



**NAN HUA PRIMARY SCHOOL
PRELIMINARY ASSESSMENT – 2019
PRIMARY 6**

SCIENCE

BOOKLET A

28 Multiple Choice Questions (56 marks)

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

Booklet A		/ 56
Booklet B		/ 44
Total		/ 100

Name: _____ () **Class: P 6** _____

Date: 21 August 2019

Parent's Signature: _____

Section A: (28 x 2 marks = 56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

- 1 Which one of the following correctly shows the characteristics of reptiles and insects?

	Reptiles	Insects
(1)	give birth to young alive	lay eggs
(2)	have scales	have a hard outer covering
(3)	do not have wings	have a pair of wings
(4)	live on land and in water	live on land only

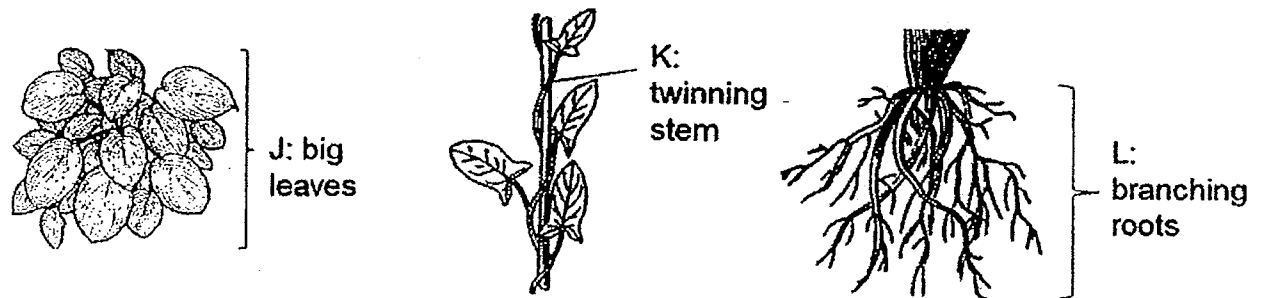
- 2 Ali did a study of two organisms, X and Y. At the end of his study, he recorded his observations in the table below:

Observation	Organism	
	X	Y
young resembles adult	No	No
4-stage life cycle	Yes	No
spends part of its life cycle in water	No	Yes

Which one of the following correctly represents X and Y?

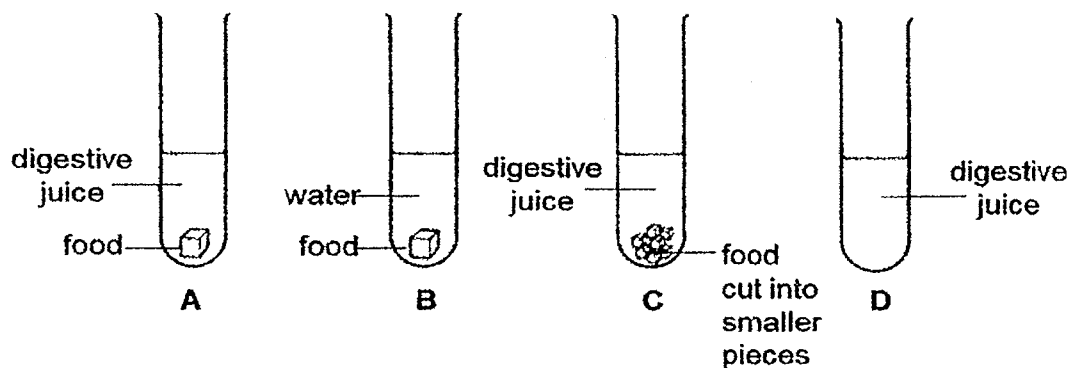
	X	Y
(1)	mosquito	frog
(2)	frog	mosquito
(3)	grasshopper	mosquito
(4)	butterfly	frog

- 3 The diagrams below show plant parts J, K and L.



Which plant part(s) help(s) the plant(s) to obtain more sunlight?

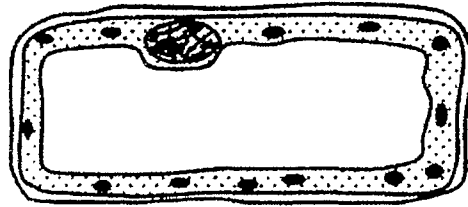
- (1) J only
 - (2) J and K only
 - (3) K and L only
 - (4) J, K and L
- 4 Which of the following in human has the same function as the pollen grains of a flower?
- (1) eggs
 - (2) testis
 - (3) ovary
 - (4) sperms
- 5 Joe wants to find out if cutting food into smaller pieces will speed up digestion.



Which two set-ups should Joe use for his experiment?

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) C and D only

- 6 The diagram below shows a plant cell.

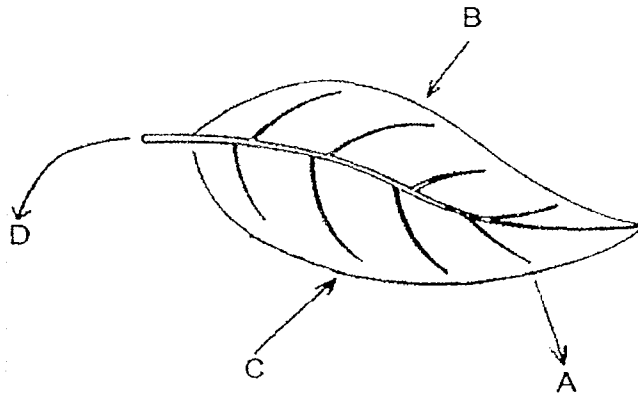


How can you tell that this cell is **not** taken from a root?

- A It has a cell wall.
- B It has chloroplasts.
- C It has a regular shape.

- (1) A only
- (2) B only
- (3) A and B only
- (4) B and C only

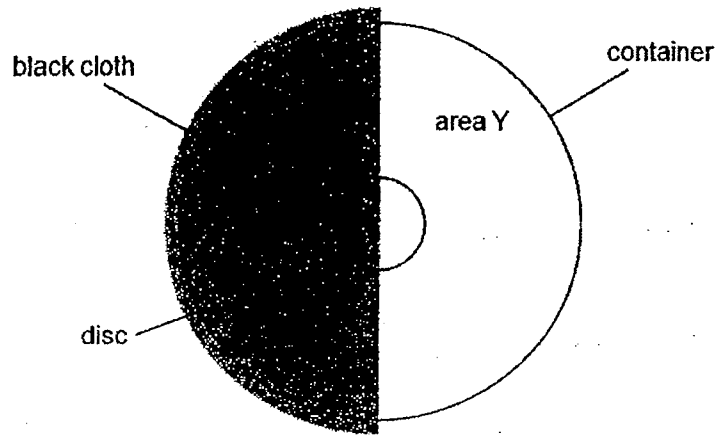
- 7 The diagram below shows a leaf photosynthesising. Arrows A, B, C and D show either the raw materials taken in by the leaf or products of photosynthesis.



Based on the diagram above, which of the following is correct?

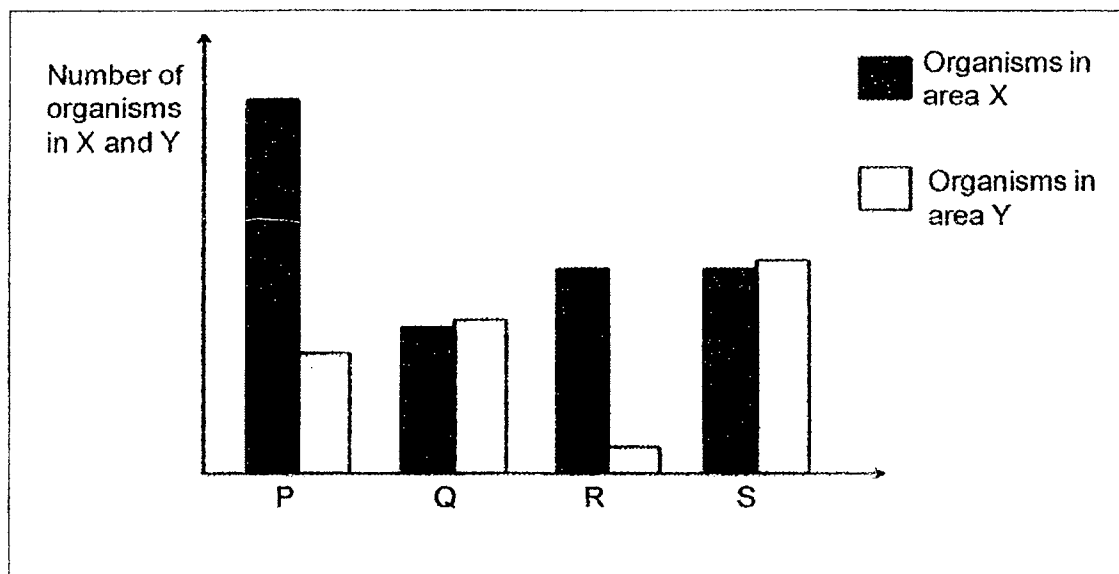
	A	B	C	D
(1)	oxygen	light	carbon dioxide	sugar
(2)	carbon dioxide	light	oxygen	water
(3)	light	carbon dioxide	oxygen	sugar
(4)	light	water	carbon dioxide	oxygen

- 8 A container filled with soil was divided into 2 equal areas, X and Y. Equal amount of water was sprinkled onto both areas. A thick black cloth was used to cover area X. Some organisms P, Q, R and S, were placed in the disc in the centre of the container at the beginning of the experiment.



Top view of container

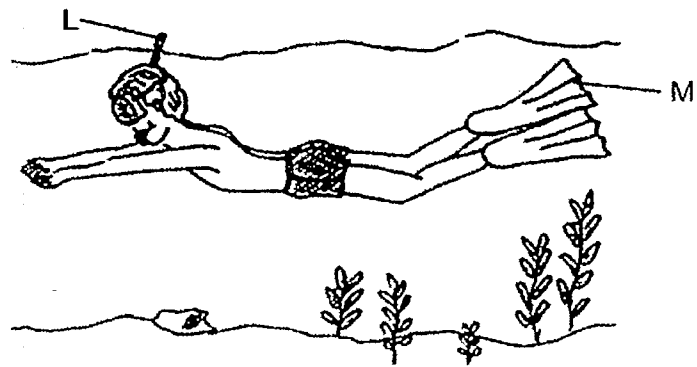
At the end of the experiment, the total number of organisms in each area was counted and recorded in the bar chart below.



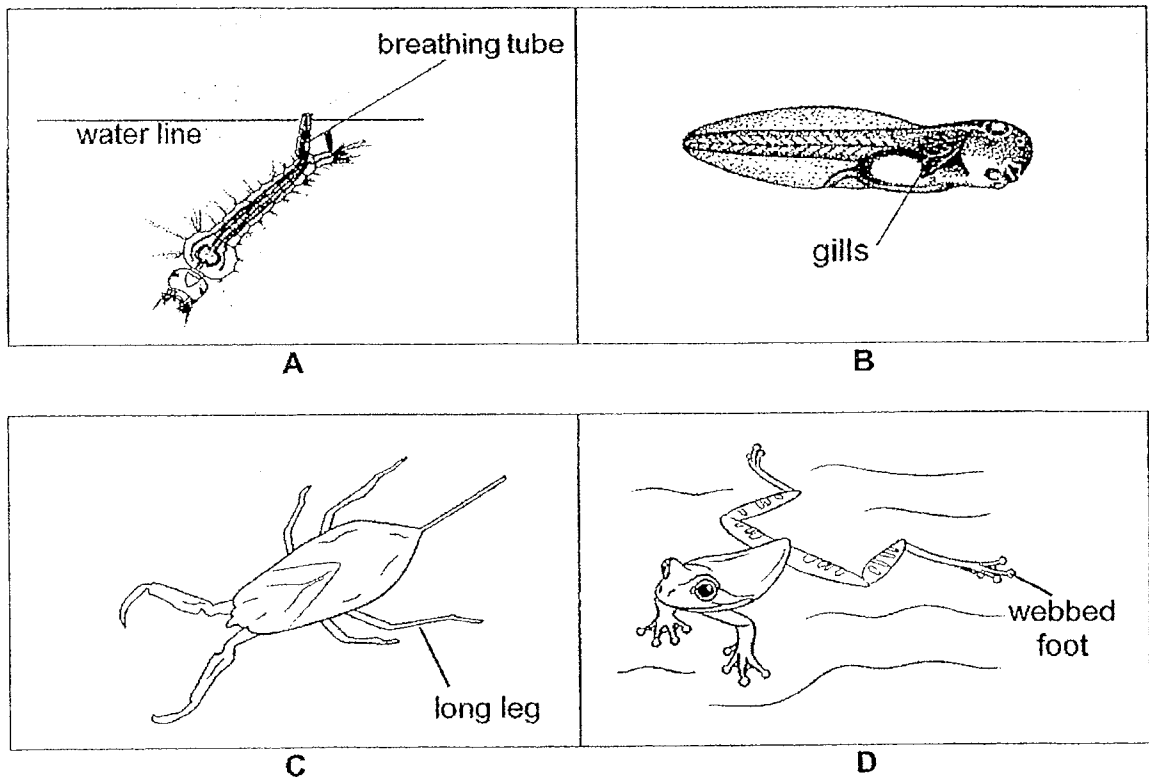
Which of the organisms, P, Q, R and/or S, is/are likely to be found in a leaf litter habitat?

- (1) P only
- (2) P and R only
- (3) Q and S only
- (4) P, R and S only

- 9 The diagram below shows a man in the sea wearing snorkeling gears, L and M.

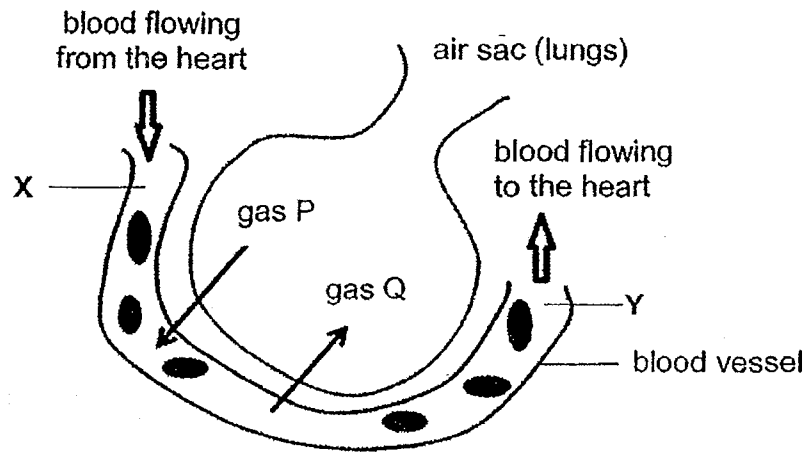


Which of the following animals have parts with similar functions as L and M respectively?



	L	M
(1)	A	C
(2)	A	D
(3)	B	C
(4)	B	D

- 10 The diagram below shows the exchange of gases between an air sac (found in the lungs) and a blood vessel.

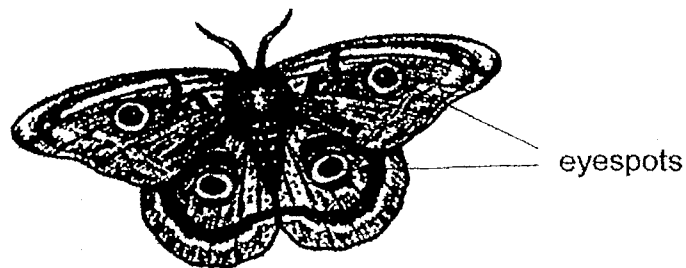


Which of the following statements is/are true?

- A The blood at X does not carry any oxygen.
- B The blood at Y carries less carbon dioxide than the blood at X.
- C Gas P is carbon dioxide and gas Q is oxygen.

- (1) B only
- (2) A and B only
- (3) A and C only
- (4) B and C only

- 11 Butterfly X shown below has four huge eyespots on its wings.

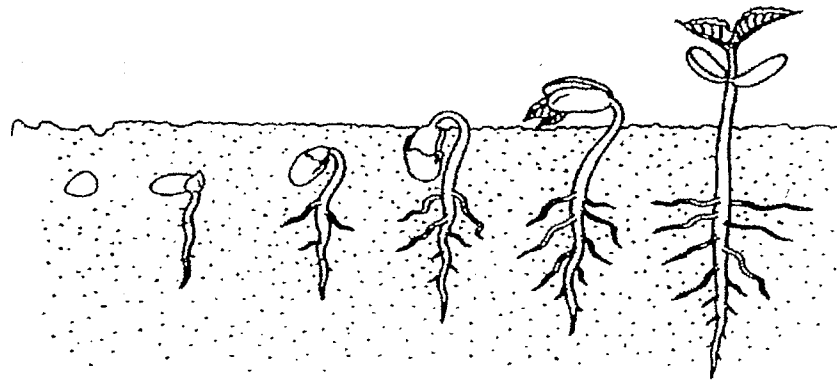


How do the eyespots help butterfly X to survive?

- A They help to frighten away predators.
- B They help butterfly X to spot their predators.
- C They help the butterfly X to camouflage with the leaves.
- D They trick the predators into attacking its wings instead of its head.

- (1) A and C only
- (2) A and D only
- (3) B and C only
- (4) B and D only

- 12 The diagram below shows the germination of a seed in a garden.

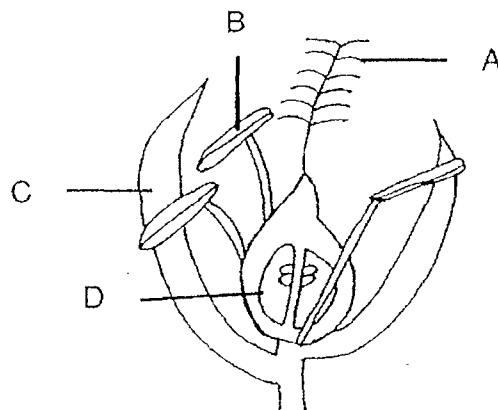


Which of the following statements is/are true?

- A The seed leaves developed into the first pair of leaves.
- B During germination, the root developed before the shoot.
- C The seed leaves store food produced by the young seedling.

- (1) B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

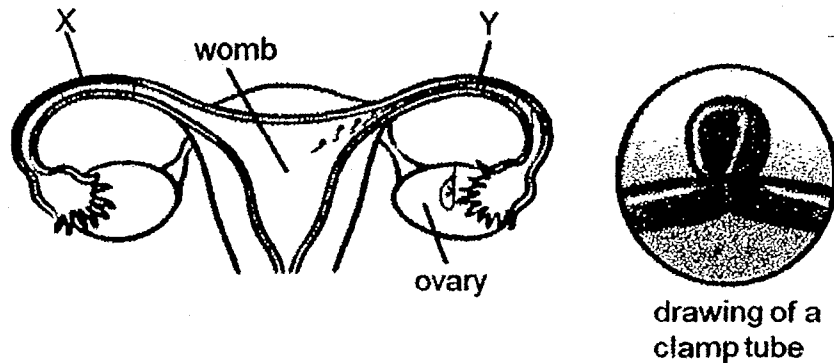
- 13 Kern removed two parts out of the four parts of the flower labelled as A, B, C and D as shown below. He then transferred pollen grains from another flower of the same plant to one of the remaining parts of the flower.



Kern observed that the flower developed into a fruit after a period of time. Which two parts of the flower had been removed?

- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

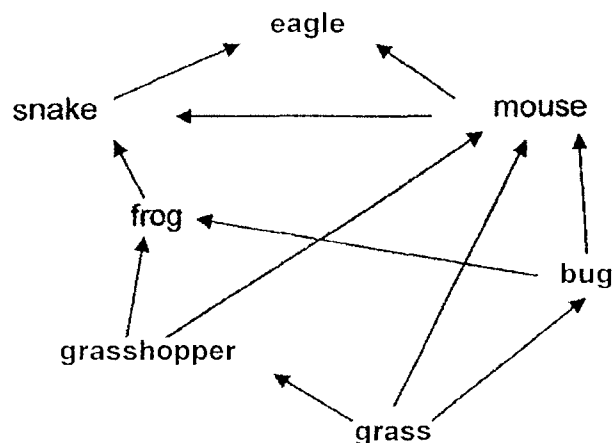
- 14 The diagrams below show tube X and tube Y of a female human reproductive system where fertilisation takes place. A surgical procedure that clamps both tubes X and Y help to prevent pregnancy.



Which of the following statements explain(s) how this procedure helps to prevent pregnancy?

- A It prevents the ovary from producing eggs.
 - B It prevents the fertilised egg from developing.
 - C It prevents the sperms from reaching the egg.
- (1) B only
 (2) C only
 (3) A and B only
 (4) B and C only

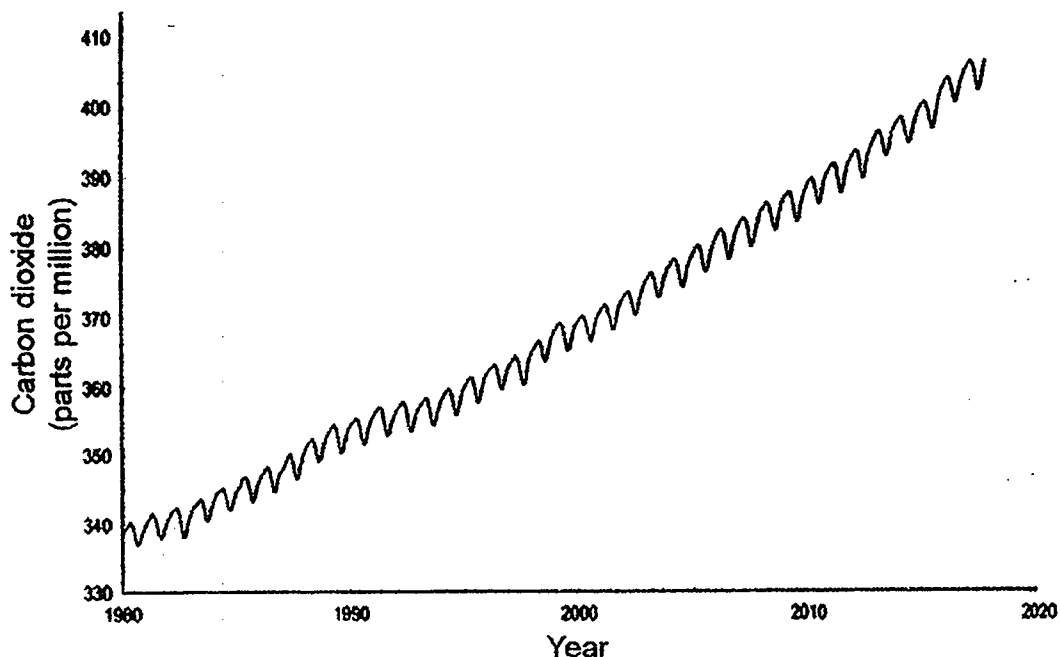
- 15 The diagram below shows a food web.



How many animals in this food web are both a prey and a predator?

- (1) Five
 (2) Two
 (3) Three
 (4) Four

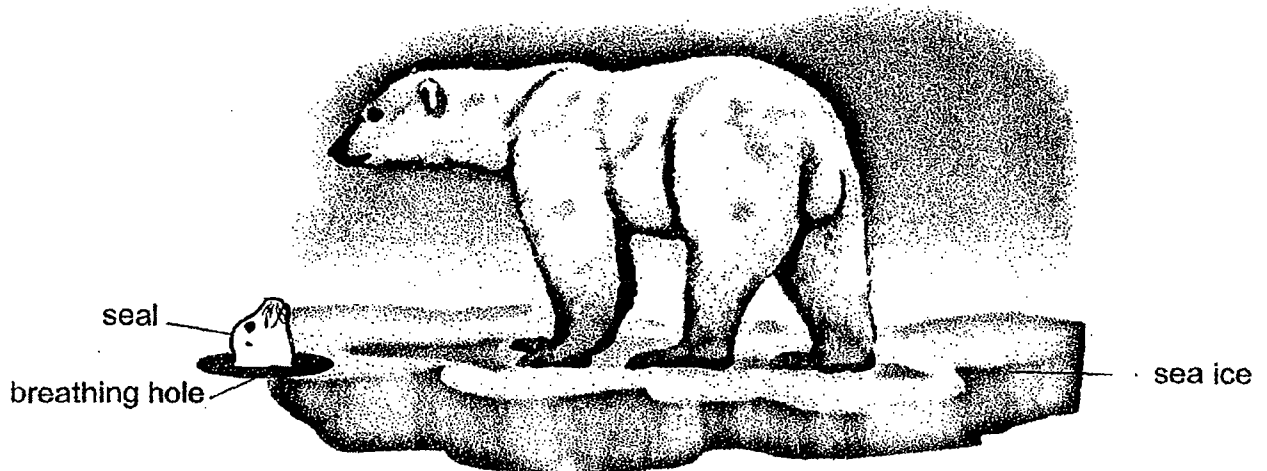
- 16 The graph below shows how the global monthly average concentration of carbon dioxide in the Earth's atmosphere changes from Year 1980 to Year 2019.



Which of the following are the possible causes of the increased concentration of carbon dioxide in the Earth's atmosphere?

- A deforestation
 - B climate change
 - C burning of fossil fuel
 - D use of pesticide in farm
- (1) A and B only
(2) A and C only
(3) B and C only
(4) A, C and D only

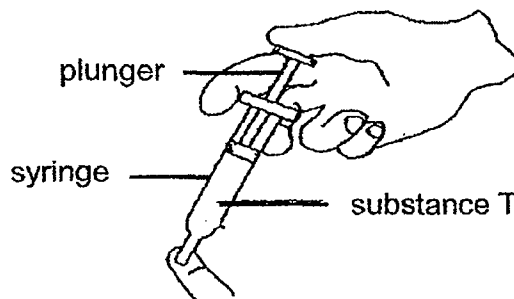
- 17 Polar bears which live in the Arctic rely on seals for food and energy. To catch its prey, a polar bear will stand near a breathing hole on the sea ice and wait for a seal to pop its head out of the water to breathe.



Global warming is causing the sea ice in the Arctic to melt rapidly and resulting in more polar bears starving to death.

Based on the information above, which one of the following statements correctly explains why polar bears are unable to have enough food due to global warming?

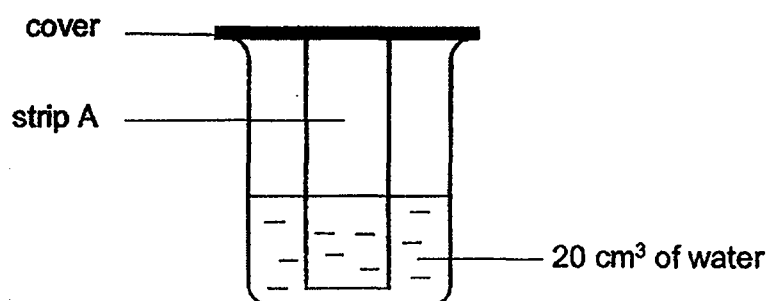
- (1) Decrease in the number of seals.
 - (2) With less sea ice, the seals have more places to hide.
 - (3) With less sea ice, polar bears have fewer spaces to stand and wait for the seals.
 - (4) The sea ice were too cold for the polar bears to stand and wait for the seals to surface.
- 18 Ashlee filled a syringe with substance T. She covered the opening with her finger. She then tried to push the plunger in and observed that she could not do so.



What conclusion can she make about substance T based on her observation?

- (1) It is a gas.
- (2) It has mass.
- (3) It has a definite shape.
- (4) It has a definite volume.

19 Devi conducted an experiment as shown below.



She replaced strip A with strips B, C and D of the same size but different materials into three other identical containers each filled with 20 cm³ of water.

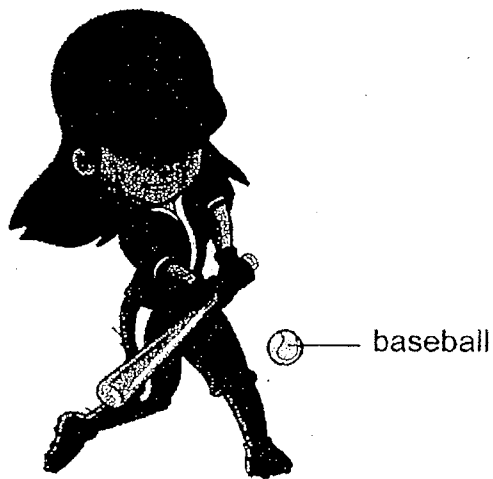
Devi recorded the results of the amount of water left in each container after 5 minutes as shown in the table below.

Strip	Amount of water left in container (cm ³)
A	14
B	20
C	0
D	3

Based on the information given above, which strip, A, B, C or D, is most likely to be waterproof?

- (1) A
- (2) B
- (3) C
- (4) D

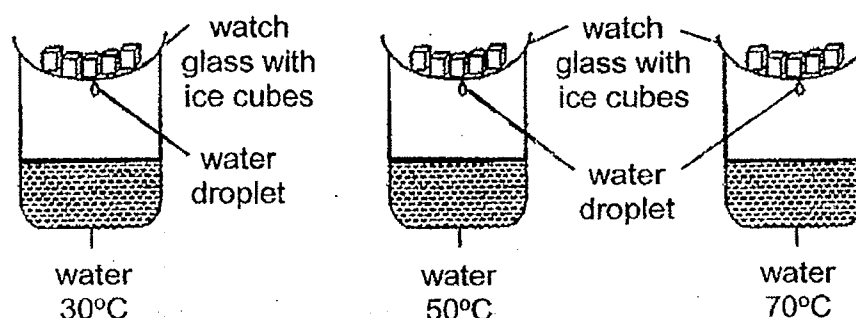
- 20 The diagram below shows a girl about to hit a baseball.



Which of the following are most likely to happen when she hits the baseball?

- A The baseball changes speed.
 - B The baseball changes direction.
 - C The baseball decreases in mass.
 - D The baseball stops immediately.
- (1) A and B only
 - (2) B and C only
 - (3) C and D only
 - (4) A, B, C and D

- 21 Keith conducted an experiment as shown below. Each beaker contained the same amount of water at different temperatures. He added five identical ice cubes onto each set-up. He measured the time taken for the first water droplet to drip into the beaker.



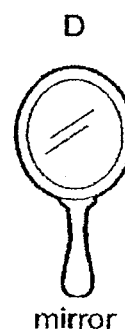
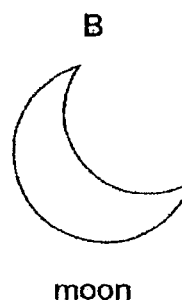
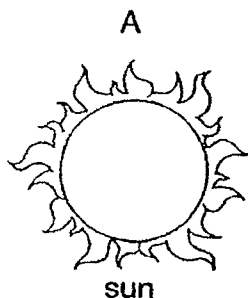
The table below shows the results of his experiment.

Temperature of water (°C)	Time taken for first water droplet to drip (s)
30	100
50	70
70	20

What is the aim of Keith's experiment?

- (1) To find out how the time taken affects the temperature of water.
- (2) To find out how the temperature of water affects the rate in which the ice cubes melt.
- (3) To find out how the temperature of water affects the rate of evaporation of water.
- (4) To find out how the number of ice cubes affects the time taken for the first water droplet to drip.

22 Which of the following are **not** sources of light?



- (1) A and B only
- (2) A and C only
- (3) B and D only
- (4) A, C and D only

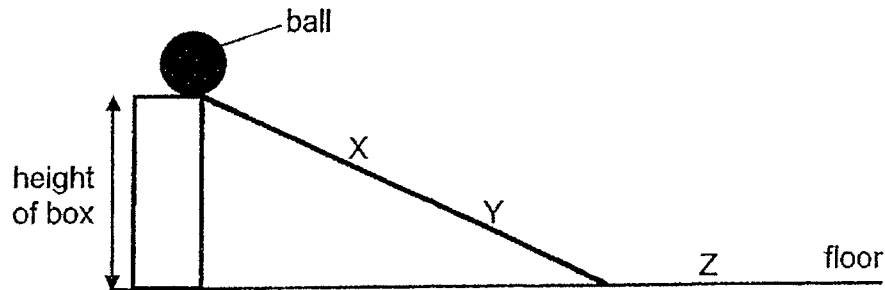
23 The table below shows the melting and boiling points of two substances, A and B.

Substance	Melting point ($^{\circ}\text{C}$)	Boiling point ($^{\circ}\text{C}$)
A	5	77
B	90	173

Which of the following shows the correct state of substances A and B at 80°C ?

	A	B
(1)	liquid	gas
(2)	gas	solid
(3)	liquid	liquid
(4)	solid	gas

- 24 John released a ball at the top of the slope as shown below. It rolled down the slope, moved along the floor and stopped at point Z on the floor.

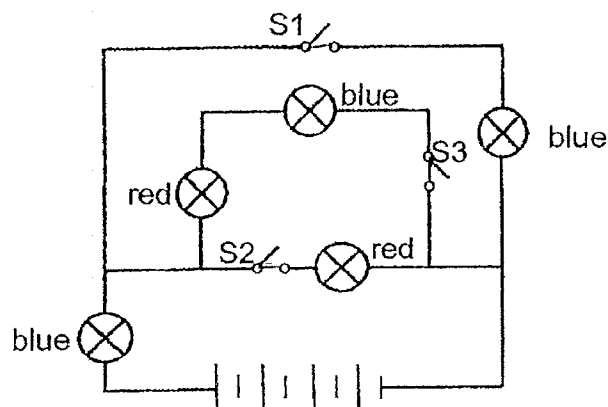


Which of the following statements are correct about the ball?

- A At point X and Y, the ball only has kinetic energy.
- B The ball would have rolled down the slope faster if the height of the box is lower.
- C The ball would have rolled beyond point Z if a lubricant is added onto the floor.
- D At the top of the slope, the ball has the maximum gravitational potential energy.

- (1) A and B only
- (2) B and C only
- (3) C and D only
- (4) A, B, C and D

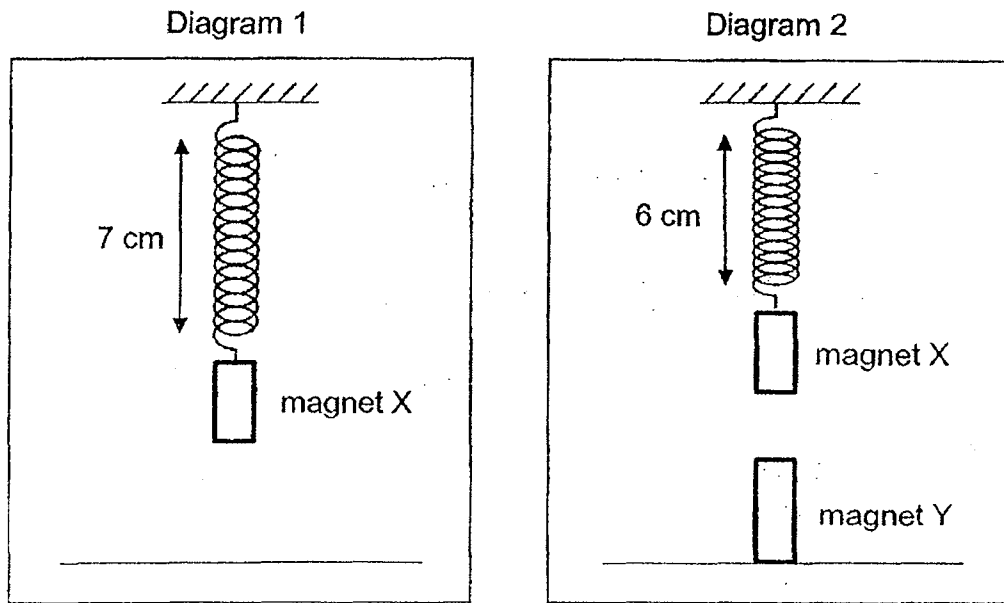
- 25 The diagram below shows some blue and red bulbs in a circuit.



Which switch(es) should be closed in order to light up only 2 blue bulbs and 2 red bulbs at the same time?

- (1) S2 only
- (2) S1 and S3 only
- (3) S2 and S3 only
- (4) S1, S2 and S3

- 26 Susan conducted an experiment. In diagram 1, she placed magnet X on a spring with an original length of 5 cm. Then she placed another strong magnet, magnet Y, directly beneath magnet X in Diagram 2. The results are shown in the two diagrams below.



Which of the following shows the correct direction of the various forces acting in Diagram 2?

	Gravitational force acting on magnet Y	Elastic spring force acting on the spring	Magnetic force acting on magnet X
(1)	↓	↓	↑
(2)	↓	↑	↑
(3)	↑	↑	↑
(4)	↑	↓	↓

- 27 An iron bar AB was magnetised using the stroke method as shown in Diagram 1 below. Diagram 2 shows the magnetic poles of iron bar AB after it was magnetised.

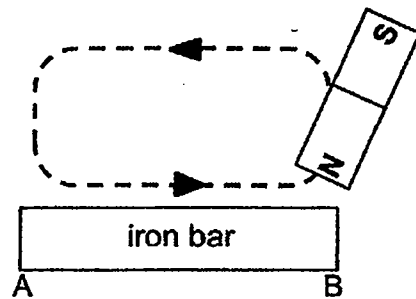


Diagram 1

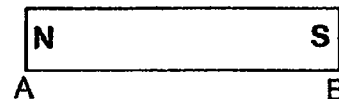
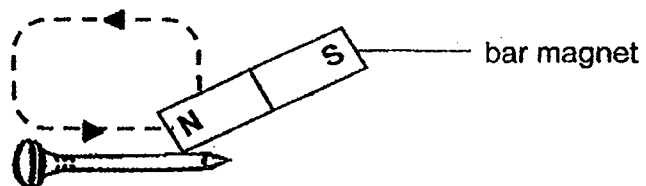
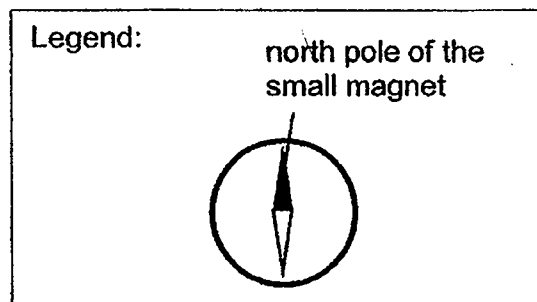


Diagram 2

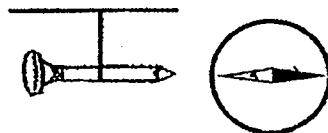
An iron nail is magnetised by using the stroke method as shown below. The nail is then suspended from a string and a compass was brought near the magnetised iron nail.



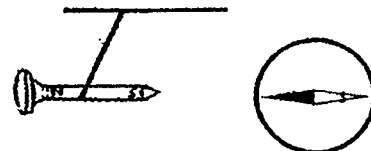
Which one of the following correctly shows what happened when the compass, which contains a small magnet, was brought near the magnetised iron nail?



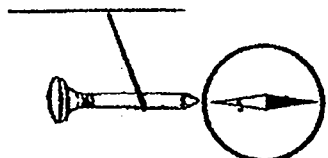
(1)



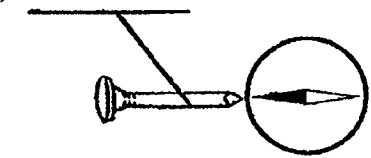
(2)



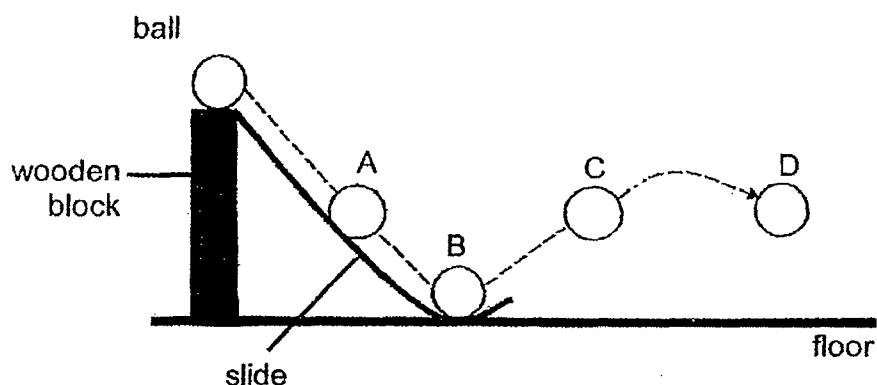
(3)



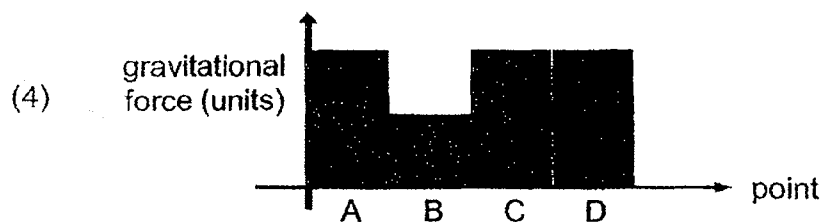
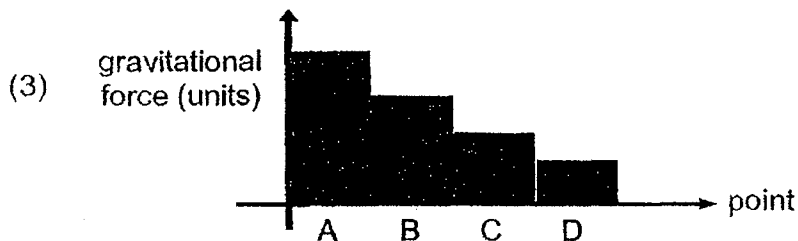
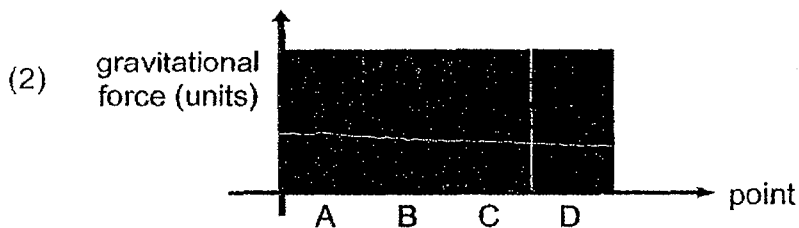
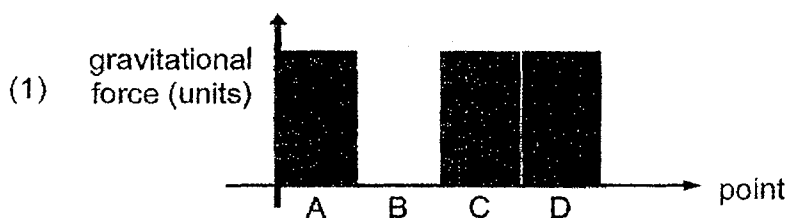
(4)



- 28 Carrie dropped a ball from the top of the wooden block and it started to roll down the slide as shown below.



Which one of the following graphs shows the amount of gravitational force acting on the ball at points A, B, C and D?





**NAN HUA PRIMARY SCHOOL
PRELIMINARY ASSESSMENT – 2019
PRIMARY 6**

SCIENCE

BOOKLET B

13 Structured / Open-ended questions (44 marks)

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

Section B

	/ 44
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Name: _____ () **Class: P 6** _____

Date: 21 August 2019

Parent's Signature: _____

Section B: (44 marks)

For questions 29 to 41, write your answers in this booklet.

The number of marks available is shown in brackets [] at the end of each question or part-question.

- 29** When our brain senses danger such as the sight of an angry dog running towards us, it releases a substance which speeds up our breathing and heart rate.

How do the following body responses enable us to release more energy so that we can run faster to escape from danger?

- (a) (i) Higher breathing rate [1]

- (ii) Higher heart rate [1]

- (b) Which of the following body parts are found in the respiratory system?
Tick (✓) the correct boxes. [1]

☐ heart

☐ nose

☐ lungs

☐ blood

☐ blood vessels

☐ windpipe

Score	<div style="border: 1px solid black; width: 100px; height: 50px; position: relative;"><div style="position: absolute; top: 0; right: 0; width: 100%; height: 100%; border-left: 1px solid black; border-bottom: 1px solid black; transform: rotate(45deg);"></div><div style="position: absolute; bottom: 0; right: 0; width: 20px; height: 20px; text-align: center; line-height: 20;">3</div></div>
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- 30 During a learning journey to pick litter in a park, the students saw many dead leaves covering the grass field. They also noticed that some of the grass had turned yellow.



- (a) Why did the grass below the dead leaves turn yellow? [1]

The students were told to collect the dead leaves. The dead leaves were crushed into smaller pieces and mixed with soil to be used for growing plants.

- (b) How were the dead leaves beneficial to the plants? [1]

- (c) What was the purpose of crushing the dead leaves into smaller pieces? [1]

Score	<div></div> <div>3</div>
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- 31 The seeds of plant J are dispersed by bird K. The table below shows some adaptations of the fruits and seeds of plant J for seed dispersal.

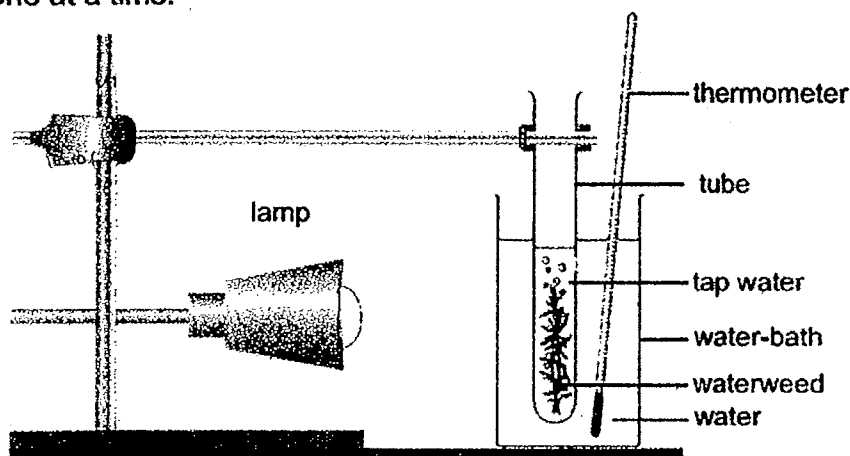
Unripe fruits	Ripe fruits
<ul style="list-style-type: none">• Dull coloured	<ul style="list-style-type: none">• Brightly coloured
<ul style="list-style-type: none">• Taste sour	<ul style="list-style-type: none">• Taste sweet
<ul style="list-style-type: none">• Immature seed is damaged when the fruit is eaten	<ul style="list-style-type: none">• Mature seed is tough and undamaged when the fruit is eaten
<ul style="list-style-type: none">• Fruits cling tightly to the plant	<ul style="list-style-type: none">• Fruits can be removed from the plant easily

- (a) Based on the information in the table, other than colour, state another adaptation of the fruits of plant J that attracts birds to feed on the ripe fruits and not the unripe ones. [1]

- (b) More of bird K feed on the ripe fruits instead of the unripe fruits. With reference to the information from the table above, state how this benefits plant J. [1]

Score	<div style="text-align: right;">2</div>
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- 32 Suzi wants to find out how the temperature of water affects the rate of photosynthesis of the waterweed. She set up the experiment with a water-bath containing water at 10°C as shown below. She then repeated the experiment with water at 20°C and 30°C, one at a time.



- (a) Suzi kept the distance between the lamp and the waterweed constant throughout her experiment. How does this ensure a fair test? [1]

- (b) The table below shows the result of her experiment.

Temperature of water (°C)	Number of bubbles produced per minute
10	3
20	7
30	13

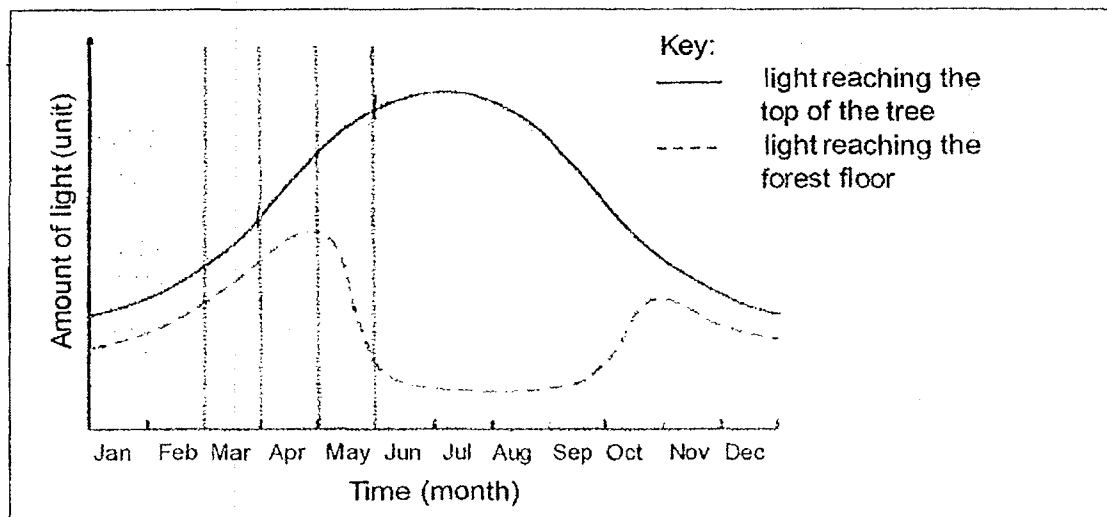
State the relationship between the temperature of water and the rate of photosynthesis. [1]

- (c) When Suzi added two water snails into the tube which was placed in the water-bath with water at 20°C, the number of bubbles produced per minute increased to 10. Explain this observation. [2]

- 33 The diagrams below show a forest at the beginning of March and at the end of May.



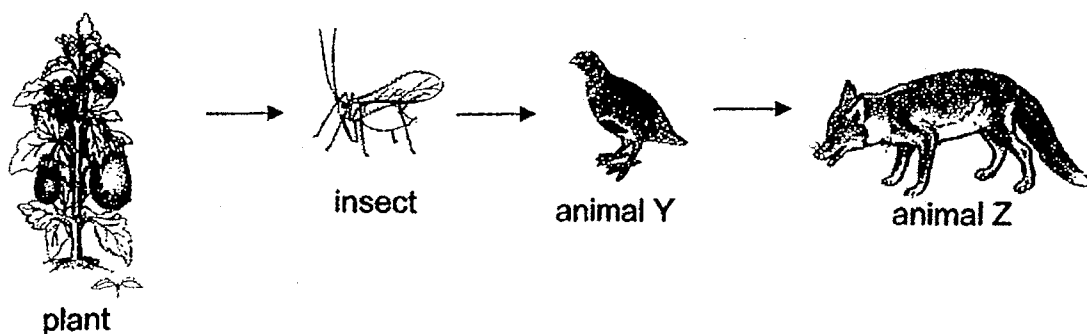
The graph below shows the amount of light reaching the top of the trees and the forest floor over one year.



- (a) There was a sharp increase in the amount of light reaching the top of the trees from early March to end of May. Based on the information above, explain how this had caused the amount of light reaching the forest floor to decrease during May. [2]

- (b) The population of bird X in this habitat was lower at the beginning of March than at the end of May. Based on the information given, state a reason for this observation. [1]

34 The diagram below shows a food chain.

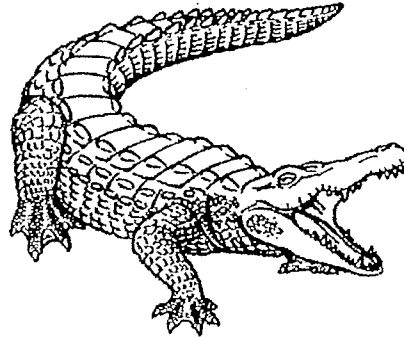


- (a) Adults of animal Y build their nests on the ground among plants. They lay up to 18 eggs in the nest. Suggest why adults of animal Y need to lay so many eggs at one time. [1]

- (b) Some farmers spray their plants with chemicals to kill the insects. How will this affect the number of animal Z? Explain your answer. [2]

Score	3
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- 35 Animal X is a reptile and it cannot control its body temperature. When it is hot, it stays in the water instead of on land to keep cool. It positions its nose just above the waterline when its body is in the water.



Animal X.

- (a) How does staying in the water help animal X to keep cool? [1]

- (b) Only the ears, eyes and nose of animal X are above the water surface when it tries to hide from its prey while it is in the water. How does positioning its nose above water help it to survive? [1]

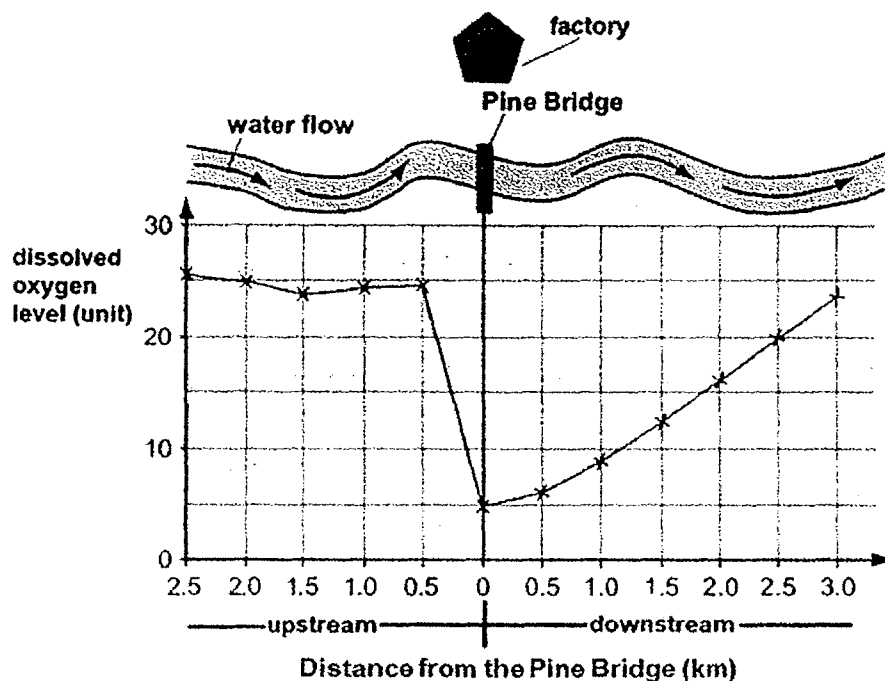
Female animal X will cover the nest with vegetation once its eggs are laid. She will stay very near to her eggs until they are hatched.

- (c) How does covering the eggs with vegetation help the developing animals in the eggs to survive before they are ready to hatch? [1]

- (d) Based on the information given, why is it dangerous for us to stay too close to the nest of animal X when we are out in nature? [1]

Score	<div style="border: 1px solid black; width: 100px; height: 100px; position: relative;"><div style="position: absolute; top: 0; right: 0; width: 50%; height: 50%; border-left: 1px solid black; border-bottom: 1px solid black; transform: rotate(45deg);"></div><div style="position: absolute; bottom: 0; right: 0; width: 20px; height: 20px; text-align: center; line-height: 20;">4</div></div>
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- 36 A factory near the Pine Bridge as shown below discharged its waste into the river. A scientist conducted checks on the water upstream and downstream of the factory to study the effects of the waste on the organisms in the river.



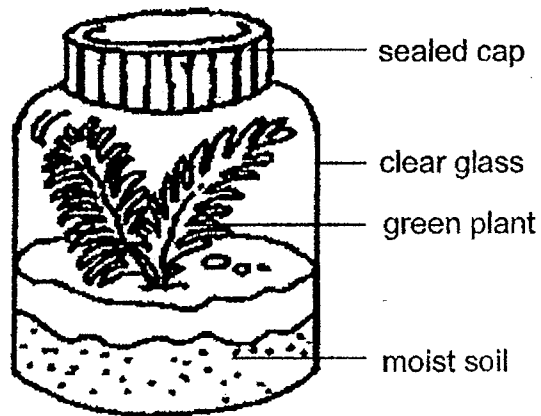
The table below shows the types of organisms found at different parts of the river.

Organisms	Distance from Pine Bridge (km)			
	upstream		downstream	
	2.0	1.0	1.0	2.0
A	✓	✓	x	✓
B	✓	✓	x	x
C	✓	✓	x	x
D	x	x	✓	✓

- (a) What is the purpose of checking on the type of organisms found upstream of the factory? Explain your answer. [2]

- (b) Based on the information above, which of the organism(s), other than organism D, is/are able to survive when oxygen level is below 20 units? [1]

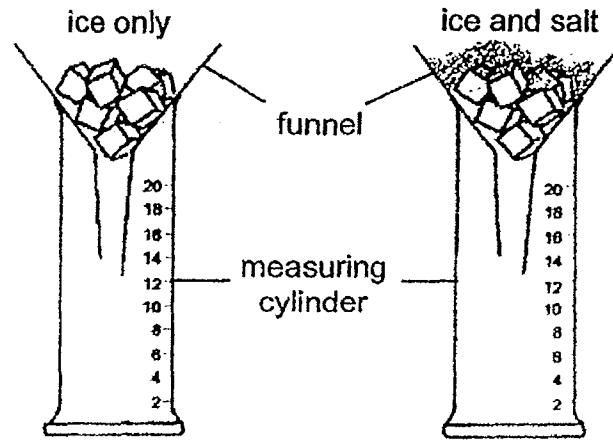
- 37 Mandy created a bottle garden as shown below.



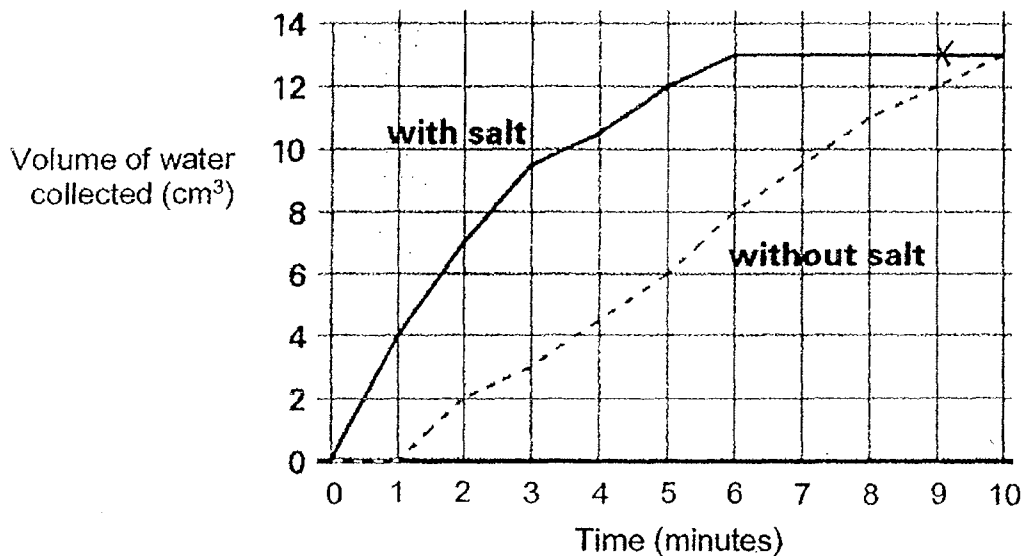
- (a) The green plant is able to survive even if Mandy did not water the plant for a month. Explain why. [2]

Go on to the next page for parts (b) and (c) →

In another experiment, Mandy investigated the effect of salt on melting ice. She put the same amount of ice in two funnels and added salt to the ice in one funnel as shown below.



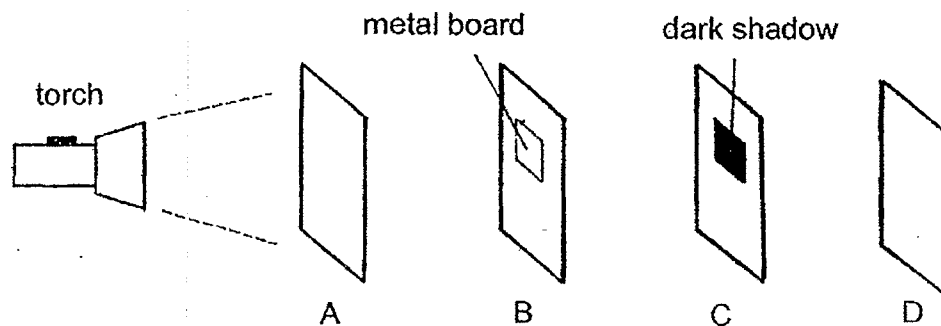
Mandy measured the volume of water collected in the measuring cylinder and recorded the results as shown below.



- (b) Based on the data above, describe the effect of salt on the volume of water collected during the first 9 minutes of the experiment. [1]

- (c) In cold countries, snow often piles up on the roads making it very difficult for vehicles to move through. To solve this problem, workers sprinkle salt on the road. Based on the experiment, explain how sprinkling of salt on the roads helps to solve the problem. [1]

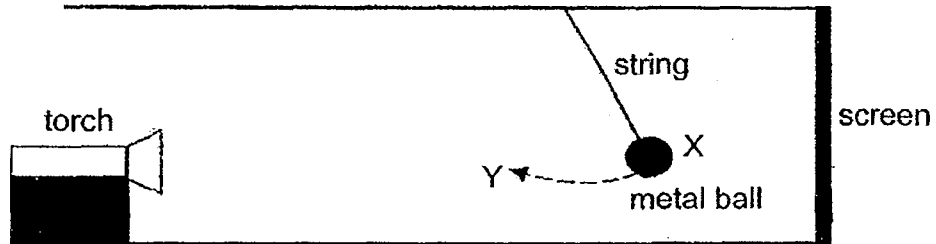
- 38 Sherman arranged four sheets of different materials, A, B, C and D, in a straight line in a dark room as shown below. He pasted a metal board on sheet B.



- (a) When he switched on the torch, a dark shadow is formed on sheet C. Based on the results of the experiment, put a tick (✓) in the boxes accordingly to show if each statement is true, false or not possible to tell. [2]

	Statement	True	False	Not possible to tell
(i)	A and B allow light to pass through.			
(ii)	C does not allow light to pass through.			
(iii)	D allows light to pass through.			
(iv)	If the metal board is pasted on C instead of B, a dark shadow will be formed on D.			

Sherman conducted another experiment in a dark room using the set-up as shown below. He hung a metal ball and let it swing freely in front of a torch. He observed that a shadow had formed on the screen.

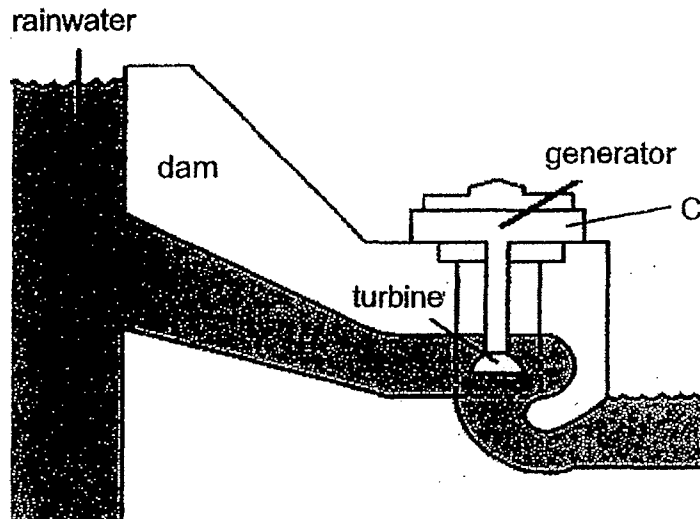


- (b) How would the size of the shadow on the screen change as the metal ball swung from position X to Y? [1]

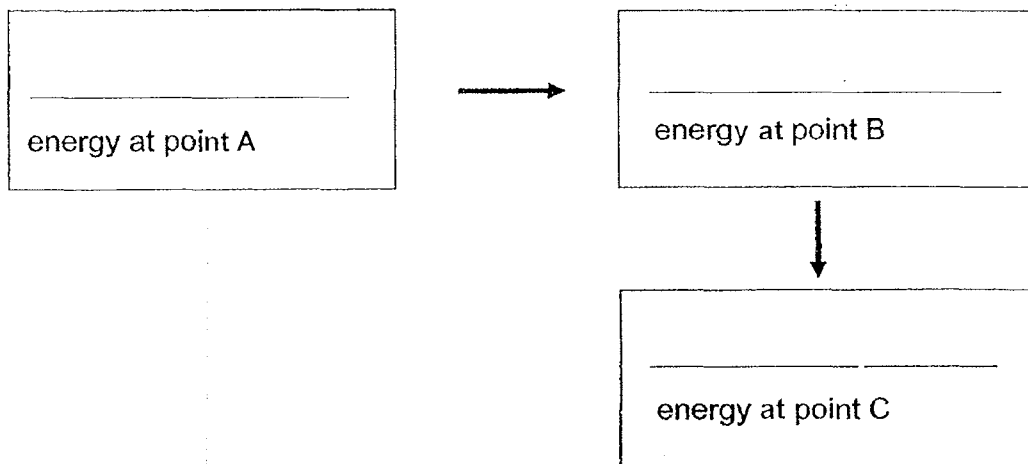
- (c) Using the same set-up, how can Sherman increase the size of the shadow of the metal ball cast on the screen at position X? [1]

Score	<div></div>
	4

- 39 A hydroelectric power station makes use of a dam on a river to store water in a reservoir. Water released from the reservoir flows through a turbine, spinning it, which in turn activates a generator to produce electricity.

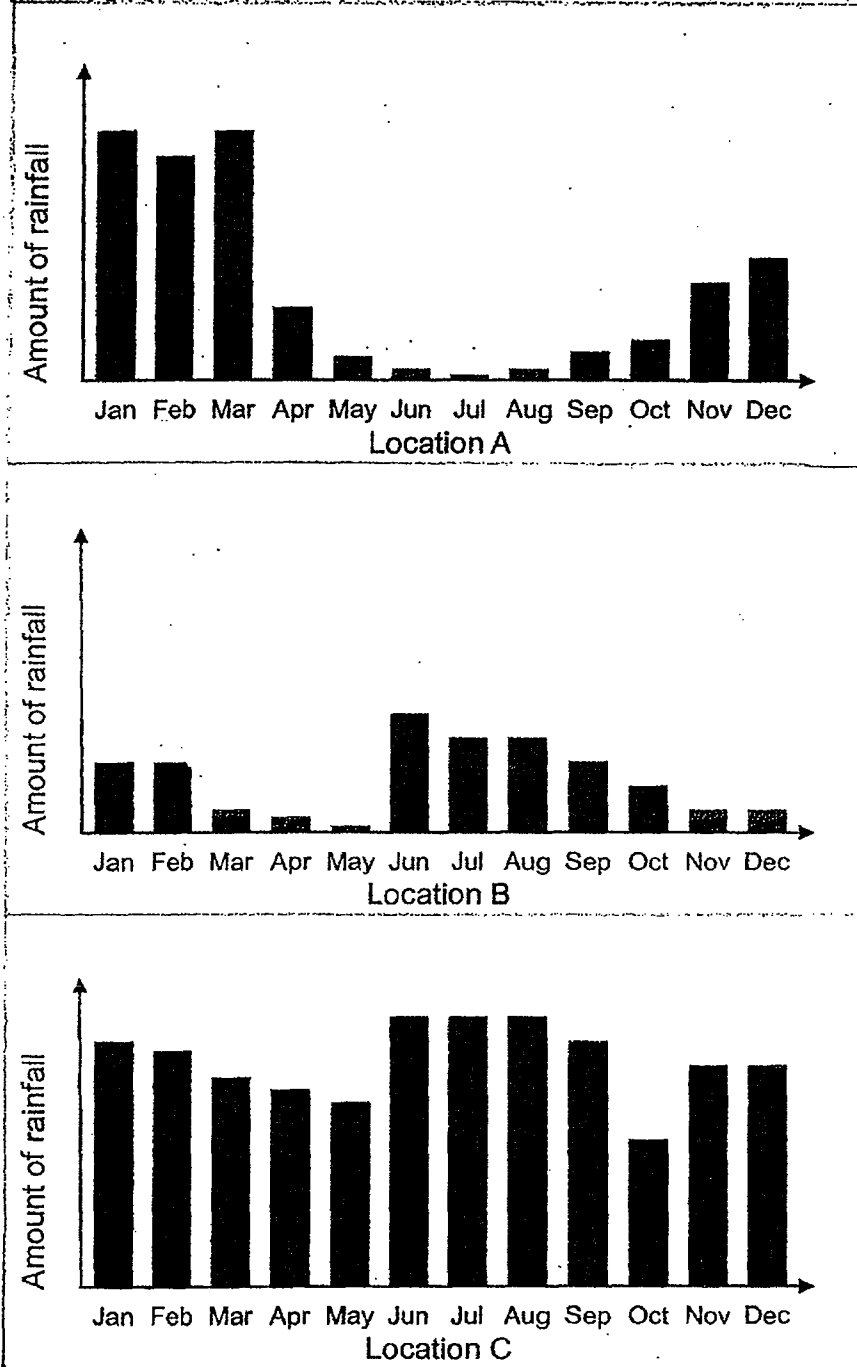


- (a) State the energy changes that take place from point A to point B to point C as shown in the diagram above. [1]



- (b) State one advantage of using a hydroelectric power station to generate electricity. [1]

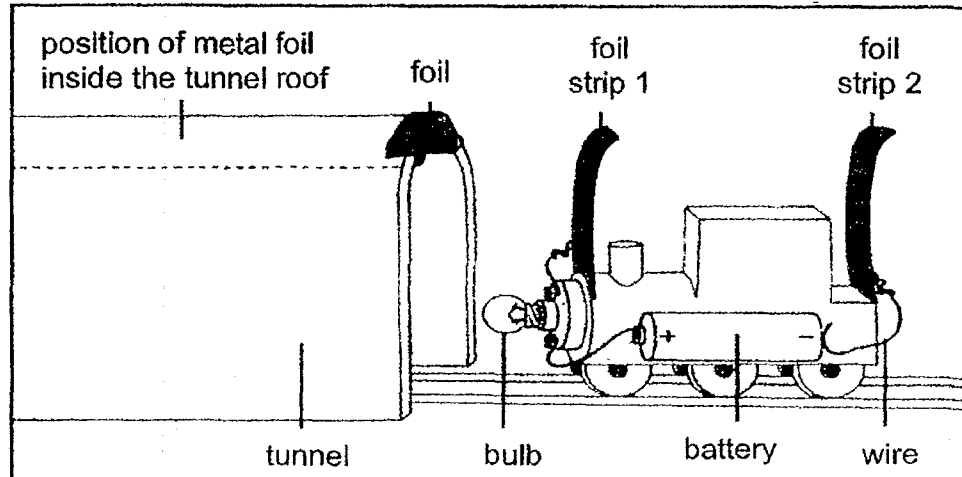
The diagrams below show the amount of rainfall collected in three different locations, A, B and C during various months of the year.



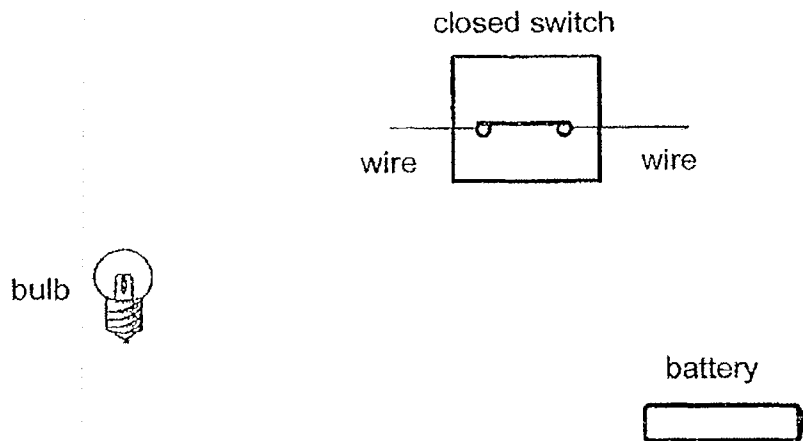
- (c) Which location is the most suitable for building the hydroelectric power station?
Explain your choice.

[2]

- 40 Sara wants a light bulb to light up when her toy train is pushed through a tunnel. She makes an electric circuit for her toy train. She makes a tunnel and puts a strip of foil inside the tunnel roof as shown below.



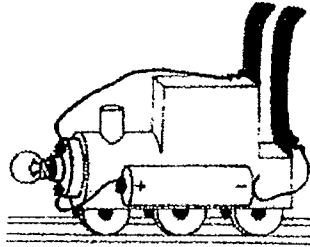
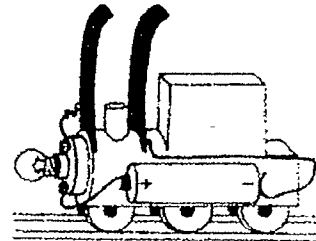
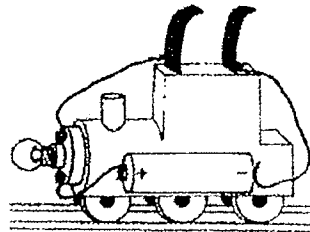
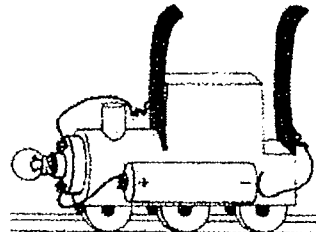
- (a) Complete the circuit below to light up the bulb by connecting the bulb, switch and battery with wires. [1]



- (b) When only one foil strip on the train touches the foil in the tunnel, the bulb does not light up. Explain why. [1]

Sara wants to improve her circuit so that the bulb lights up when the train has only just entered the tunnel.

- (c) Which train has foil strip that would allow the bulb to light up first when the train has only just entered the tunnel? Put a tick (✓) in the box. [1]


☐

☐

☐

☐

Score	3
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- 41 The diagrams below show an iron rod and a hollow iron rod attached to a spring balance respectively.

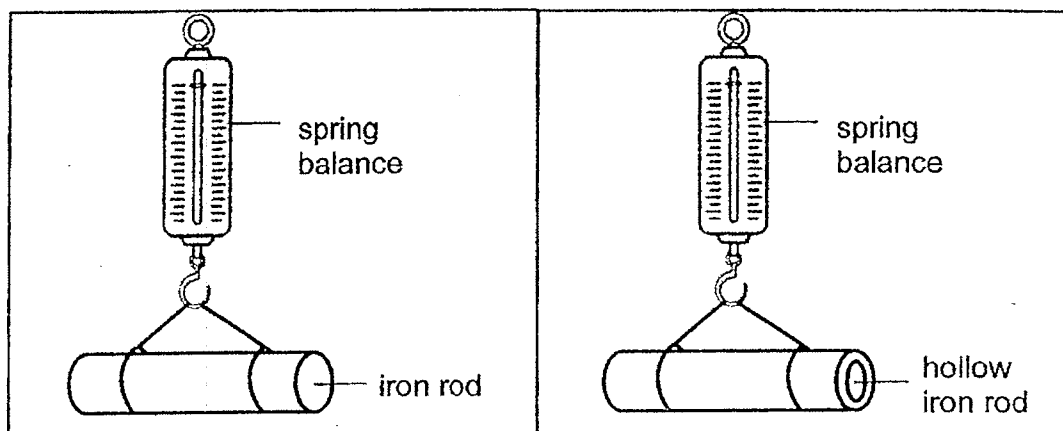


Diagram 1

Diagram 2

The readings from the spring balance were recorded in the table below.

	without iron rod	with iron rod	with hollow iron rod
Reading on spring balance (units)	0	17	?

- (a) What caused the reading of the spring balance to increase when the iron rod was attached to the spring balance? [1]

- (b) (i) In diagram 2, a hollow iron rod of the same shape and size is attached to the same spring balance. Predict the reading on the spring balance. [1]

- (ii) Explain your answer in (b)(i). [1]

- (c) Migratory birds have hollow bones as an adaptation for movement in the air. Explain how this adaptation helps them to fly a long distance. [1]

- End of Paper -

Score	4
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LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2019 PRELIM

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	4	2	4	2	2	1	2	2	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	3	2	3	2	3	4	2	1
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
3	3	2	3	3	2	4	2		

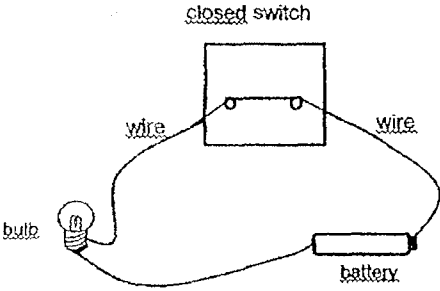
Name:

Class:

29	What are the organs that made up our body systems? The body systems work together to carry out life processes.
ai	More oxygen is taken in (for respiration)
aii	More oxygen and food can be transported to the muscles and other parts of the body /transported faster
b	Nose, windpipe and lungs
30	What are the factors required for photosynthesis? What happens when things decompose? What factors affect the rate of decomposition?
a	The grass cannot receive enough sunlight (to make food) as the dead leaves blocked the light from reaching the grass.
b	When the leaves decompose, mineral salts are returned to the soil.
c	To speed up the rate of decomposition
31	What are some structural adaptations that enhance plant reproduction?
a	Adaptations: 1. Unripened fruits taste sour whereas ripened fruits taste sweet. 2. Unripened fruits cling tightly to the plant whereas ripened fruits can be removed from the plant easily.
b	Mature seed of ripe fruit is tough and undamaged when the fruit is eaten, so the seed can germinate and develop into plant J.

32	<p>How does changing only one variable in an experiment ensure a fair test? Can you identify the relationship between the independent (changed) and the dependent (measured) variables? What are the factors affecting rate of photosynthesis?</p> <p>In the presence of light, what is the gas given out by plants? What is the gas given out by the animals?</p>
a	To ensure that the number of bubbles produced per min (rate of photosynthesis) is due to the temperature of the water and not the amount of light the waterweed received.
b	As the temperature of the water increases, the rate of photosynthesis also increases.
c	Water snails gave out carbon dioxide (during respiration).
33	<p>What are some of the adaptations of plants to compete for sunlight? Organisms in a habitat are interdependent on each other. How does one organism affect the other in a food chain (relationship)?</p>
a	As amount of light reaching the top of the trees increased sharply from March to May, the trees photosynthesised faster and grew more leaves. Hence, more light was blocked by these trees and less light reached the forest floor.
b	There are less leaves for bird X to hide from their predators/ protect bird X from strong sunlight or heavy rain.
34 & 35	<p>What are some of the adaptations of animals that help them to survive? Organisms in a habitat are interdependent on each other. How does one organism affect the other in a food chain (relationship)?</p>
34a	To increase the chance of at least some eggs hatching (to continue the life cycle).
b	When the insects are killed by the chemicals, animal Y will have less food to eat and will die. Z feeds on Y. With fewer Y, the number of Z will decrease due to lack of food.
35a	Animal X can lose heat to the water faster.
b	It can breathe while its body is in the water.

35c	The eggs will not be easily spotted by their predators (and so will not be eaten).
d	Female animal X may attack us so as to protect their eggs.
36	What is the purpose of setting up a control in an experiment? What are some examples of negative impact of man on the environment?
a	To find out the number and type of organisms upstream before the factory discharged its waste so as to compare and prove that the change in the number and the type of organisms downstream is due to the waste discharged into the river by the factory.
b	A
37	What is the change in state of water when water gains or loses heat during evaporation or condensation? What is the effect of salt on melting ice?
a	The water in the moist soil gained heat and evaporated into water vapour. Water vapour is also produced by the green plant. These water vapour comes into contact with the underneath side of the cooler sealed cap, loses heat and condenses to form water droplets which drip down to the soil.
b	The volume of water collected is higher in the measuring cylinder with the ice and salt than in the measuring cylinder with ice only for the same amount of time (faster).
c	Sprinkling of salt on the roads will cause the snow to melt faster (lower the melting point of ice). Hence, the snow will not block the roads and the cars are able to move with ease.
38	Can you differentiate between materials that: allow light to pass through/ allow some light to pass through/ allow no light to pass through? What is the relationship between the size of the shadow formed and the distance of the object from the torch?
a	(i) True, (ii) True, (iii) Not possible to tell, (iv) False
b	The size of the shadow on the screen increases as the metal ball swings from position X to Y.
c	Move the torch nearer to the ball or screen Move the screen further away from the ball or screen

39	<p>What is the energy conversion that takes place in a hydroelectric power station? What are some of Man's activities and their effects on the environment? What are some of the alternative clean energy sources?</p>
a	(Gravitational) <u>Potential</u> energy at A → <u>Kinetic</u> energy at B → <u>Electrical</u> energy at C
b	It will not produce greenhouse gases/carbon dioxide that causes global warming. Running water is a renewable source of energy.
c	Location C. Location C has a consistent high supply of water through the year as compared to location A and B. Hence, it will ensure that the hydroelectric power station is able to generate electricity continuously.
40	<p>What are the main components of a simple electrical system? Can a current flow in an open circuit?</p>
a	
b	The circuit is opened (gap in the circuit), hence electric current cannot flow through the circuit.
c	The train with both foil strips nearer to the bulb.
41	<p>What are some of the different types of forces and their effects? What are some of the structural adaptations of a bird?</p>
a	Weight of iron rod/ Gravitational force acting on the iron rod
bi	Any reading between 0 and 17 units.
bii	The weight of the hollow iron rod is less than the iron rod. There is less iron in the hollow iron rod as compared to the iron rod.
c	The bird will weigh less. Hence, less energy/effort is required for the birds to fly a long distance.