 to 20, write your answers in the space provided. **(22 Marks)**

15 The stem of a plant broke during a heavy rain. Part A of the plant collapsed as shown in the picture below.



(a) State the function of the stem in the plant. [1]

_____

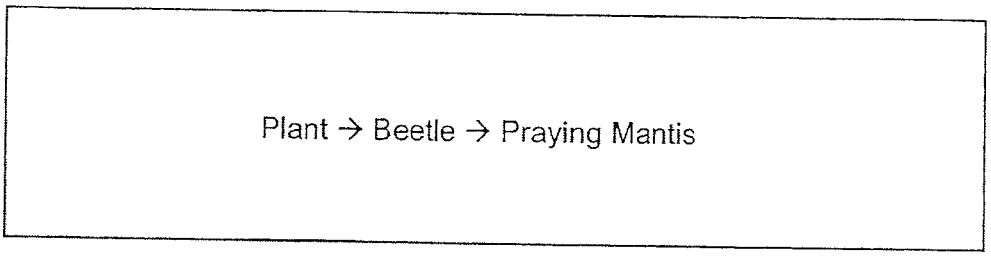
_____

(b) Peter thinks that the plant will die because the water carrying tubes and food carrying tubes are broken. Do you agree with him? Explain your answer. [1]

_____

_____

16 The diagram below shows a food chain in a garden.



(a) State the main source of energy for all organisms. [1]

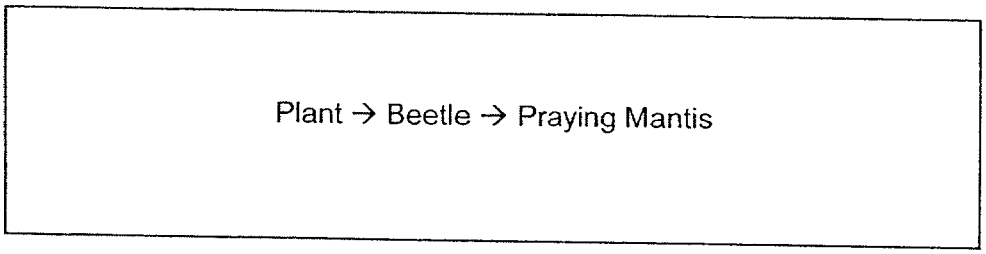
_____

(b) State one physical factor in the environment that affects the population of plants. [1]

_____

(c) Bird F was introduced into the garden and it is a predator of the praying mantis. Draw this relationship in the food chain below.

[1]

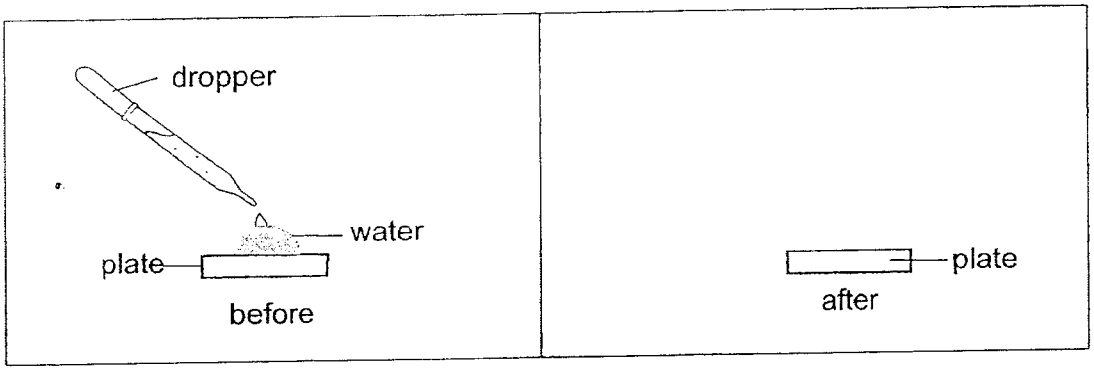


(d) Explain what happened to the population of the beetle when bird F was introduced. [1]

_____

_____

17 Devi wants to find a way to cool her plate.



Devi used a dropper to add 5 ml of water on the plate. When the water has completely evaporated, she measured the temperature of the plate again. Devi recorded her results in the table as shown below.

Temperature of the plate at the start (°C)	Temperature of the plate at the end (°C)
34.6	34.3

(a) Devi needs a control set-up in her experiment. Tick the boxes to show how the control set-up should be like. [1]

Items	Tick (√)
i) 0 ml of water	
ii) 2 ml of water	
iii) 5 ml of water	
iv) plate	

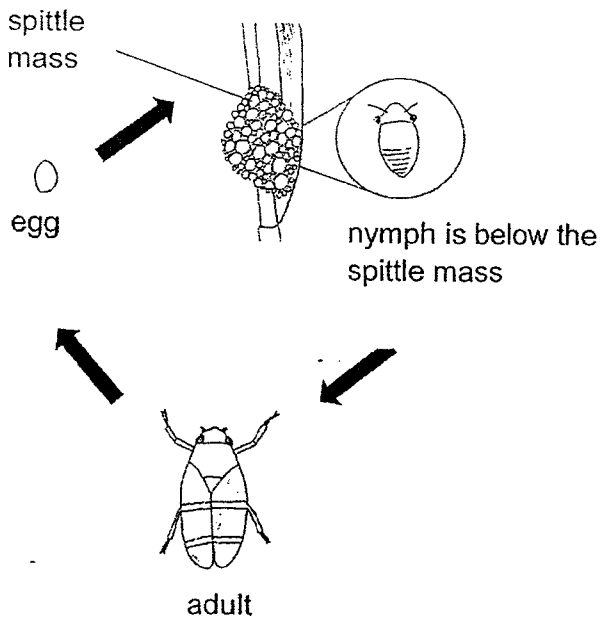
(b) What is the purpose of the control set-up? [1]

_____

_____

Question 17 is continued on page 5

The diagram below shows the life cycle of a spittle bug. The nymph of the bug sucks up liquid from the plant stems. As the nymph excretes urine, it mixes it with air to form bubbles which is known as the spittle mass.



(c) Identify the type of adaptation displayed by spittle bug. [1]

_____

(d) Based on Devi's experiment, explain how the above adaptation helps the nymph to survive in hot weather. [1]

_____

_____

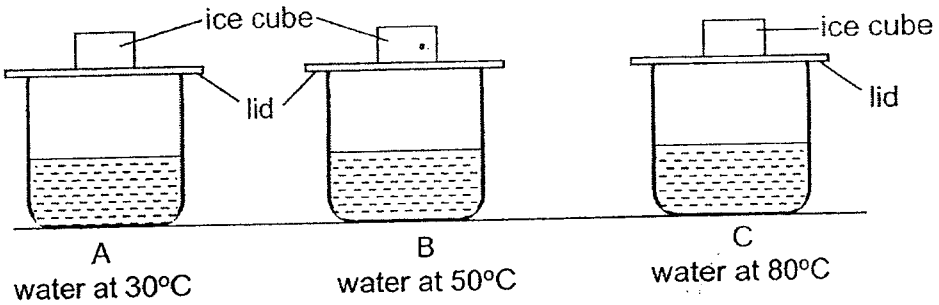
_____

(e) Other than surviving the hot weather, explain how the above adaptation helps to ensure that there will be more adults to lay eggs. [1]

_____

_____

18 Jenny conducted an experiment to compare the rate at which water droplets are formed underneath the lid. She poured the same volume of water at different temperatures into three beakers of the same size.



She placed the containers in the same location and measured the time taken for the water droplets to be formed.

(a) Write down in ascending order, **slowest to fastest** for the formation of water droplets in beaker A, B and C. [1]

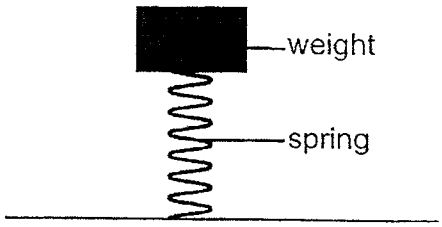
_____

(b) Explain how the water droplets were formed. [2]

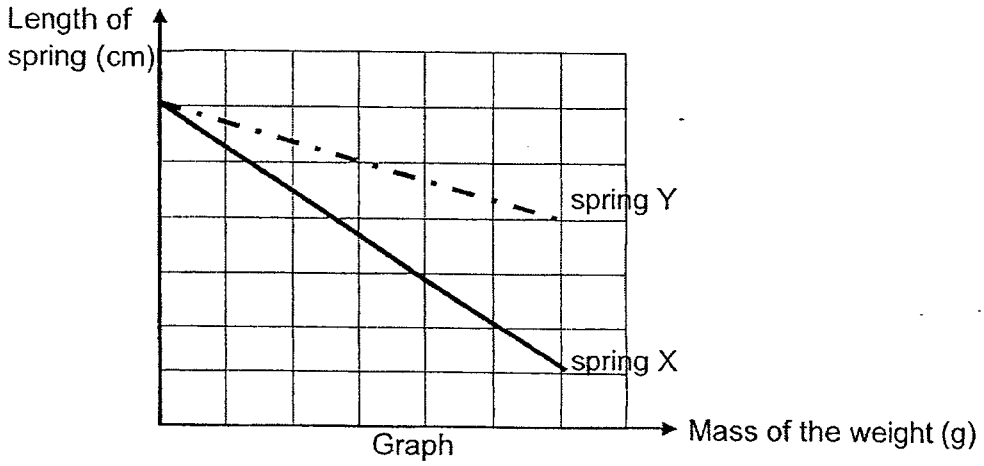
_____

_____

19 Mrs Tan performed an experiment on two different types of springs, X and Y, of the same length using the set-up shown in the diagram below.



She measured the length of the springs for different weights and used the readings to plot a graph as shown below.

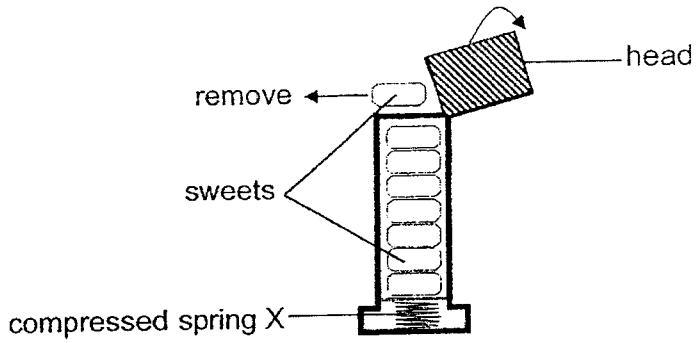


Graph

(a) What is the relationship between the mass of the weights and length of the springs? [1]

Question 19 is continued on page 8

Mrs Tan placed spring X into a sweet dispenser. When she lifts the head, the sweet moved out of the dispenser from the top as shown in the diagram below.



sweet dispenser

(b) Explain in terms of forces, how spring X helps to remove the sweet from the dispenser. [1]

_____

_____

(c) Next, Mrs Tan changed spring X to spring Y. She observed that the sweet in the dispenser moved a shorter distance. Explain why. [2]

_____

_____

_____

20 Caleb placed a toy train on a ramp as shown in Diagram 1. When he released his hand, the toy train moved up the ramp from point B to point A.

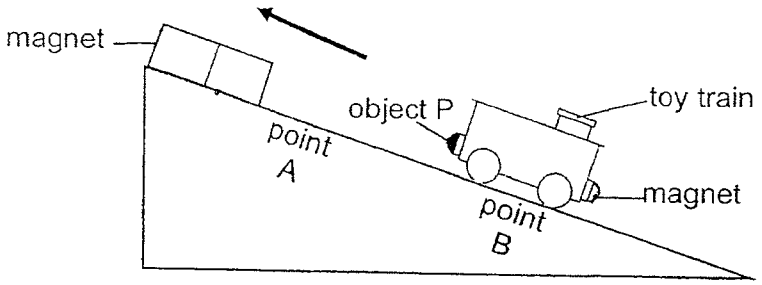
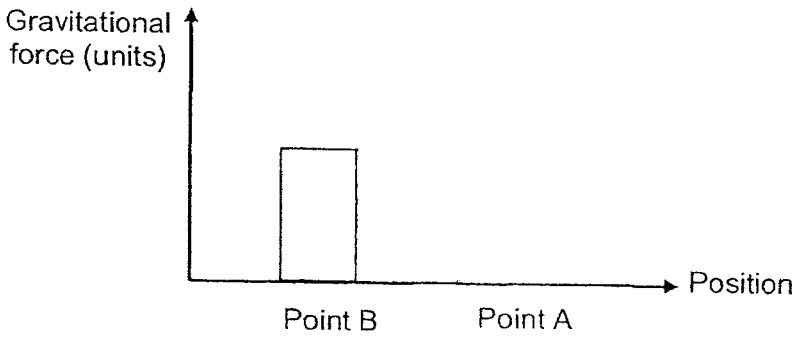


Diagram 1

(a) State the property of object P for the above observation. [1]

The bar graph below shows the gravitational force acting on the train at point B.

(b) Complete the graph to show the amount of gravitational force acting on the toy train at point A. [1]



(c) Other than gravitational force, state two other forces acting on the toy train. [1]

Question 20 is continued on page 10

Caleb then added another part of the toy train at point B on the ramp as shown in Diagram 2. Now the toy train moves down instead of moving up.

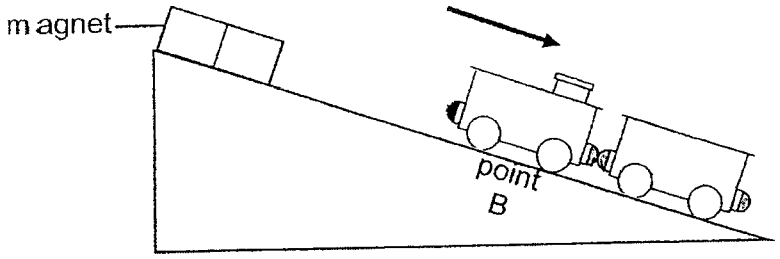


Diagram 2

(d) Explain in terms of forces, why the toy train in Diagram 2 moves down the ramp. [1]

_____

_____

_____

End of the paper

SCHOOL : ROSYTH PRIMARY SCHOOL
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2023 WA2

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	1	1	3	2	2	4	4	2	3
Q 11	Q12	Q13	Q14						
2	3	3	1						

Rosyth School P6 Science TA (Term 2) 2023– Error Analysis

Name: _____ ( ) Class: _____ Date: _____

*15a) To hold the plant upright.

15b) **Choice:** No

Evidence: There is a branch with leaves **below part B** and can continue to transport water and food to the rest of the plant.

Reason: The leaves can **get** water and continue to make food for the plant.

*16a) sun

*16b) **Physical factor:** temperature of the surrounding air.

*16c) Plant→Beetle→Praying mantis

16d) **Choice:** Increase

Evidence: Beetle will have less predators / Less praying mantis will feed on it.

Reason: Hence the beetle's birth rate will be more than its death rate.

17a) Refer to question paper. (Identify CV and MV on your question paper)

*17b) To compare and confirm that the presence of water is the only variable that affects the temperature of the plate.

*17c) behavioral adaptation

17d) When the water gains heat and evaporates, it will cause the **temperature of the nymph to** decrease. (relate to 17b)

17e) When the nymph is below the spittle mass, it is hidden / blocked from its predators. Hence **more nymphs** will become adults.

To **camouflage and blend in the surrounding**: not easily spotted by predators.

(To camouflage is not the same as hiding)

18a) A, B, C

18b) **Source:** water in the beaker

Heat **gain/lost:** heat gain

Process: Evaporation

Product: water vapour

Heat **gain/lost:** heat lost

Process: condensation

Product: Water droplets

The water in the beaker gains heat and evaporated into water vapour. The water vapour comes in contact with the cool lid, loses heat and condenses into **water droplets.**

***19a)** **As** the mass of the weights increases, the length of the springs decreases.

19b) The **elastic spring force** in/from the (compressed) spring acredon the sweets and pushes them up/out.

19c) Spring Y is stiffer.

It compressed/extends **less** with the **same load/mass.**

***20a)** Magnetic

***20b)** Gravitational force do not change! Same height.

***20c)** Frictional force and magnetic force.

20d) gravitational force acting on the train is **greater than** the frictional force (between the train and ramp) and magnetic force (of attraction).