PRELIMINARY EXAMINATION 2017
PRIMARY 6
SCIENCE

BOOKLET A1

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

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answer in the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 6._____

Date : 24 Aug 2017

This booklet consists of 13 printed pages including this page.

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). Shade the correct oval on the Optical Answer Sheet (OAS). [28 marks]

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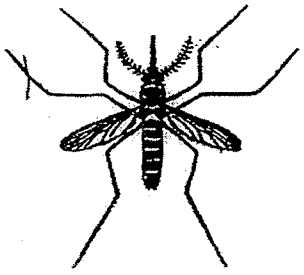
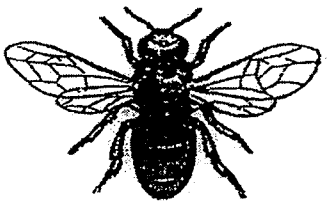
1 Study the organisms below.



Organism P



Organism Q

Organism R

Which of the following statement(s) is/are **incorrect**?

A Only Organism Q is able to fly.

B Organism Q and R are insects.

C Organism P and Q have six legs.

D Organism R does not have two body parts.

(1) C only

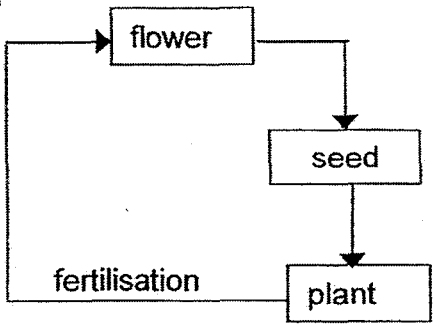
(2) C and D only

(3) A, B and D only

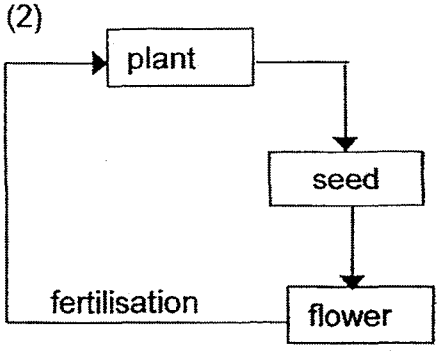
(4) B, C and D only

2 Which diagram shows the correct development of a flowering plant?

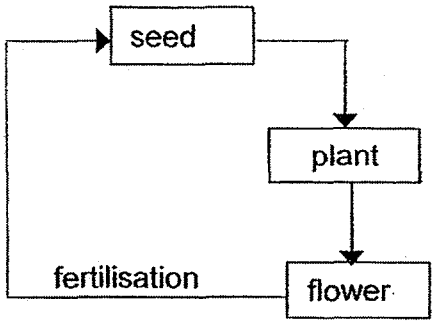
(1)



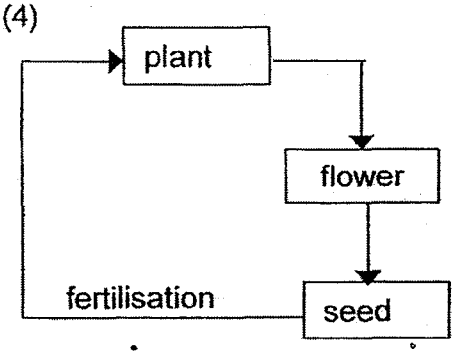
(2)



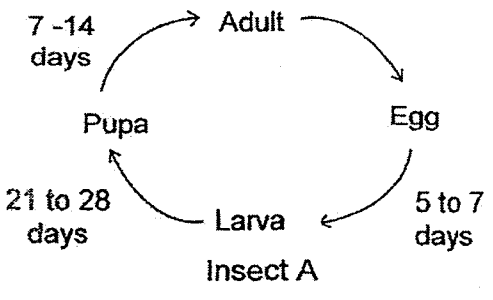
(3)



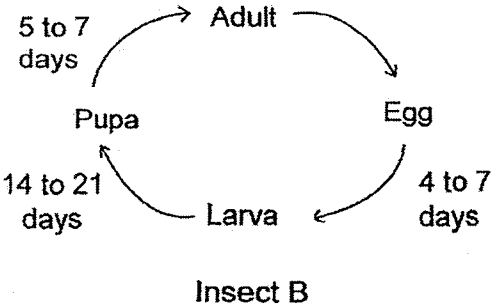
(4)



3 Study the life cycles of Insect A and B below.



Insect A



Insect B

Which of the statements below is correct?

(1) On Day 20, both Insect A and B must be in the pupa stage.

(2) Insect A and B can be a grasshopper and a cockroach respectively.

(3) The larva of Insect B took a shorter time than the larva of Insect A to reach the pupa stage.

(4) For both insects, it takes the shortest time for both larvae to turn into pupae compared to other stages.

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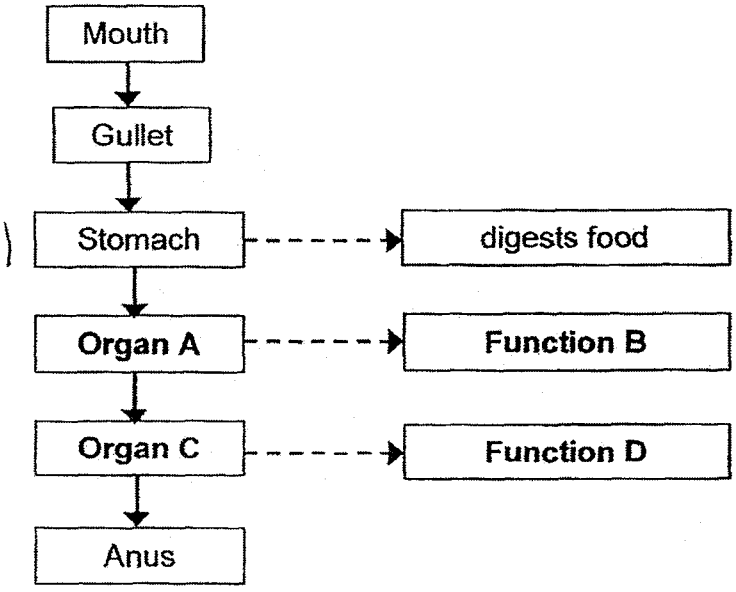
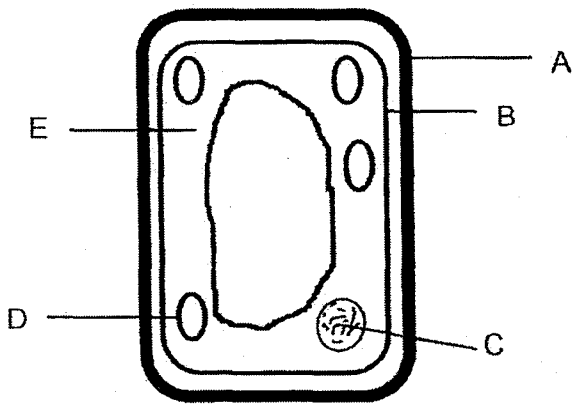
4 Study the diagram below.



Which one of the following options is correct?

	Organ A	Function B	Organ C	Function D
(1)	large intestine	absorbs digested food	small intestine	absorbs water
(2)	small intestine	removes digested food	rectum	absorbs digested food
(3)	small intestine	absorbs digested food	large intestine	absorbs water
(4)	small intestine	absorbs water	large intestine	removes digested food

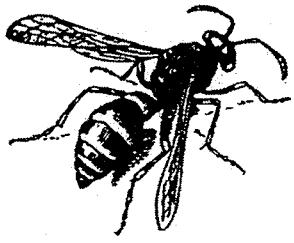
5 Study the cell below.



Which one of the following best matches the cell parts and the descriptions?

	Controls movement of substances in and out of the cell	Contains genetic information	Can be found in animal cells
(1)	A	D	B, C, E
(2)	B	C	B, C, E
(3)	B	D	A, C, D
(4)	A	C	B, C, D

6 The pictures below show a wasp and Fly X that looks like the wasp.



wasp

Fly X

The wasp has a poisonous sting and it feeds on animals such as ants, spiders and bees. Fly X does not sting and it feeds on nectar and small flies.

What advantage does Fly X have in looking like the wasp?

(1) Predators of the Fly X would stay away from it.

(2) Fly X can defend itself by stinging its predators.

(3) Fly X can camouflage better with its surroundings.

(4) Fly X can catch prey more easily and hence obtained more food

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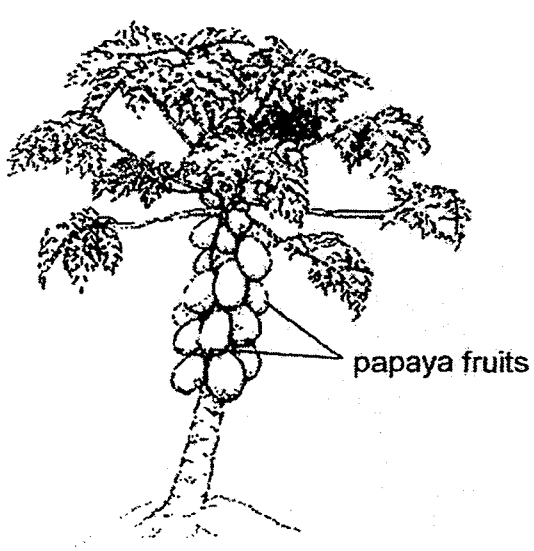
7 The diagram below shows two papaya trees, X and Y, in a garden. Both trees were planted at the same time.



Tree X

Tree Y

After several months, it was observed that Tree X had many papaya fruits but Tree Y had none at all. Which of the following reason(s) below explain(s) this observation?

A All the flowers on Tree Y have no ovaries and stigmas.

B The flowers on Tree X have undergone self-pollination.

C The flowers on Tree Y were not as sweet-smelling as the ones in X.

D A new organism was introduced to prey on the pollinators in the garden.

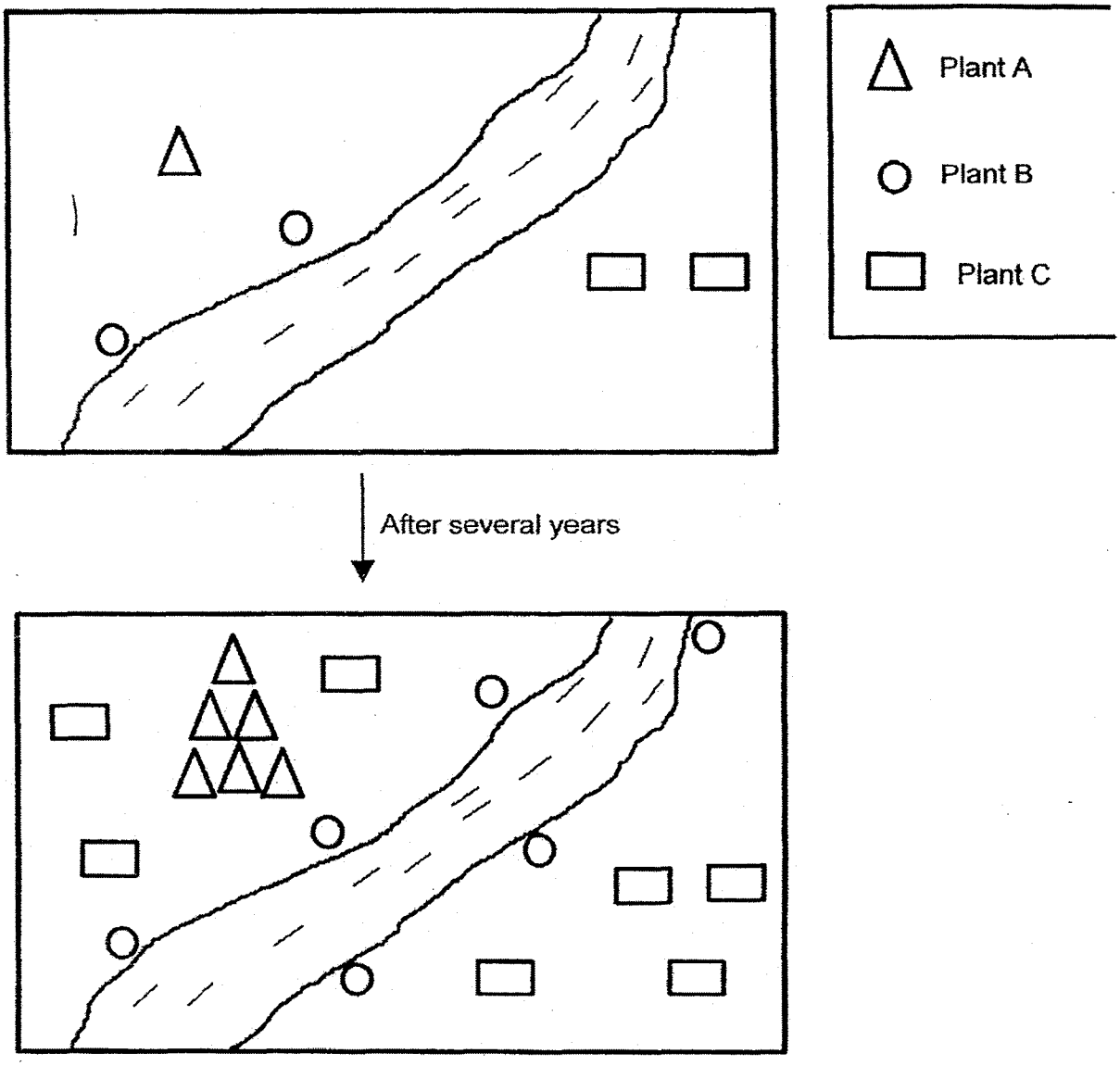
(1) C only

(2) A and B only

(3) B and C only

(4) B, C and D only

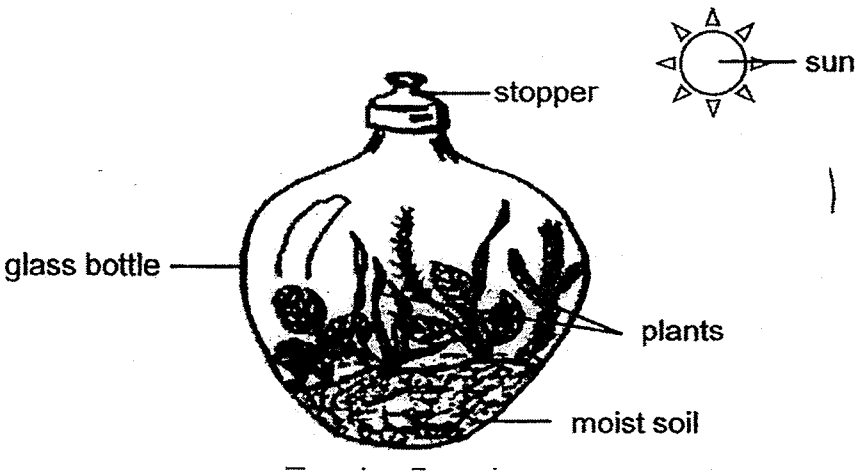
8 The diagram below shows three types of plants, A, B and C, and the locations of their young plants after several years.



Which one of the following best describes the characteristics of the fruits/seeds of each plant?

	Plant A	Plant B	Plant C
(1)	Has fruits with fibrous husk	Has edible fruits	Has pods that split
(2)	Has pods that split	Has fruits with fibrous husk	Has edible fruits
(3)	Has fruits with hooks	Has pods that split	Has edible fruits
(4)	Has pods that split	Has fruits with fibrous husk	Has fruits that float in water.

9 Jane set up a terrarium using a glass bottle as shown below. She placed the terrarium in a garden under the sun. After two weeks, the plants in the terrarium were still growing well.



Which of the following statement(s) correctly explain(s) why the plants survived in the bottle?

X A continuous water cycle occurred inside the bottle.

Y Gaseous exchange took place in the leaves of the plants.

Z The plants were able to respire and photosynthesize all the time.

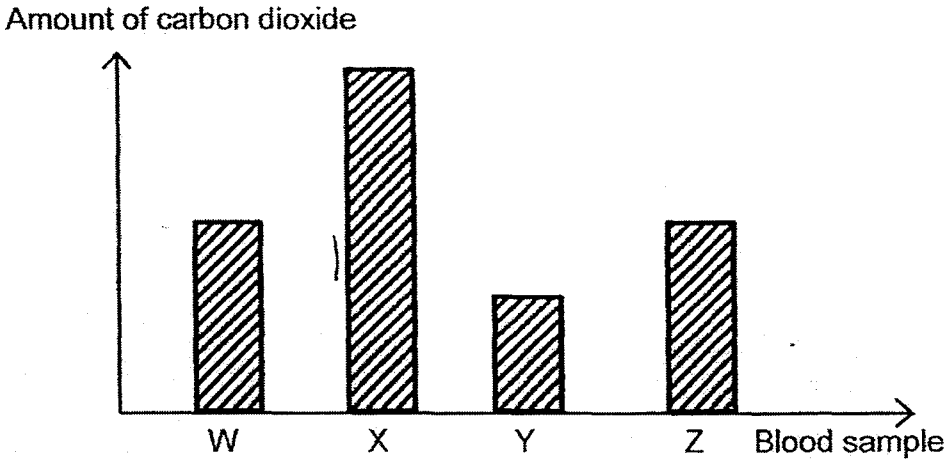
(1) X only

(2) X and Y only

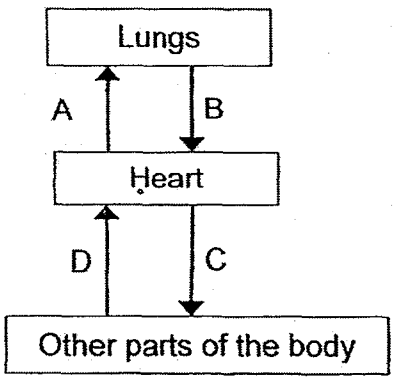
(3) Y and Z only

(4) All of the above

10 The graph below shows the amount of carbon dioxide present in different blood samples W, X, Y and Z.



The diagram below shows the direction of blood flow in a human circulatory system in blood vessels A, B, C and D.



Which one of the following blood samples best represents the blood in blood vessel B?

(1) W

(2) X

(3) Y

(4) Z

11 The following shows the relationship among six organisms, A, B, C, D, E, F.

D is an omnivore.

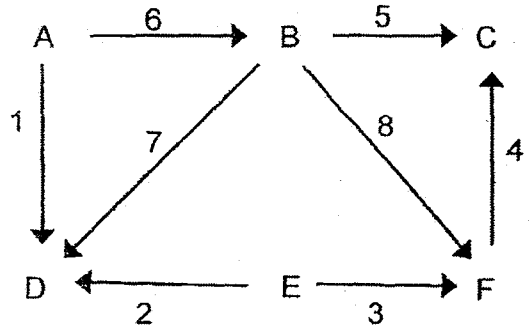
C is a carnivore.

D is B's only predator.

Both B and F are herbivores.

A and E are food producers.

Using the information above, Linda constructed a food web below. However, two arrows have been drawn wrongly.



Which of the following show the two **incorrect** arrows in the food web above?

(1) 2 and 8 only

(2) 4 and 6 only

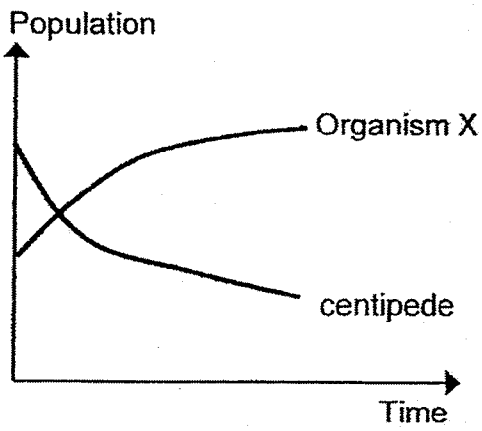
(3) 5 and 8 only

(4) 1 and 2 only

12 Study the food chain below.

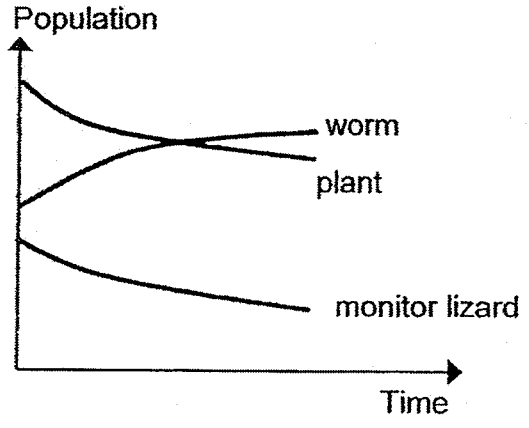
plant ⟶ worm ⟶ centipede ⟶ monitor lizard

A new organism, Organism X, was introduced to this habitat which affected the population of centipedes as shown in the graph below.

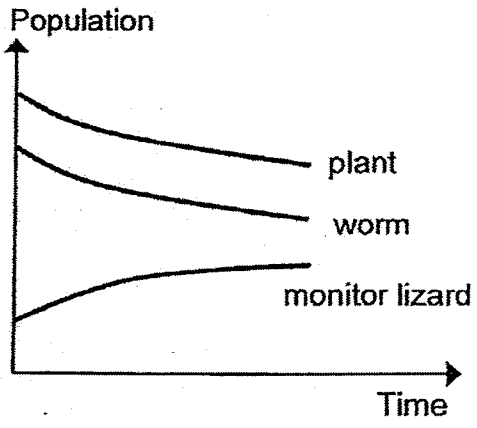


Which one of the following graphs shows the likely changes to the populations of the other organisms when Organism X has been introduced?

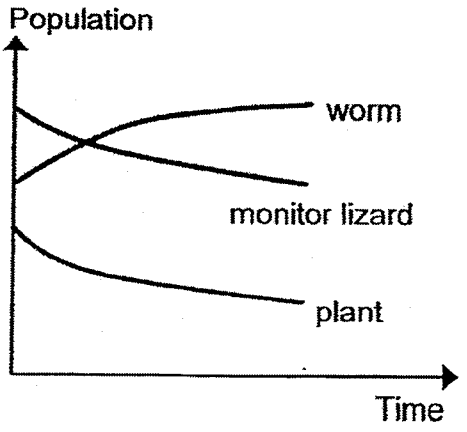
(1)



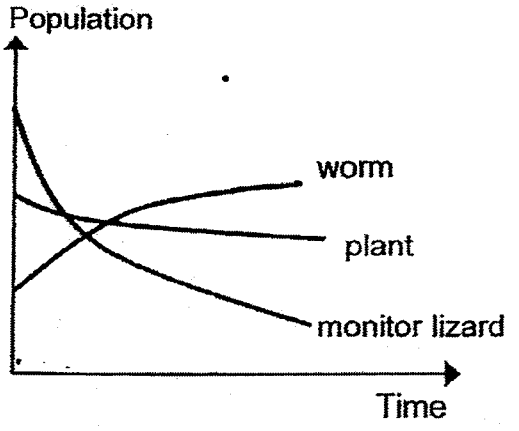
(2)



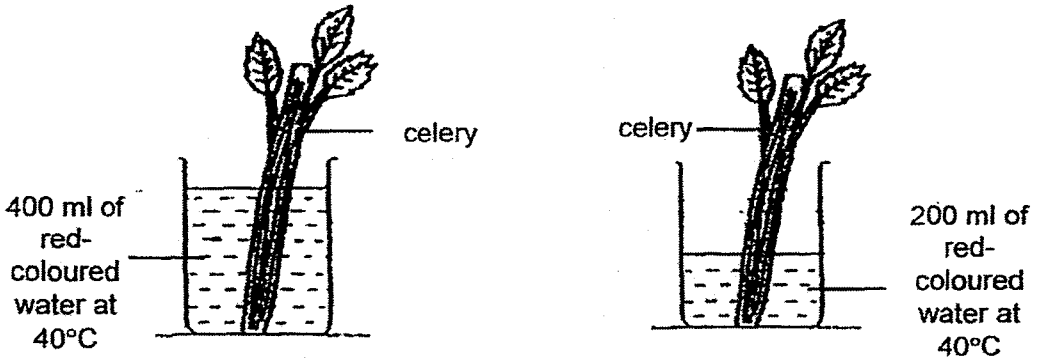
(3)



(4)



13 Kian Ming wanted to investigate if the temperature of coloured water affects the rate of transport in celery stems. He prepared the two set-ups as shown below.



His friend, Ravi, suggested that he should change one variable in Set- up B to make the test fair. He also suggested setting up a control.

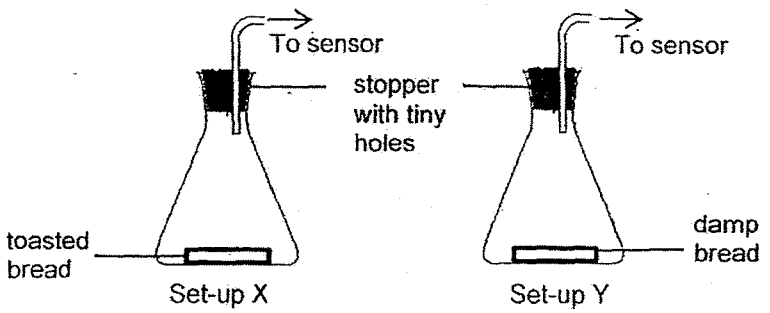
Which one of the following correctly shows Ravi's suggestion?

	Changes made to Set-up B	**Control set-up**
(1)	Use 400ml of red-coloured water at 10°C	Use 400ml of red-coloured water at room temperature.
(2)	Use 400ml of red-coloured water at 50°C	Use 200ml of red-coloured water at 40°C.
(3)	Use 200ml of uncoloured water at 50°C	Use 400ml of red-coloured water at room temperature.
(4)	Use 400ml of red-coloured water at room temperature.	Use 200ml of red-coloured water at room temperature.

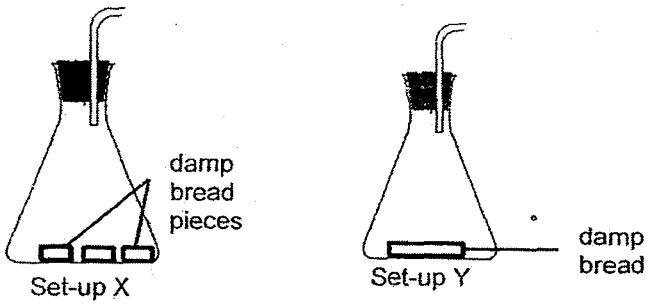
14 Minah prepared two set-ups to measure the amount of carbon dioxide produced during decomposition. Identical conical flasks and stoppers with tiny holes were used for all set-ups. Using a data logger and a sensor, she found that Set- up X produced more carbon dioxide than Set-up Y after a few days.

Which one of the following set-ups is correct?

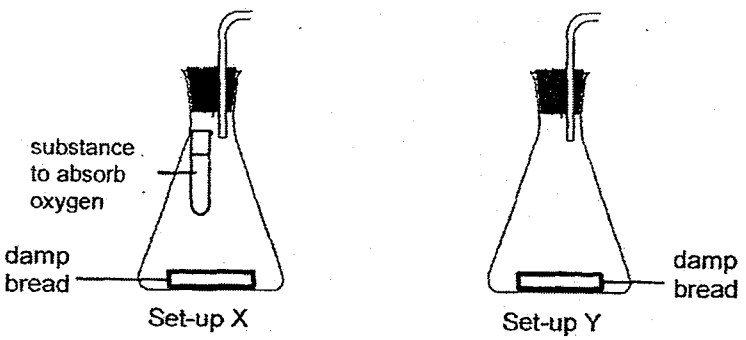
(1)



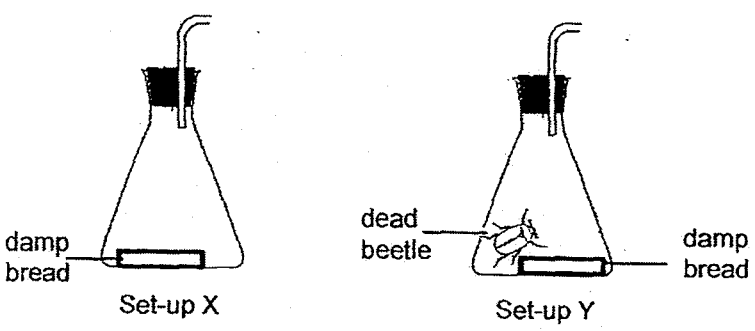
(2)



(3)



(4)



End of Booklet A2

PRELIMINARY EXAMINATION 2017
PRIMARY 6
SCIENCE

BOOKLET A2

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

INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 6._____

Date : 24 August 2017

This booklet consists of 15 printed pages including this page.

For each question from 15 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS).

[28 marks]

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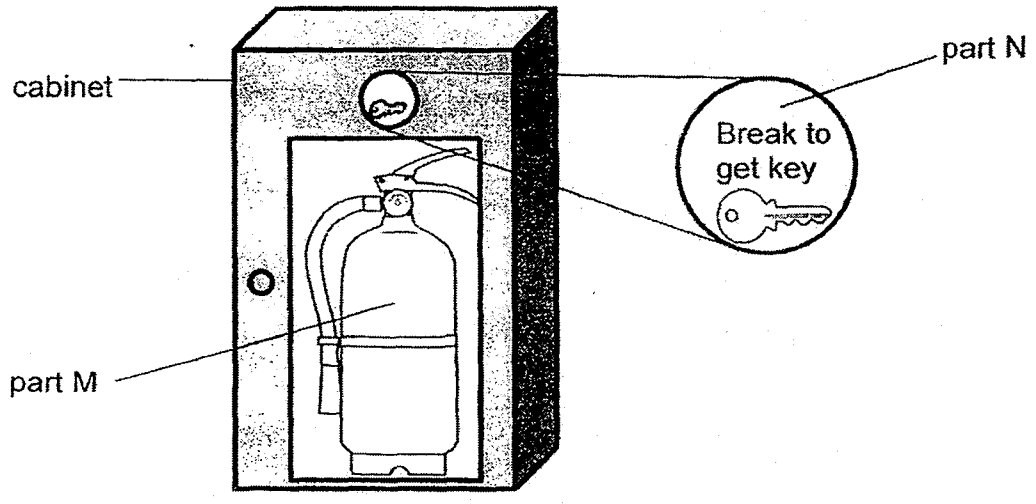
15 The following diagram shows a fire extinguisher which is locked up in a cabinet.

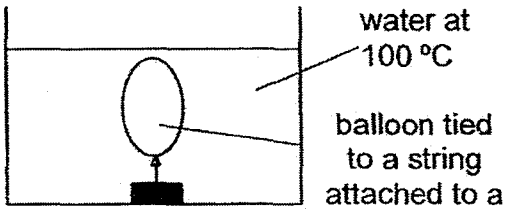


What are the most important properties of the materials used to make parts M and N?

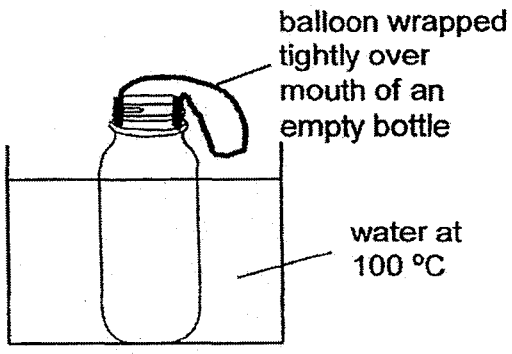
	part M	**part N**
(1)	strong	breaks easily
(2)	strong	strong
(3)	flexible	allows light to pass through
(4)	flexible	does not allow light to pass through

16 Jen carried out an experiment and wrote the following conclusion.

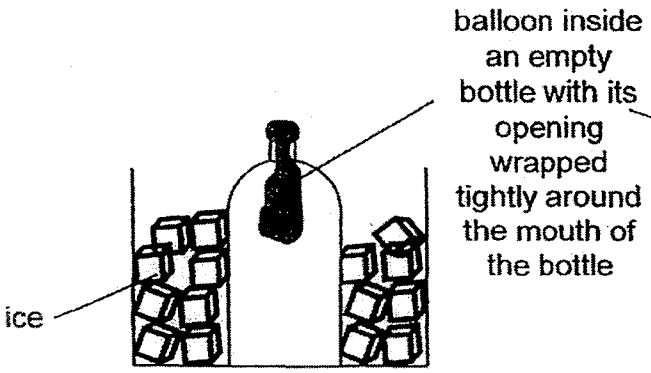
"After 15 minutes, both the mass and volume of air in the balloon in each set-up increased."



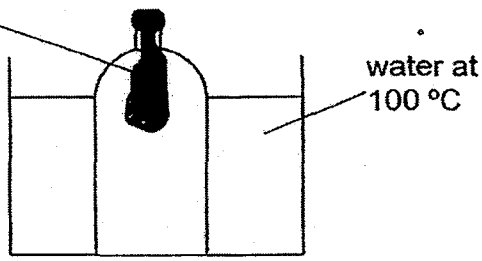
Set-up A



Set-up B



Set-up C



Set-up D

Which of the diagrams above show the possible set-ups prepared by Jen at the start of her experiment?

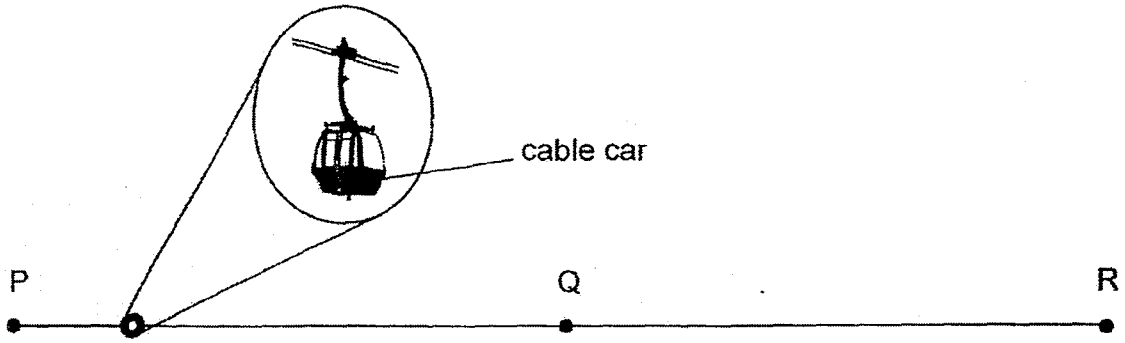
(1) A and B only

(2) B and C only

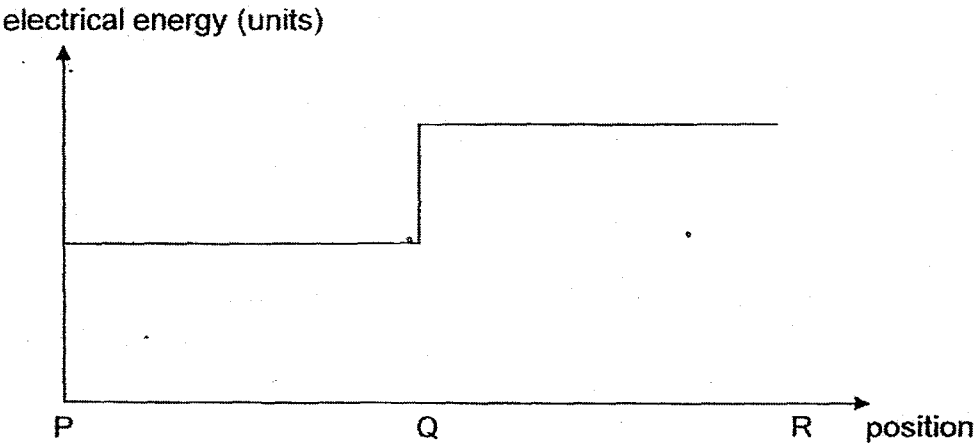
(3) A, B and C only

(4) A, B and D only

17 Hilmi measured the electrical energy used by a cable car as it travelled from point P to Q and then from point Q to R.



His results are shown in the graph below.



Based on the graph, which one of the following is definitely correct?

	From point P to Q	From point Q to R
(1)	The cable car was at a lower height.	The cable car was at a greater height.
(2)	The cable car moved at a faster speed.	The cable car moved at a slower speed.
(3)	The cable car produced more heat energy.	The cable car produced less heat energy.
(4)	The cable car was moving downslope.	The cable car was moving upslope.

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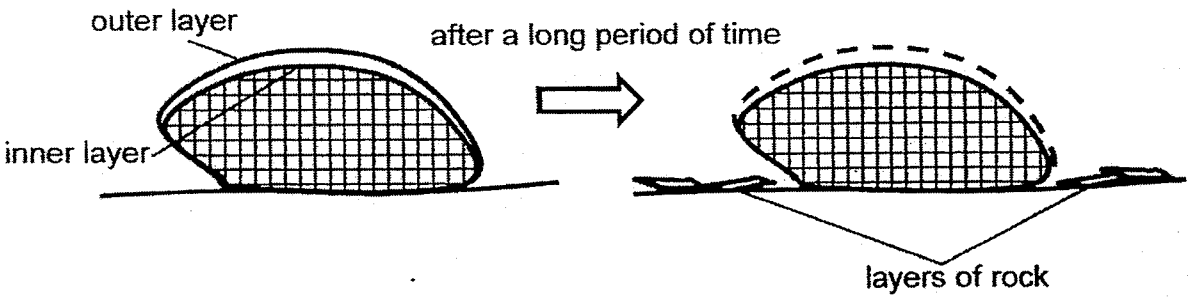
18 Kok Peng studied the rocks in a hot desert. He noticed that the rocks got smaller over time, with layers of the rocks found on the desert floor beside the rocks.



The temperature in the desert can reach 50 °C in the day and drop below 0 °C at night.

Which of the following statement(s) is/are correct reason(s) for his observations?

A The rocks are good conductors of heat.

B The outer layer of the rocks was warmer than the inner layer during the day.

C The inner layer of the rocks was warmer than the outer layer of the rock during the night.

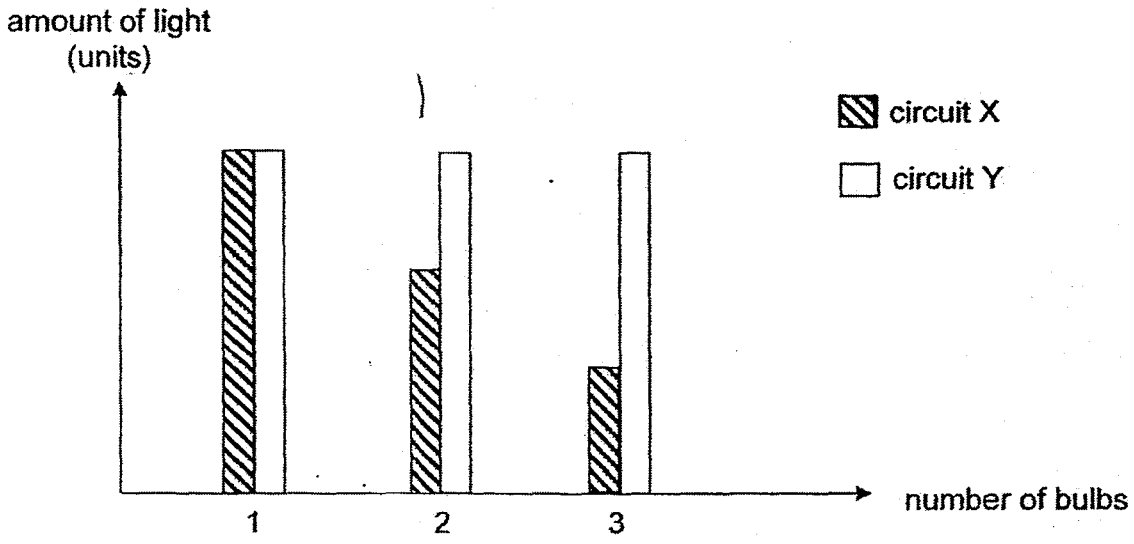
(1) A only

(2) A and B only

(3) B and C only

(4) A, B and C

19 Ali set up two different circuits, X and Y, using identical batteries and light bulbs. He used three batteries for each circuit. He continued to add bulbs, one at a time, to both circuits and measured the amount of light given out by each bulb in each circuit. His results are shown in the graph below.



Based on the graph above, which of the following statement(s) is/are correct?

A The rest of the bulbs would remain lit when one of the bulbs in circuit X fuses.

B The rest of the bulbs would remain lit when one of the bulbs in circuit Y fuses.

C All the bulbs in circuit X can be individually controlled when a switch is connected in series with each bulb.

D Two bulbs connected in circuit Y will always use less electrical energy than two bulbs connected in circuit X.

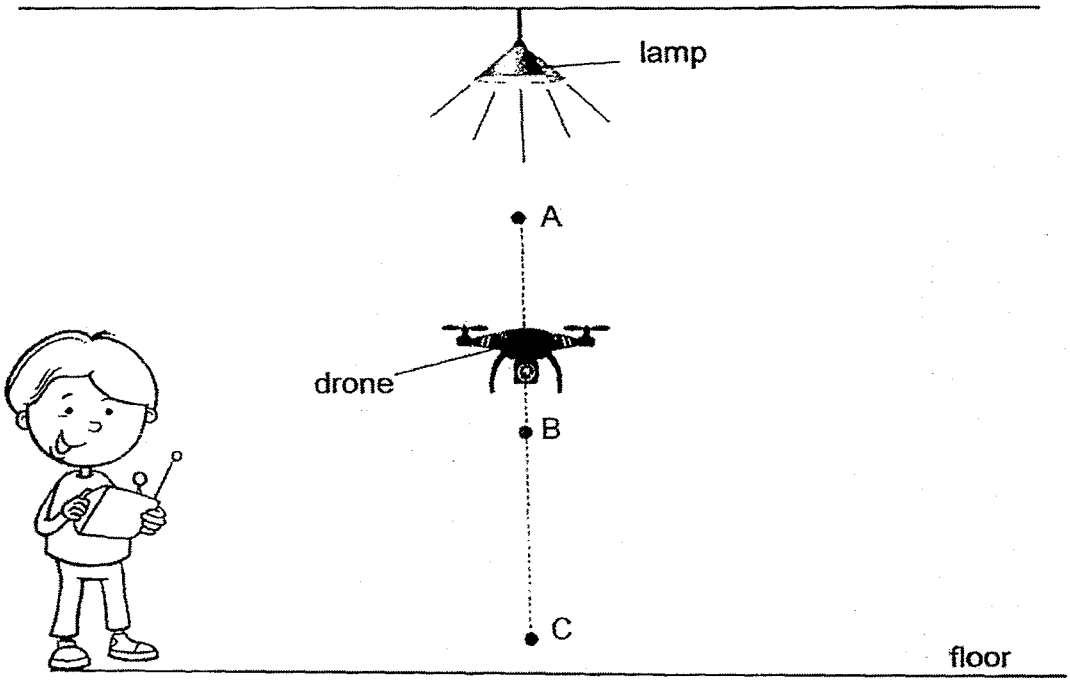
(1) B only

(2) B and D only

(3) A and C only

(4) A, C and D only

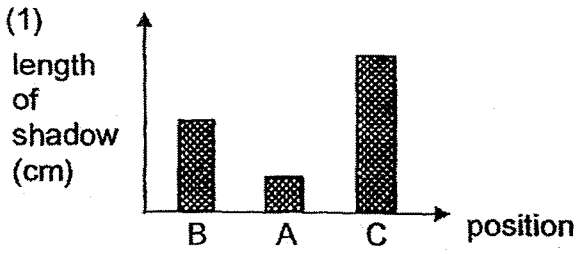
20 Adam used a remote control to move a drone between three points, A, B and C, as shown below.



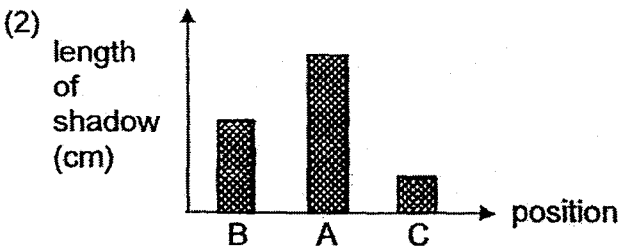
His friend, Nurul, helped him to measure the length of the shadow cast on the floor as the drone moved from point B to A to C. She then drew a graph to represent the results.

Which one of the following shows the graph which Nurul drew?

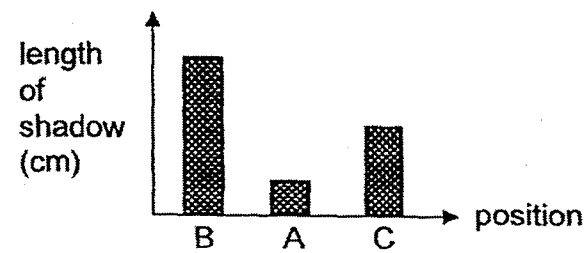
(1)



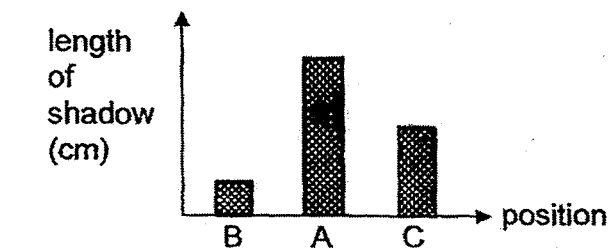
(2)



(3)



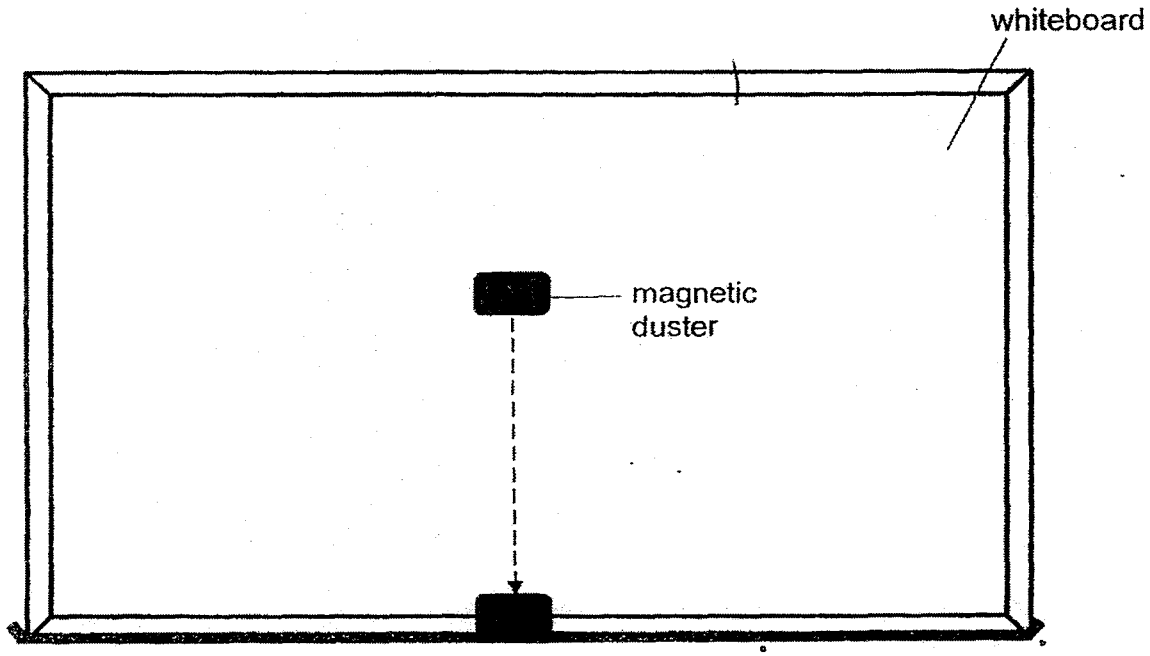
(4)



(Go on to the next page)

21 Poh Sin bought a new magnetic duster for the whiteboard in her classroom. There is a magnet inside the magnetic duster.

She placed the magnetic duster on the surface of the whiteboard but the duster slid down the whiteboard as shown below.



Which one of the following statements explains Poh Sin's observations?

(1) The magnetic force of the magnet is less than the weight of the duster.

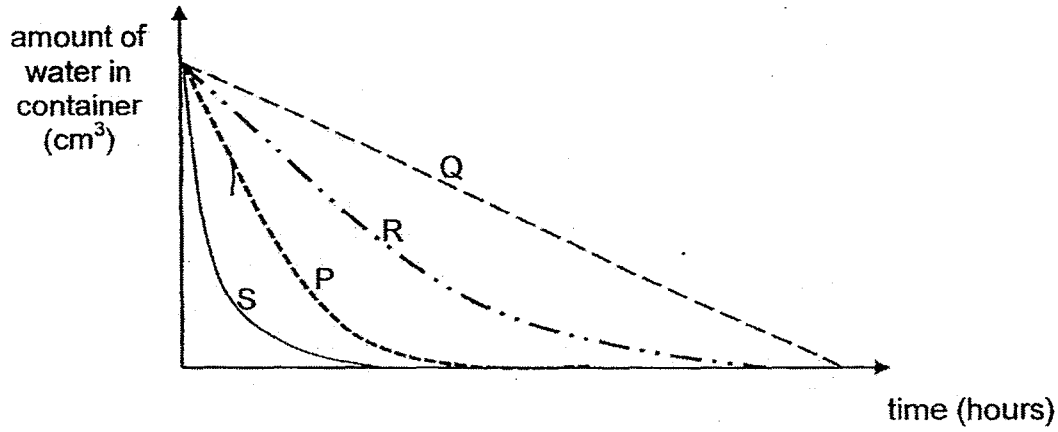
(2) The friction acting on the duster is greater than the weight of the duster.

(3) The magnetic force of the magnet is greater than the weight of the duster.

(4) The friction acting on the duster and the magnetic force of the magnet is less than the weight of the duster.

(Go on to the next page)

22 Xiao Ping left four identical containers, P, Q, R and S, at four different locations. She measured the amount of water in the containers over a period of time. The graph below shows her results.



Which one of the following statements is correct?

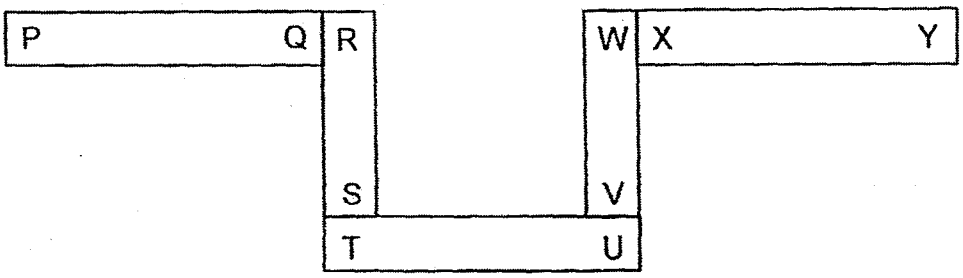
(1) The exposed surface area of the water in P is more than that of Q.

(2) There is less water in S than in P at the beginning of the experiment.

(3) There is less wind at the location where R is than the location where Q is.

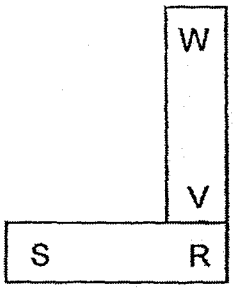
(4) P is placed in a sunny open field while R is placed in an air-conditioned room.

23 Five bar magnets with their ends marked P to Y can be arranged as shown below.

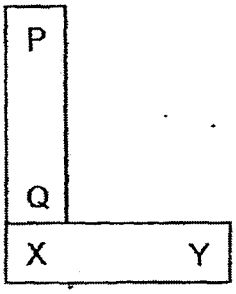


Which one of the following diagrams shows a possible arrangement of two of the magnets?

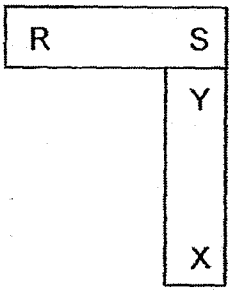
(1)



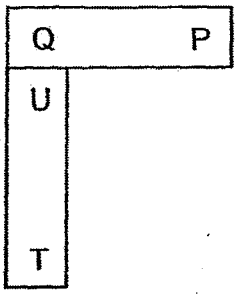
(2)



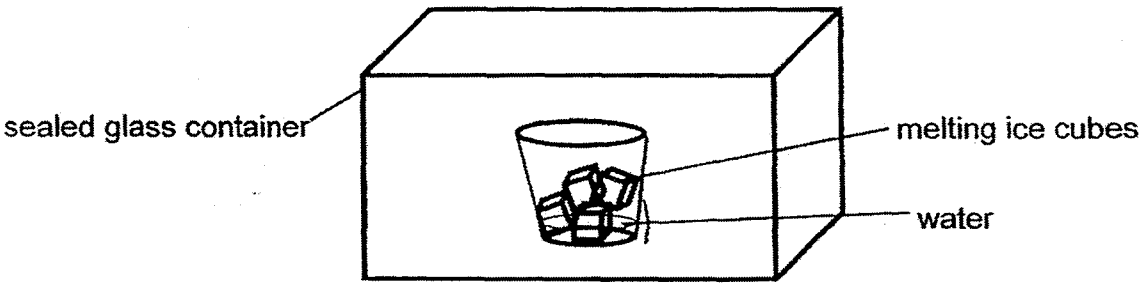
(3)



(4)



24 Devi placed a cup of melting ice cubes into a sealed glass container in a classroom as shown below.

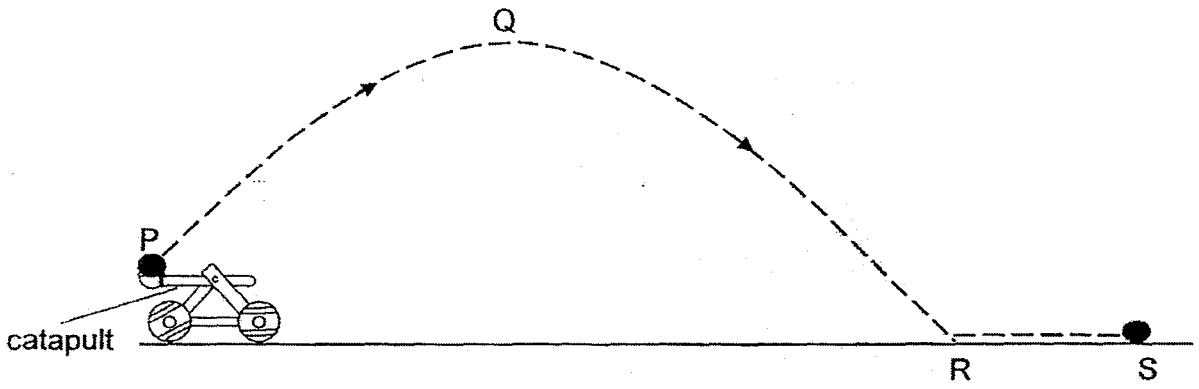


Which one of the following is correct?

	The _____ gained heat from the air in the container	**The water _____ heat to/from the ice**	**Temperature of water**	**Amount of water vapour in the air inside the container**
(1)	ice	gained	increased	increased
(2)	water	lost	increased	remained the same
(3)	water	lost	remained the same	decreased
(4)	cup	gained	remained the same	increased

(Go on to the next page)

25 A stone was fired from a catapult at P and landed on the ground at R before rolling and finally stopping at S.



Which of the following statements are **not** correct?

A The gravitational force of the stone increased from point P to Q.

B There was no gravitational force acting on the stone at point R and S.

C The stone finally stopped moving when there was no more force acting on it at S.

D At Q, the stone started to move downwards as there was no more force acting on it.

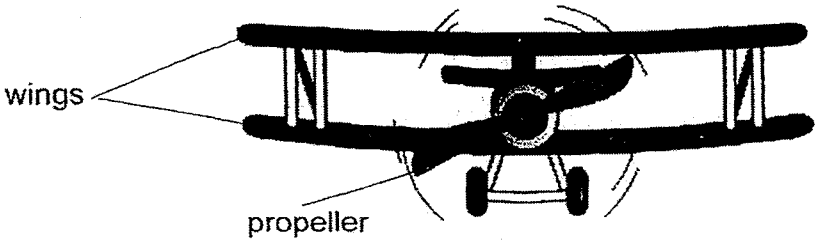
(1) A and B only

(2) C and D only

(3) A, B and D only

(4) A, B, C and D

26 Chandra has four different toy aeroplanes, A, B, C and D.



Aeroplane	Thickness of wings (cm)	Length of wings (cm)	Thickness of propeller (cm)	Length of propeller (cm)
A	0.6	28	1.2	4.0
B	0.5	32	0.5	3.6
C	0.6	28	0.8	4.2
D	0.5	32	1.2	3.6

Chandra predicts that the thickness of the propeller has no effect on the time it takes for the aeroplane to glide in the air.

Which two aeroplanes should he use to test his prediction?

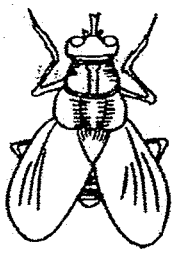
(1) A and C

(2) A and D

(3) B and D

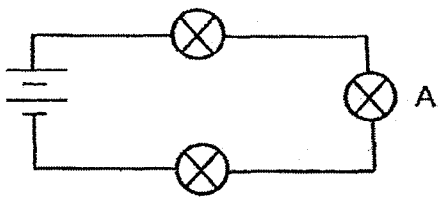
(4) C and D

27 Animal E is attracted to bright light and tends to hover around the brightest bulb it can find.

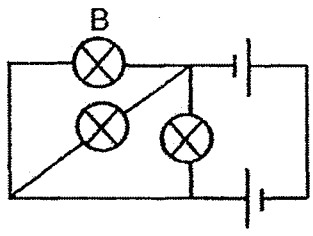


animal E

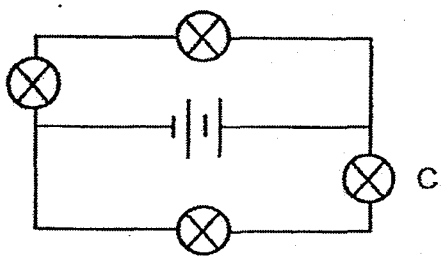
Su Ling set up four different circuits, P, Q, R and S, as shown below. The batteries, bulbs and switches are all working properly.



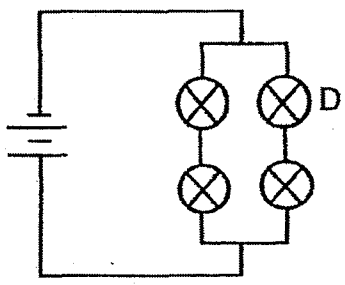
Circuit P



Circuit Q



Circuit R



Circuit S

Which bulb would Su Ling most likely find animal E hovering over?

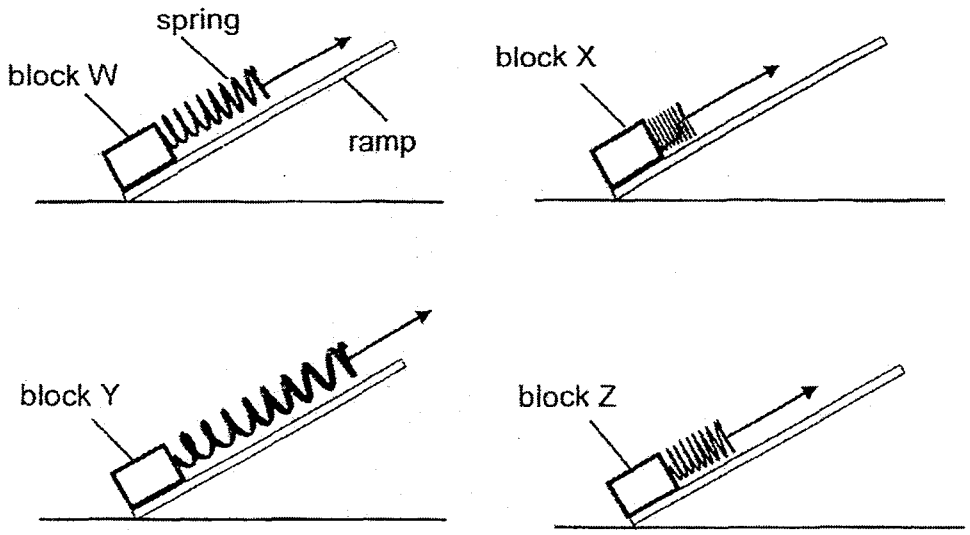
(1) A

(2) B

(3) C

(4) D

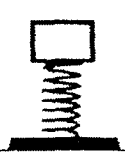
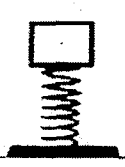
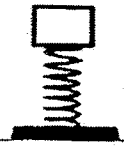
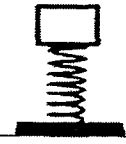
28 Adimah used four identical springs to pull four wooden blocks W, X, Y and Z, up four identical ramps as shown below. The wooden blocks were of different mass but similar in size.



Adimah found that the four springs all extended by different lengths during the experiment.

She then put the four blocks onto four identical compression springs.

What one of the following options shows what Adimah would observe?

	Block W	Block X	Block Y	Block Z
(1)				
(2)				
(3)				
(4)				

End of Booklet A2

PRELIMINARY EXAMINATION 2017
PRIMARY 6
SCIENCE

BOOKLET B1

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

INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Name: _____ ( )

Class: Primary 6._____

Date : 24 August 2017

Booklet A1 & A2	56
Booklet B1	22
Booklet B2	22
Total	100
Parent's Signature	

This booklet consists of 9 printed pages including this page.

For questions 29 to 35, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question. [22 marks]

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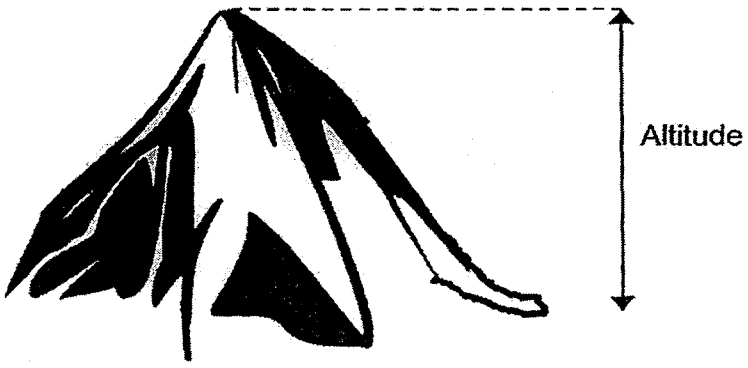
29 Mr Tan is a mountain climber. He conducted a study to investigate the relationship between the percentage of oxygen in the air and the altitude. The term "altitude" refers to the height above sea level of a certain location.



Using a data logger with an oxygen sensor, he recorded his findings in the table below.

Altitude (m)	Oxygen (%)
0	20.9
1000	18.4
2000	16.3
3000	14.4
4000	12.7
5000	11.2

(a) Based on the above information, what is the relationship between the altitude and percentage of oxygen in the air? [1]

_____

_____

(b) Mr Tan advised mountain climbers not to climb up a tall mountain too quickly. Based on the above findings, do you agree with him? Explain your answer. [1]

_____

_____

In a climbing expedition, Mr Tan measured both his heart rate and breathing rate while he was climbing. His results were shown below.

Time (min)	Heart Rate (beats per min)	Breathing rate (breaths per min)
0	64	14
5	70	16
10	90	20
15	120	28
20	140	30

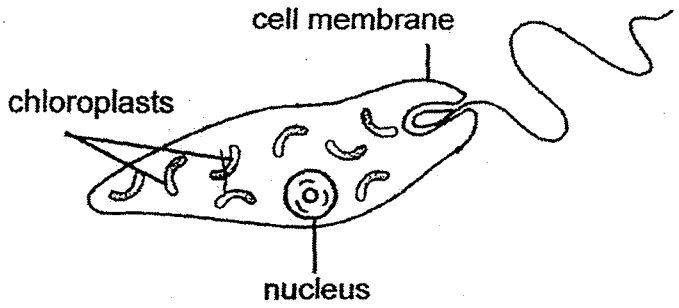
(c) What happened to Mr Tan's breathing rate over time? Explain your answer. [1]

(d) Explain why Mr Tan's heart pumped faster. [1]

2

(Go on to the next page)

30 The diagram below shows a single-celled organism, X, which lives in a pond.



Use the information in the diagram to answer the following questions.

(a) From the diagram, give a reason why Organism X could be classified as a plant cell. [1]

_____

_____

(b) Explain why Organism X could also be an animal cell. [1]

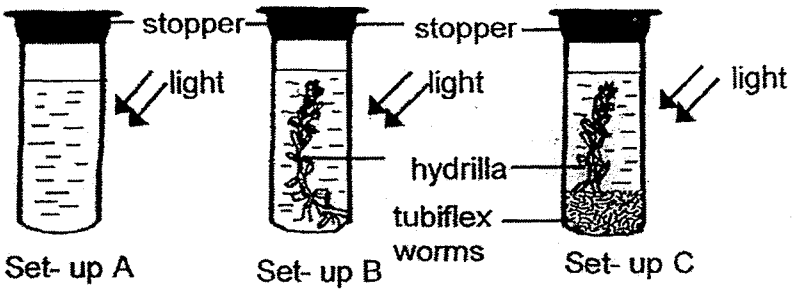
_____

_____

(c) How does Organism X obtain its energy? [1]

_____

31 Andy prepared three set-ups, A, B and C,with each test tube containing pond water. Substance X was added into all the test tubes of each set-up and they were placed near a window for 3 hours.



Substance X is an indicator which will change its colour when it comes into contact with different amounts of carbon dioxide. The table below shows its colour change.

Amount of carbon dioxide in water	**less than normal**	**normal**	**higher than normal**
Colour of Substance X	Purple	Red	Yellow

After three hours, Andy recorded his observations in the table below.

Set-up	**Colour of Substance X after three hours**
A	Red
B	Purple
C	Red

(a) How does placing the three set-ups near the window ensure a fair test? [1]

_____

(b) Explain the purpose of Set-up A in this investigation clearly. [1]

_____

_____

(c) Explain why Set-up C has a higher amount of carbon dioxide than Set-up B. [1]

_____

_____

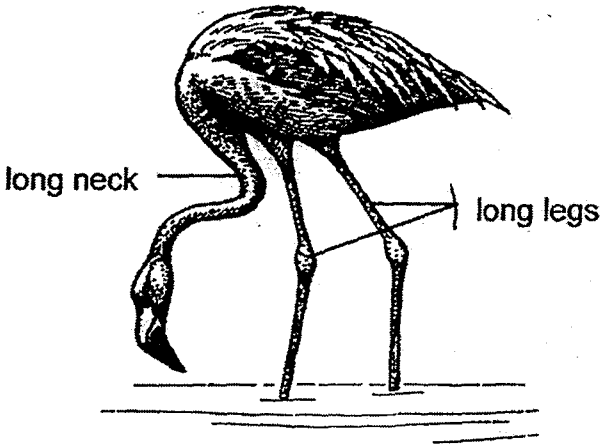
(d) Andy placed Set-up C in a dark wooden cupboard for a few hours. What is the colour change of Substance X? Explain your answer clearly. [2]

_____

_____

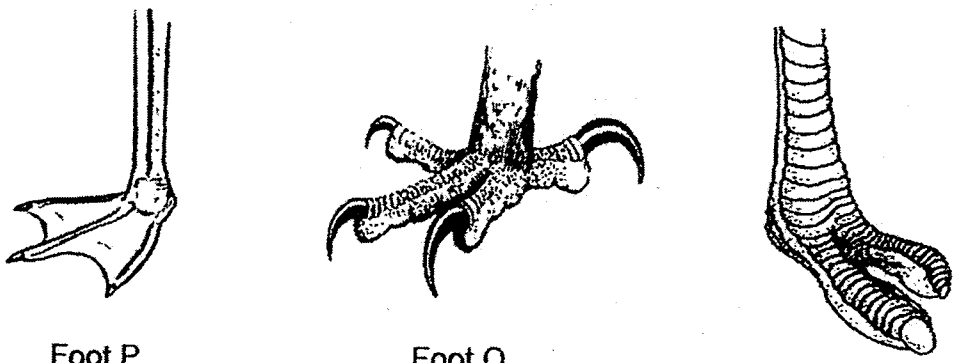
5

32 Animal F is a type of bird which lives near water. It has a long neck and legs that are structurally adapted for its survival. It usually feeds on organisms such as shrimps and algae in the water.



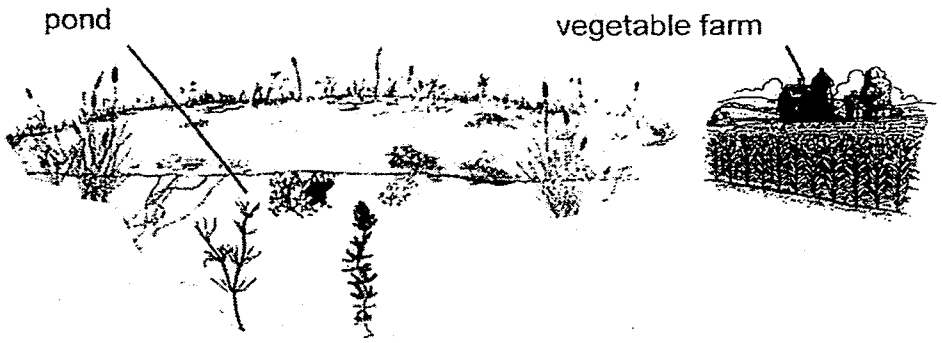
(a) Explain how Animal F's long legs and neck help it to get more food. [1]

The diagrams below show the feet of some birds.



(b) Which one of the above feet belongs to Animal F? Explain your answer. [1]

33 The diagram below shows a pond located near a farm. In the month of August, a large amount of fertilisers was washed into the pond due to many days of heavy rain.



After a week, Ivan observed that the surface of the water in the pond was filled with algae.

(a) Why was there an increase in the algae population? [1]

_____

_____

(b) What would happen to the population of fully submerged plants in the pond after some time? Explain your answer clearly. [1]

_____

_____

2

34 Mr Koo carried out an investigation to find out if temperature affects the number of eggs hatched for the alligator and snake. The same number of alligator and snake eggs was placed in incubators of different temperatures. Both the alligator and snake eggs were monitored closely for a period of 70 days.

The following table shows his results.

Temperature (°C)	Number of snake eggs hatched	Number of alligator eggs hatched
26	0	0
28	2	1
30	3	4
32	5	5
34	5	5

(a) From the above results, what is the relationship between the number of eggs hatched and the temperature, up to 32°C? [1]

_____

(b) Suggest a possible reason why none of the eggs hatched when the temperature of the incubator was set at 26 °C. [1]

_____

For the past five years, Mr Koo had also monitored the average temperature of the alligator's habitat. He found out that fewer female than male alligators were hatched at higher temperatures.

(c) If the rate of global warming increases, would the alligator's population increase or decrease? Explain your answer. [2]

_____

_____

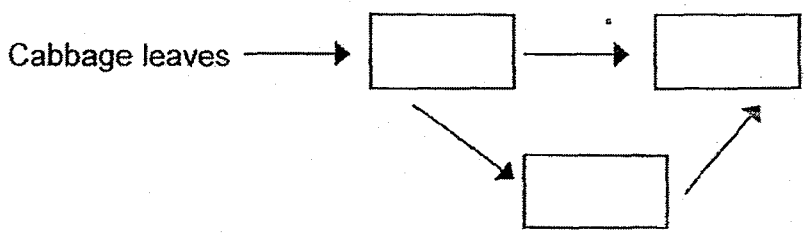
_____

4

35 Kang Kang conducted an investigation to find out about the diet of Organism X, Y and Z. He prepared four different set-ups and recorded his observations as shown in the table below.

Set- up	Observations	
	Start of experiment	**End of experiment**
A	5 cabbage leaves 10 Organism Z	Bits of cabbage leaves 10 Organism Z
B	5 Organism X 5 Organism Y 5 Organism Z	 5 Organism Y 3 Organism Z
C	5 cabbage leaves 4 Organism X 3 Organism Y	5 cabbage leaves 3 organism Y
D	5 cabbage leaves 6 Organism X 3 Organism Z	5 cabbage leaves 6 Organism X

(a) Use the information to help you complete the food web below. [1]
Write the correct letter X, Y or Z in each box.



(b) Organisms X, Y and Z form a community.
What would happen to the population of X and Y if there is a decrease in the number of producers? Explain your answer clearly. [1]

_____

_____

_____

2

End of Booklet B1

PRELIMINARY EXAMINATION 2017
PRIMARY 6
SCIENCE

BOOKLET B2

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

INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Name: _____( )

Class: Primary 6._____

Date : 24 August 2017

Booklet B2	22

This booklet consists of 13 printed pages including this page.

For questions 36 to 42, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[22 marks]

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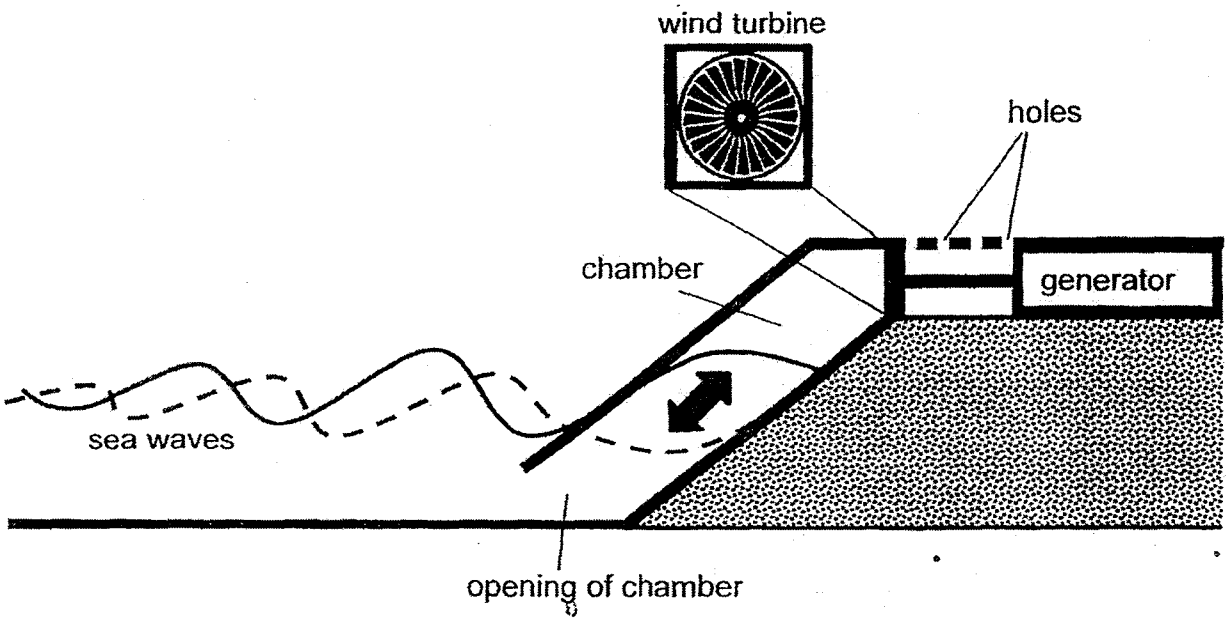
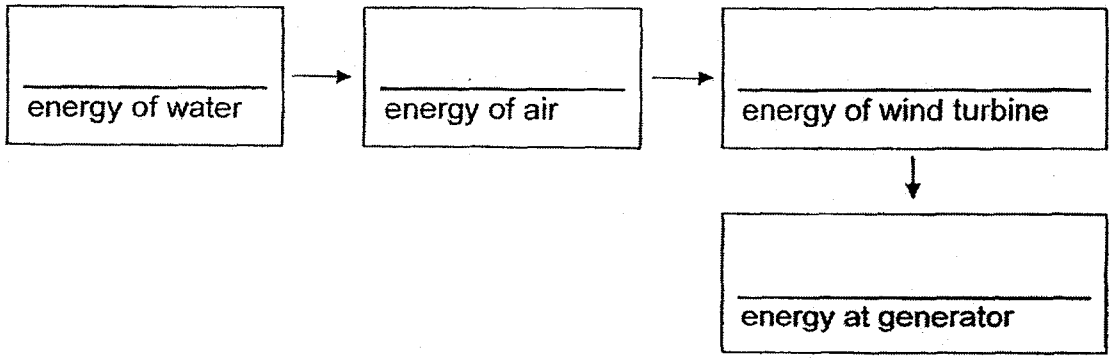
36 The diagram below shows a power station which makes use of the rise and fall of sea waves to produce electricity.

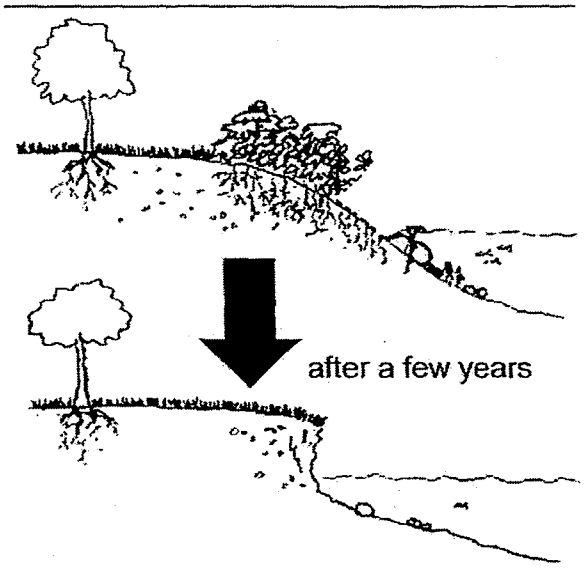


As the water in the chamber rises, it pushes against the air in the chamber. The moving air then turns the wind turbine.

(a) Fill in the blanks below to show the energy conversion. [2]



Kenny studied how the coast line of an island changed over time due to the sea waves.



(b) Based on Kenny's findings, state one advantage of building the power station at the coast line. [1]

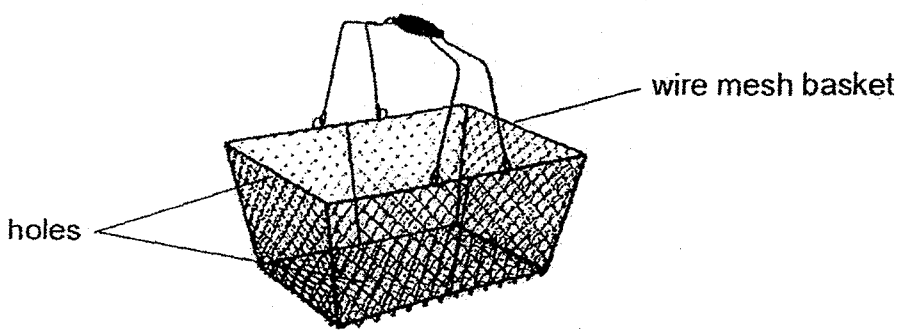
37 The table below shows the freezing point and boiling point of three substances, X, Y and Z.

Substance	Freezing point (°C)	Boiling point (°C)
X	20	120
Y	150	300
Z	0	10

Dinah worked in a laboratory with a room temperature of 30°C. She was able to store 2000 cm^3 of a substance into a container with a capacity of 1000 cm^3.

(a) Which substance, X, Y or Z, did she use? Explain your answer. [1]

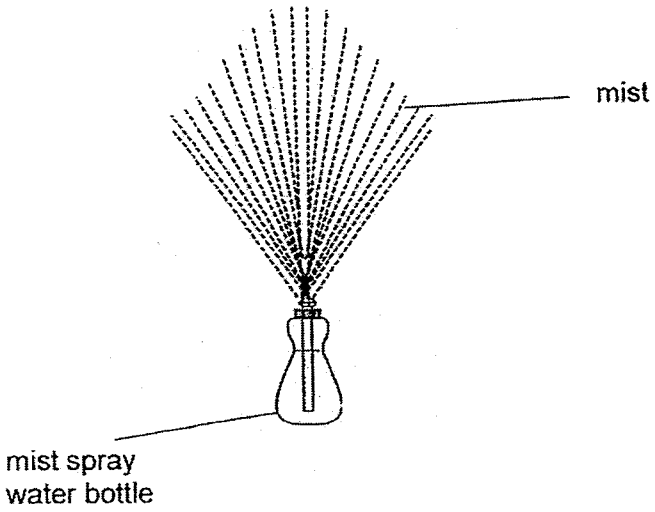
Dinah had a wire mesh basket as shown below.



(b) Would she be able to store substances X and Y into the wire mesh basket at room temperature? Explain your answer. [2]

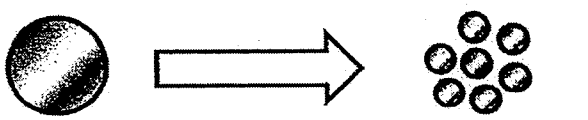
3

38 On hot days, Wen Wen likes to use her water bottle to spray mist onto her face.



(a) Explain why Wen Wen's face feels cool when she uses the mist spray. [1]

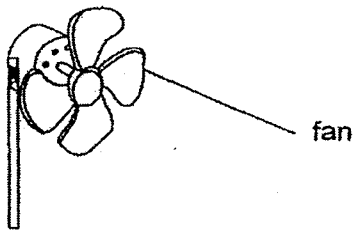
Wen Wen plans to buy a new water bottle which could produce even smaller drops of mist as shown below.



(b) Would the mist from the new water bottle cool Wen Wen down faster, slower or the same as that from her old water bottle? Explain your answer. [1]

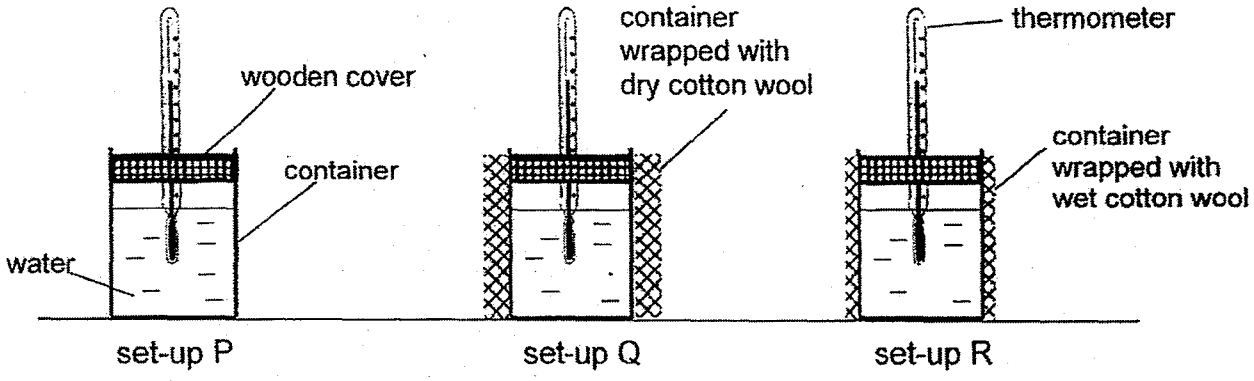
2

Wen Wen's friend advised her to buy a fan to attach to the new water bottle and to turn on the fan together with the misting spray.

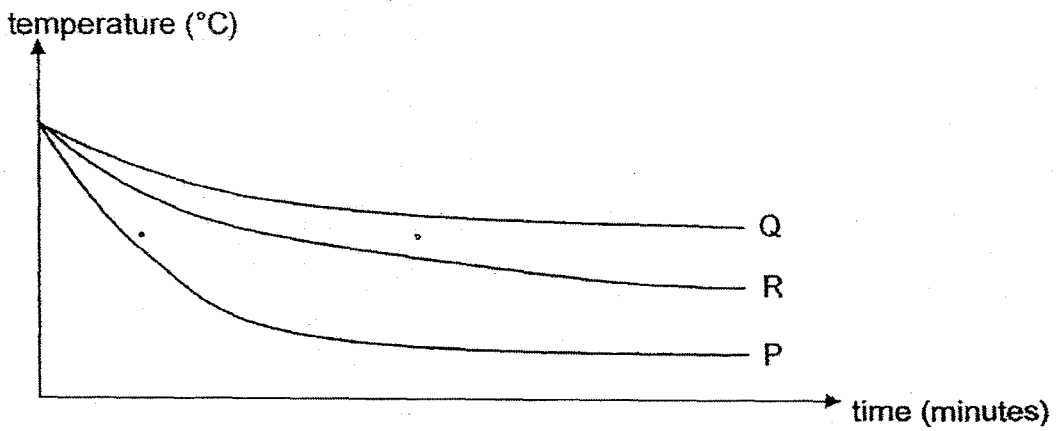


(c) Explain why using the fan together with the misting spray helps cool Wen Wen down even faster during hot days. [1]

39 Min Le conducted an experiment using the set-ups, P, Q and R, shown below. The containers in all set-ups were identical. The containers were filled with the same amount of water at 90°C and left on a table.



He recorded the temperature of water in the three containers over a period of time. His results are shown in the graph below.



(a) After some time, Min Le found that the temperature of the water in set-up Q was higher than that in R. Explain why. [2]

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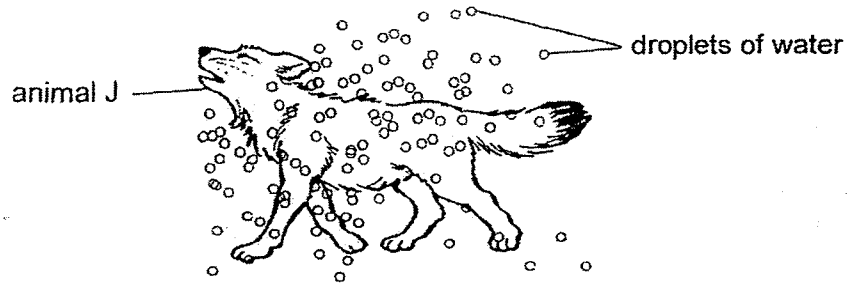
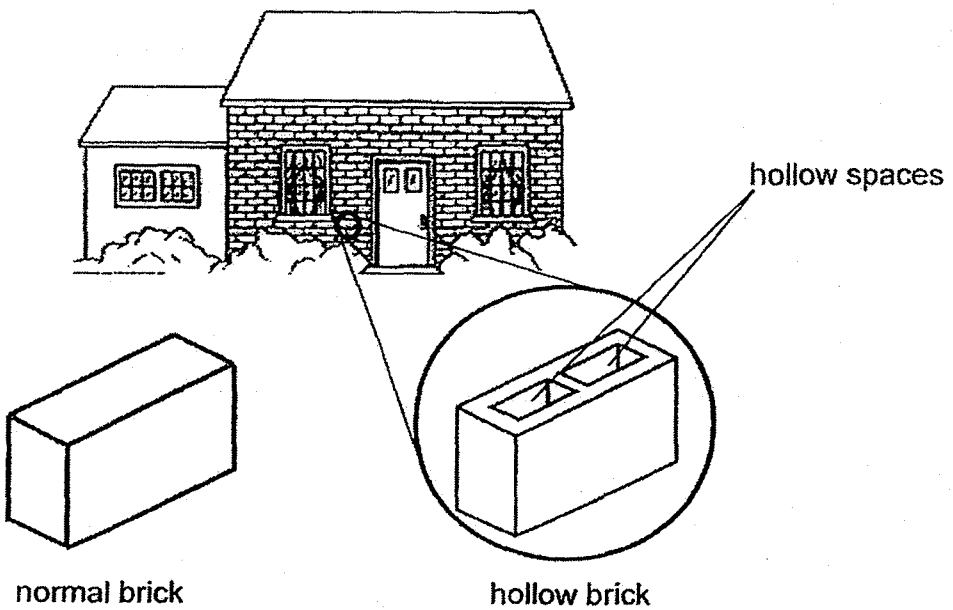
2

Animal J below lives in a cold country. Whenever it gets wet, it shakes the water off its body immediately as shown below.



(b) Based on Min Le's results, explain how this behaviour helps animal J to keep itself warm. [1]

Min Le learnt from her contractor friend that instead of using normal bricks, some energy-efficient houses in Singapore are built using bricks with hollow spaces.



(c) Based on Min Le's results, explain why using hollow bricks to construct houses helps to conserve energy in a hot country like Singapore. [2]

3

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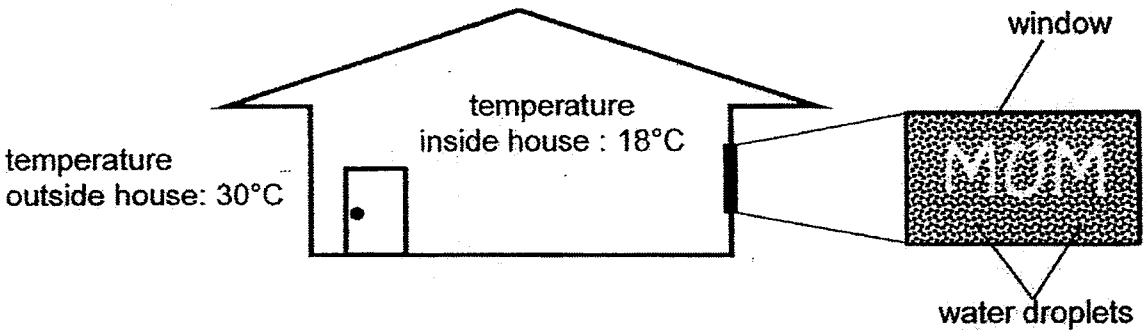
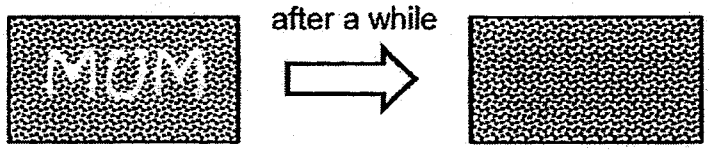
40 The diagram below shows the temperature of the air inside and outside Martha's house.



Martha wrote the word 'MUM' on her glass window as shown above.

(a) Was Martha inside or outside the house when she wrote the word on the glass window? Explain your answer. [1]

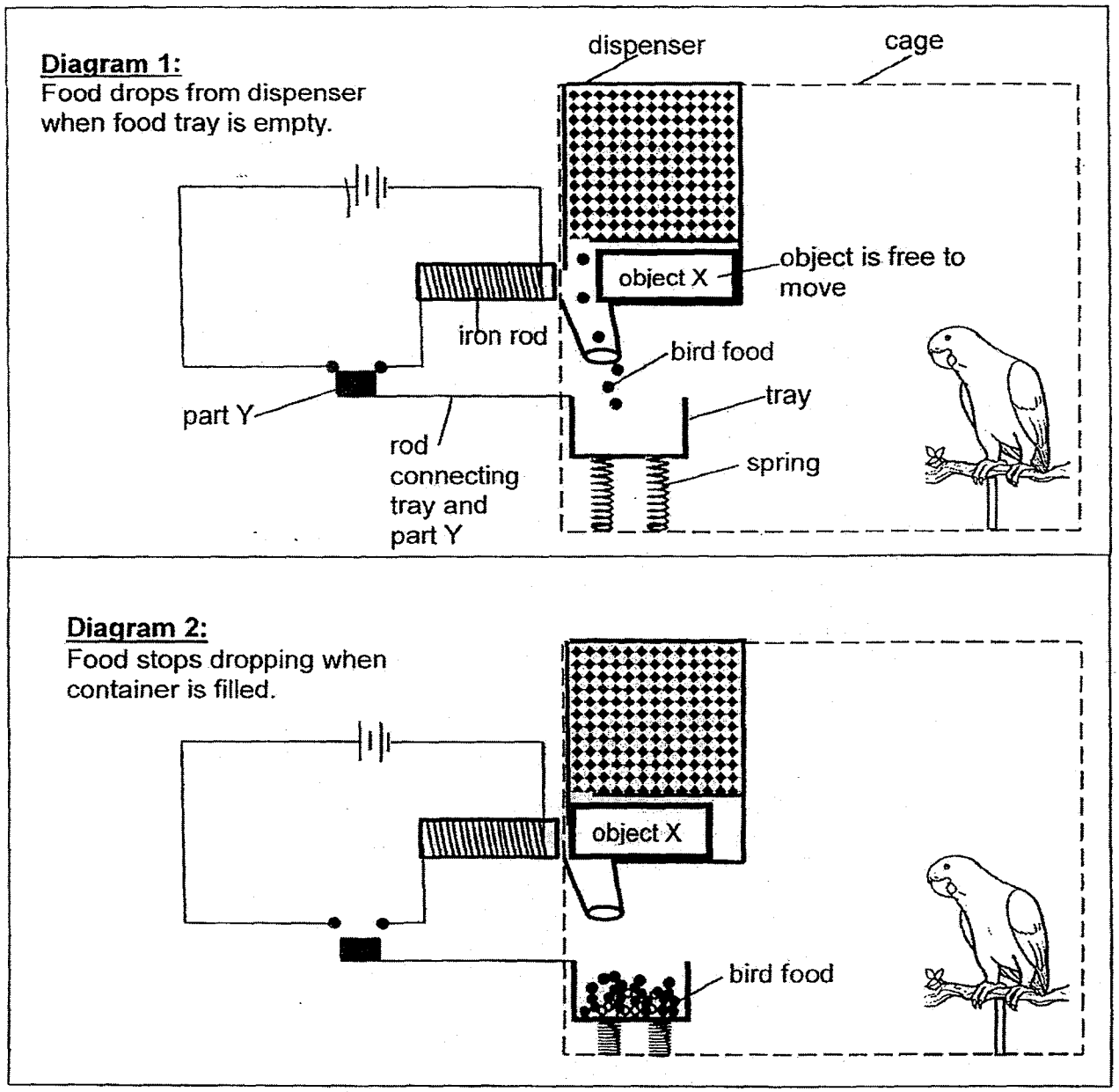
Both the temperature inside and outside the house remained constant. After a while, the word, 'MUM', disappeared as shown below.



(b) Explain why the word written by Martha disappeared after a while. [1]

2

41 Tom designs a set-up which helps him to feed his bird when he is away on holiday.



(a) State the property of the material used to make part Y which allows the set-up to work. [1]

_____

1

(b) Explain how the iron rod becomes an electromagnet when the food tray is empty. [1]

(c) Is object X a magnet, a magnetic material or a non-magnetic material. Explain your answer clearly. [1]

2

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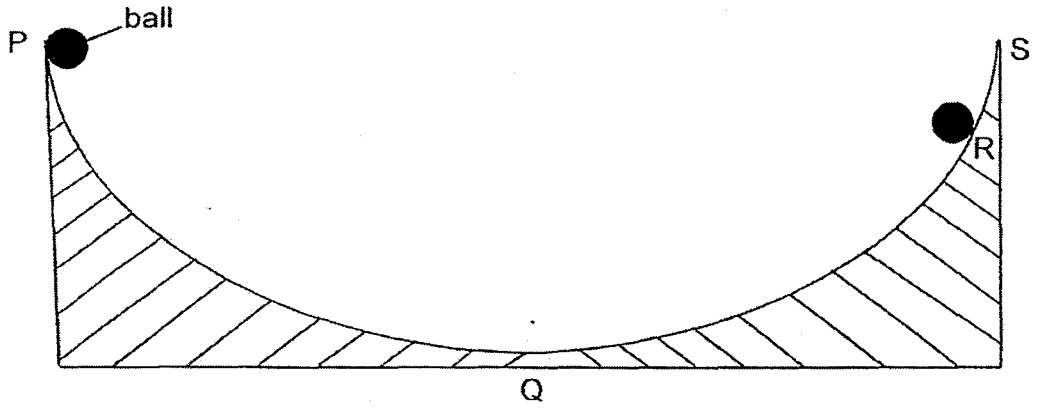
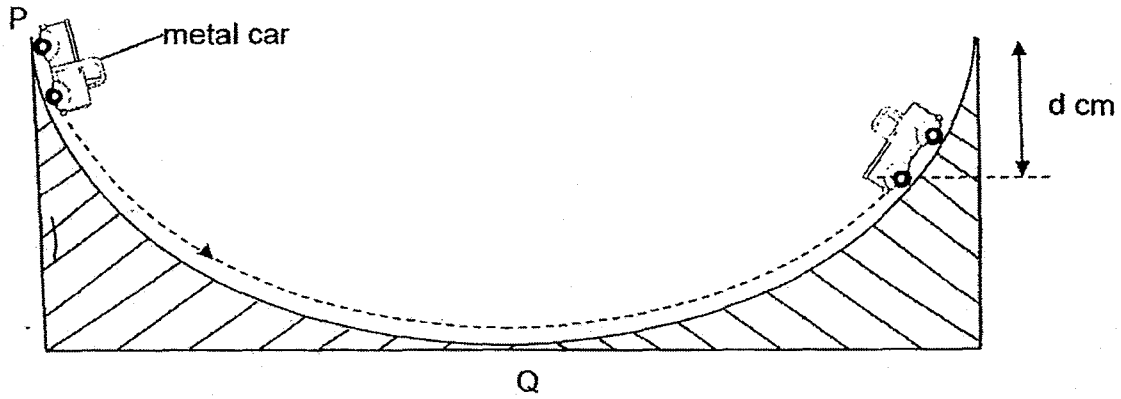
42 Deepa conducted an experiment using the set-up shown below.



She released a ball of mass 20 g at P. The ball only managed to reach R before falling back towards Q. She repeated the experiment several times and obtained the same results.

(a) Deepa's friend told her that releasing a ball of mass 200 g at P, and applying powder on the surface of the ramp would allow the ball to reach a height above S. Is her friend correct? Explain your answer. [1]

Deepa conducted another experiment as shown below.



She applied 5 ml of substance K on the surface of the ramp. She then released the car at P and measured the distance d cm when the car reaches its greatest height above Q. She repeated her experiment with different amounts of substance K. Her results are shown below.

Amount of substance K applied (ml)	5	10	15	20
d (cm)	4	5	6	7

(b) Based on Deepa's results, what is the relationship between the amount of substance K applied and the friction on the car? [1]

_____

_____

(c) Based on Deepa's results, explain why the value of d increases as the amount of substance K applied increases. [1]

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_____

End of Booklet B2

2

PRELIMINARY EXAM PAPER 2017

SCHOOL : METHODIST GIRLS' PRIMARY SCHOOL
SUBJECT : PRIMARY 6 SCIENCE BOOKLET A
TERM : PRELIMINARY EXAMINATION 2017

Booklet A:

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	3	3	3	2	1	2	2	2	3
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	1	1	2	1	2	4	3	1	2
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	4	2	3	4	3	2	3		

End

PRELIMINARY EXAM PAPER 2017

SCHOOL : METHODIST GIRLS' PRIMARY SCHOOL
SUBJECT : PRIMARY 6 SCIENCE BOOKLET B1
TERM : PRELIMINARY EXAMINATION 2017

Booklet B:

29a) The higher the altitude, the lower the percentage of oxygen in the air.

29b) Yes. There is less oxygen present near the top of a tall mountain so the mountain climbers might have insufficient oxygen.

29c) It increased. Mr. Tan needed more oxygen when he was climbing up a mountain so he needed to breathe in at a faster rate to take in sufficient oxygen at the same time, getting rid of carbo dioxide faster.

29d) Mr. Tan needed more oxygen and digested food so his heart had to pump faster to transport more oxygen rich blood and nutrients faster to all parts of the body.

30a) It has chloroplasts to trap sunlight and make food, just like a plant cell.

30b) It does not have a cell wall, just like an animal cell.

30c) It uses chloroplasts to trap sunlight and make food

31a) Each set-up will receive the same amount of light.

31b) Set-up A acts as a control set-up to confirm that the change in the amount of carbon dioxide is due to the presence of organisms in the test tube.

31c) The tubiflex worms gave out carbon dioxide in set-up C but there were no tubiflex worms in set-up B.

31d) Yellow. The hyrdilla cannot trap light and photosynthesis in a dark wooden cupboard so it cannot give out oxygen, thus, the amount of carbon dioxide will increase rapidly.

32a) It's long legs and neck enable it to wade deeper in the water to hunt for more food.

32b) Foot P. Animal F lives near the water and the webbed feet will allow it to move faster.

33a) The fertilisers provided nutrients for the algae in the pond and allow it to grow better.

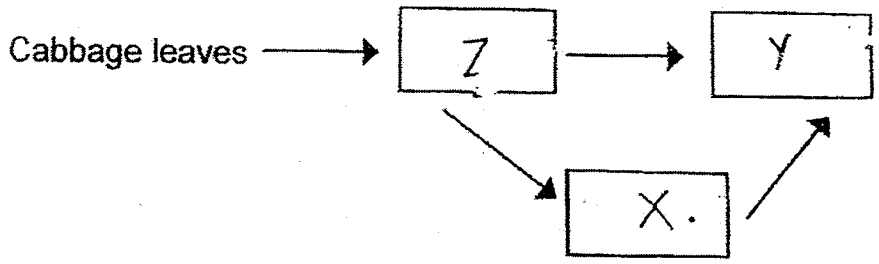
33b) It would decrease. The algae would increase in population and will block sunlight from reaching the fully submerged plants so they would not be able to make food and survive.

34a) The higher the temperature, the greater the number of eggs hatched until the temperature reaches 32°

34b) The temperature was too cold and the eggs needed warmth to germinate.

34c) Decrease. Global warming will cause the Earth's temperature to rise so fewer female than male alligators will be hatched. Thus, there will be a decrease in the chances of fertilization of the eggs in the female alligators so less eggs will be hatched.

35a)



35b) IT will decrease. If the population of cabbage leaves decreases, Z's population will decrease as it will have less food to feed on, X's population will also decrease as it will have less Z to prey on. The population of Y will decrease as it will have less Z and X to prey on.

BOOKLET B2

36a) Kinetic energy → kinetic → kinetic → electrical

36b) It helps to protect the coast line from the destructive action of sea waves.

37a) Z. Z is at gaseous state in a room temperature of 30° so it has no definite volume, thus, it can be stored in a container with a smaller capacity.

37b) She would be able to store Y and not X. Y would be a solid at 30°c so it will have a definite shape and can be stored into the wire mesh basket without escaping. X will be a liquid at 30°c so it will have a definite shape and will escape through the holes of the basket.

38a) Droplets of water gain heat from her face and evaporate, lowering her temperature.

38b) Faster. It will have a greater amount of exposed surfaced area in contact with Wen wen's face so it can gain heat and evaporate faster. Thus, cooling Wen wen's face faster.

38c) The wind from the fan would increase the rate of evaporation of the water droplets.

39a) The cotton wool traps air which is a poorer conductor of heat than water. Hence, heat loss from the water to the surrounding air is slower in set-up Q than B.

39b) The cold water will not take away the heat from its warm body when the cold water gains heat and evaporate so less heat will be conducted away from animal J.

39c) Air is a poor conductor of heat and since the hollow space traps a layer of air, it helps to reduce heat gain by the house from the surrounding air. Thus, houses would be kept cooler and less energy would be used by cooling devices.

40a) Outside. When the warm water vapour outside the house came into contact with the cool outer surface of the window, it lost heat and condensed to form water droplets so Martha could write on it.

41a) It is a conductor of electricity.

41b) When the food tray is empty, the length of the spring increase, causing part Y to be connected to the circuit. A closed circuit will be formed, allowing electricity to flow through and cause the iron rod to become an electromagnet.

41c) A magnet. When the iron rod becomes an electromagnet, object X and the iron rod's like poles will face each other, thus, causing repulsion to take place so bird food from the dispenser will drop into the tray.

42a) No. Some of the gravitational potential energy is converted to heat and sound energy as it moved from P to Q and so the ball can never reach a height above S.

42b) The greater the amount of substance K applied, the greater the fiction on the car.

42c) As the amount of K increases, more gravitational potential energy is converted to heat and sound energy and less kinetic energy is available for the car.

END

END.