新加坡福建会馆属下五校小六统一考试

道南 • 爱同 • 崇福 • 南侨 • 光华

SINGAPORE HOKKIEN HUAY KUAN
5-SCHOOL COMBINED PRIMARY 6 PRELIMINARY EXAMINATION
TAO NAN • AI TONG • CHONGFU • NAN CHIAU • KONG HWA

2016

科学 SCIENCE

BOOKLET A

Date : 4 August 2016
Total Time for Booklets A and B : 1 h 45 min

INSTRUCTIONS TO CANDIDATES

- ✓ Write your school's name, name, register number and class.
- ✓ Do not open this booklet until you are told to do so.
- ✓ Follow all instructions carefully.
- ✓ Answer all questions.

This booklet consists of 23 pages, excluding the cover page.

Parent's Signature
Date:

School : _____

Name : _____

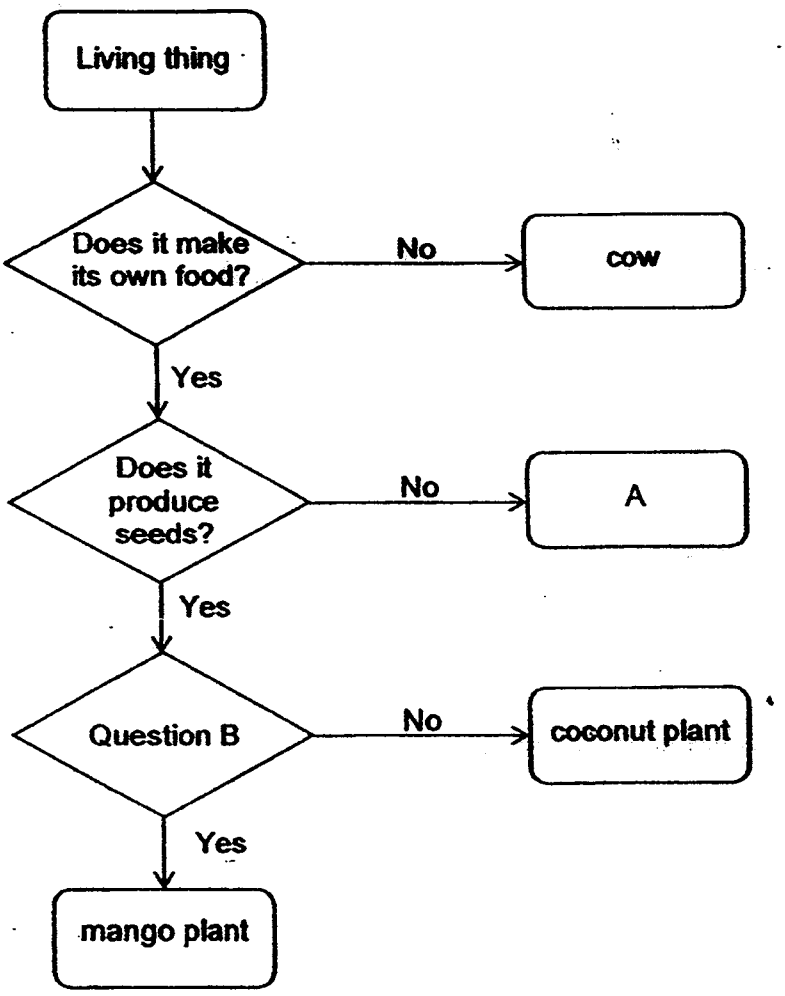
Class : _____

TOTAL	/ 60

Section A (30 x 2 marks)

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. **Study the chart below.**



Which of the following is correct?

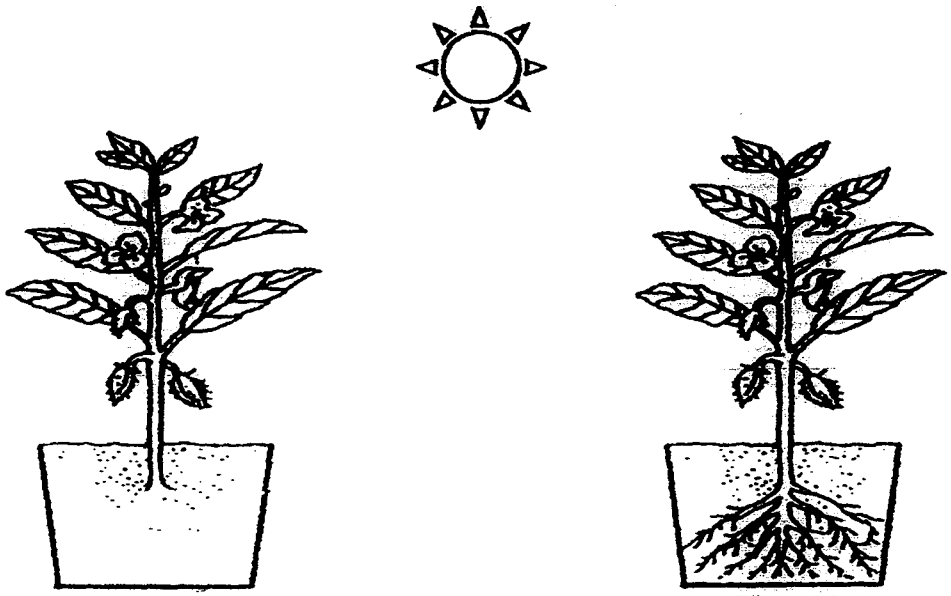
	A	Question B
(1)	fungi	Does it grow in water?
(2)	fungi	Does it have seeds dispersed by animals?
(3)	fern	Does it grow in water?
(4)	fern	Does it have seeds dispersed by animals?

2. Tom observed that insect A has a 3-stage life cycle while insect B has a 4-stage life cycle.

Which of the following is definitely true about the two insects?

(1) Insect A lives for a shorter time than insect B.
(2) Both insects have an egg stage in its life cycle.
(3) The young of both insects A and B resemble the adult.
(4) The young of both insects live in the same habitat as their adults.

3. The diagram below shows plant X and plant Y. Plant X had its roots removed but not plant Y. Even though the plants were both watered daily, it was observed that plant X eventually died.



Which one of the following explains why plant X died?

(1) Plant X did not get enough water.
(2) Plant X did not get enough sunlight.
(3) There were no water-carrying tubes in plant X.
(4) There were no roots to store the food made by the leaves in plant X.

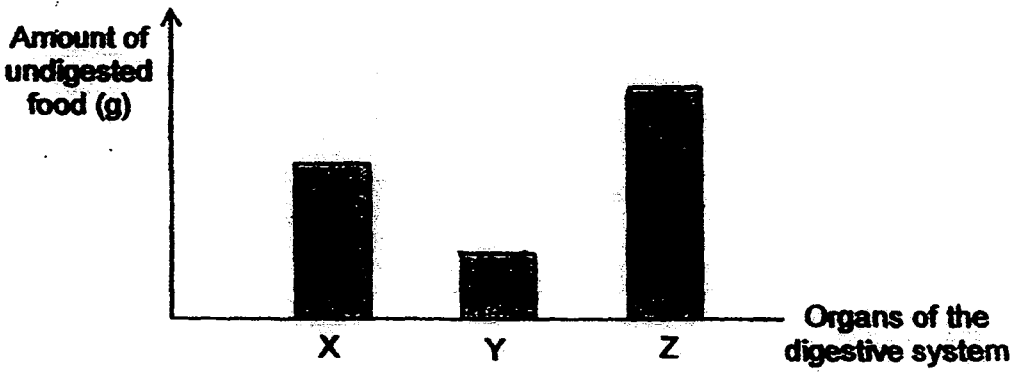
4. The following table shows a comparison of parts in the reproductive systems of humans and flowering plants.

	In humans	In flowering plants
Part that contains female reproductive cells	ovary	A
Part that contains male reproductive cells	testis	B

What do A and B in the table represent?

	A	B
(1)	egg	pollen grain
(2)	style	filament
(3)	ovule	pollen grain
(4)	ovary	sperm

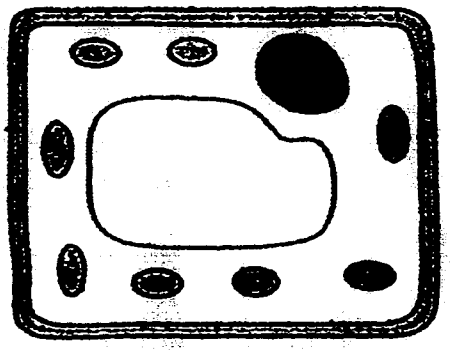
5. The graph below shows the amount of undigested food in different organs of the human digestive system just before it travels to the next organ of the system after a person has eaten some food.



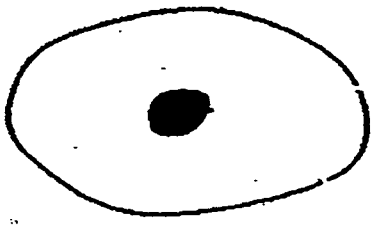
Which one of the following correctly identifies organs X, Y and Z?

	X	Y	Z
(1)	gullet	stomach	small intestine
(2)	small intestine	mouth	large intestine
(3)	large intestine	stomach	mouth
(4)	stomach	large intestine	gullet

6. The following cells, taken from two multi-cellular organisms, were observed under the microscope.



Cell A

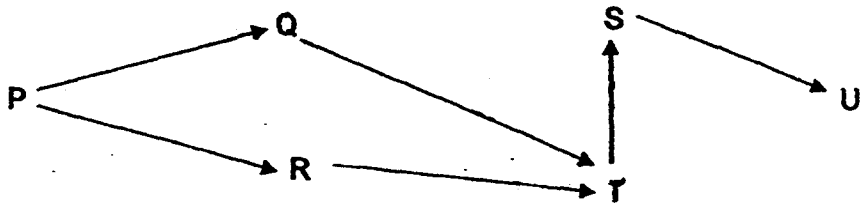


Cell B

Based on the diagrams, which of the following shows a correct comparison between Cell A and Cell B?

	Cell A	Cell B
(1)	has cell membrane	does not have cell membrane
(2)	has chloroplasts	does not have chloroplasts
(3)	has cell wall	has cell wall
(4)	has cytoplasm	does not have cytoplasm

7. The diagram below shows a food web.



A sudden disease killed all the organisms T.

Which of the following correctly shows what would first happen to the populations of the other organisms after all of T died?

	Organism	What would first happen to the population?
(1)	P	Increase
(2)	R	Decrease
(3)	S	Decrease
(4)	U	Increase

8. The following are statements about the adaptations of some animals.

A Snow birds ruffle up their feathers to trap air.

B The elephant flaps its ears to keep itself cool.

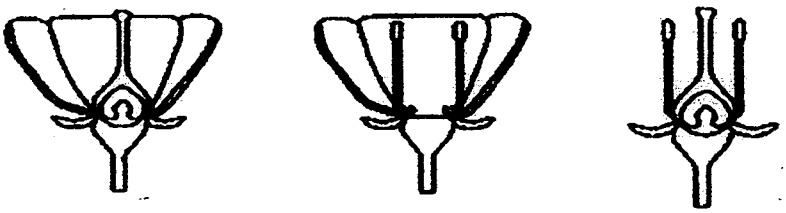
C Long eyelashes help shield the camel from the blowing sand in the desert.

D Penguins huddle close together to keep themselves warm.

Which of the following shows how the above adaptations can be classified?

	Behavioural adaptation	Structural adaptation
(1)	A, B	C, D
(2)	A, B, D	C
(3)	C	A, B, D
(4)	B, C	A, D

9. Pollen grains from flowers of the same kind were dusted over flowers A, B and C.

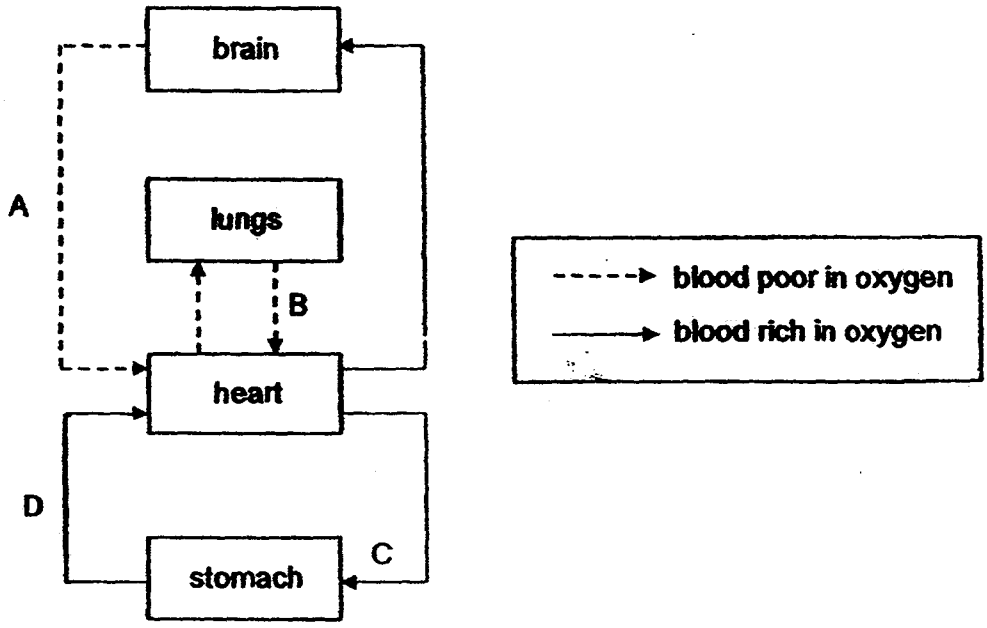


A B C

Which of the above flower(s) would develop seeds?

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

10. The diagram below shows how blood flows in the human circulatory system.



Which two arrows were <u>not</u> drawn correctly?

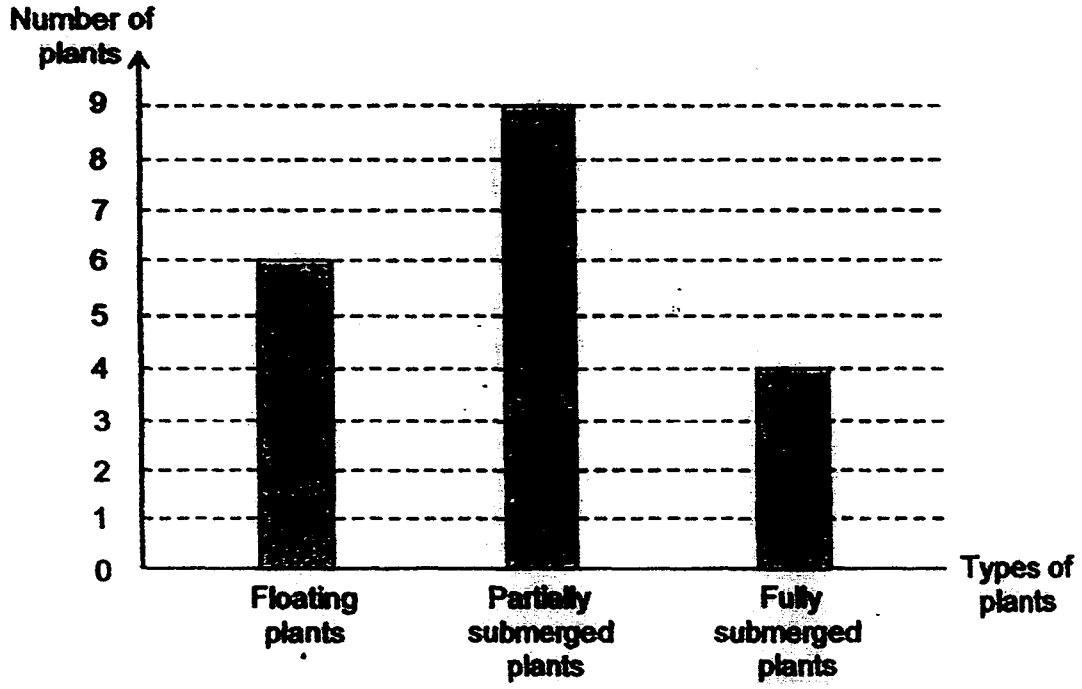
(1) A and B only
(2) B and D only
(3) B and C only
(4) C and D only

11. A group of people was trapped inside a small room which had no windows.

Which one of the following correctly shows the changes in the composition of gases and the temperature in the room over time?

	Amount of oxygen	Amount of water vapour	Temperature in the room
(1)	increased	decreased	decreased
(2)	increased	increased	increased
(3)	decreased	increased	increased
(4)	decreased	increased	decreased

12. A group of students counted the number of plants found in a pond. Based on their findings, they plotted a bar graph as shown below.



Based on the bar graph above, which one of the following statements is definitely true?

(1) There are 19 populations of plants.
(2) There are 4 fully submerged plants.
(3) There are 3 communities in the pond.
(4) There are only 3 populations of plants.

13. Plants adapt themselves in many ways in order to survive.

Which of the following **does not** give the correct reason for the adaptation stated?

	Adaptation of plants	Reason
(1)	needle-like leaves	To reduce water loss
(2)	deep roots	To reach for more water in dry habitats
(3)	strong woody stems	To hold up branches and leaves to get more sunlight
(4)	twining stems	To ensure more water moves up the water-carrying tubes of the stems

14. Which of the following would occur if reforestation is carried out?

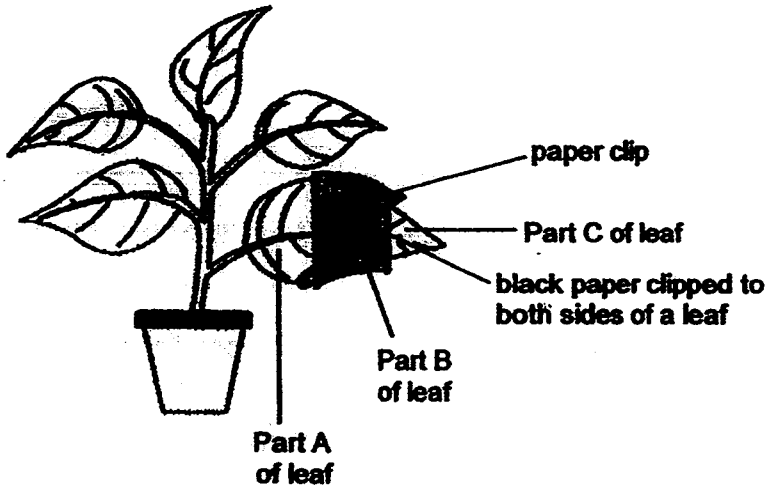
A Organisms living in the forest would lose their habitats.

B The amount of carbon dioxide in the air would decrease.

C Less soil erosion occurs to affect the nearby rivers and lakes.

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

15. Sally has a plant that was left in a dark cupboard for 48 hours. She then placed the plant under bright light for another 48 hours.



Parts A, B and C of the leaf were tested for starch using iodine solution. Iodine solution turns from yellowish brown to dark blue in the presence of starch.

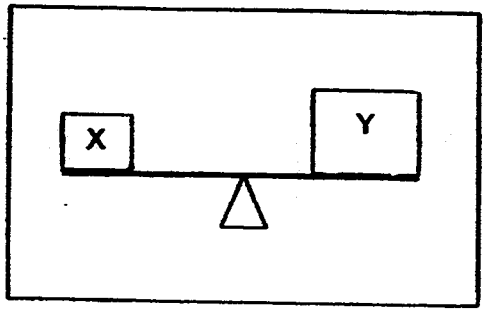
Which of the following shows the correct observations she would make?

	Part(s) of the leaf	Colour of iodine solution
(1)	only B	turns dark blue
(2)	only B and C	remains yellowish brown
(3)	only A and C	turns dark blue
(4)	A, B and C	remains yellowish brown

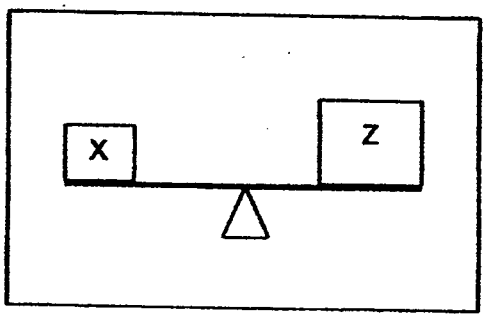
16. Solids X and Y are made of the same material. Solid Z is made of a different material.

Which of the following is <u>not</u> possible?

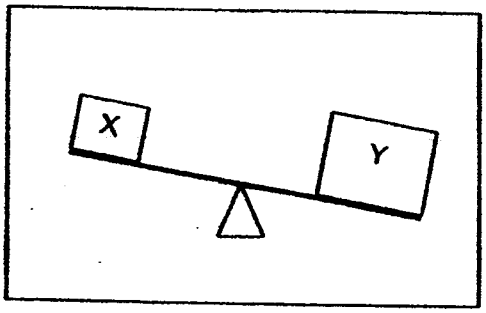
(1)



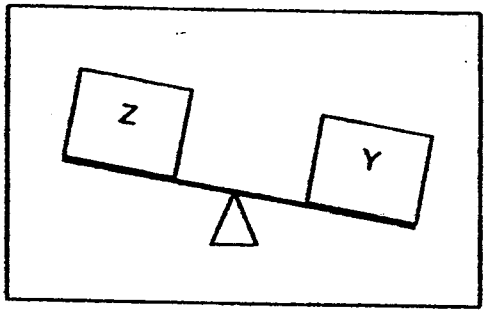
(2)



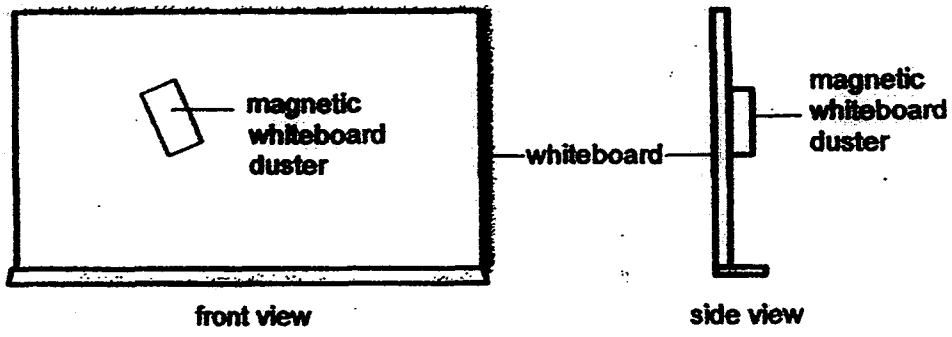
(3)



(4)



17. The diagram below shows the front and side view of a magnetic whiteboard duster resting on a whiteboard. The magnetic whiteboard duster has a magnet in it while the whiteboard is made of a magnetic material.



What forces are acting on the whiteboard duster?

A frictional force

B magnetic force

C gravitational force

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

18. Which of the following objects have frictional force acting on them?

A A ball rolling down a slope

B A kite being flown in the sky

C A stationary book on the floor

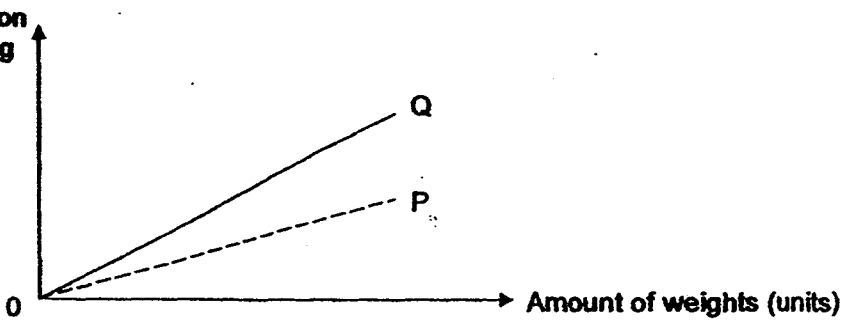
D A goldfish swimming in an aquarium

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

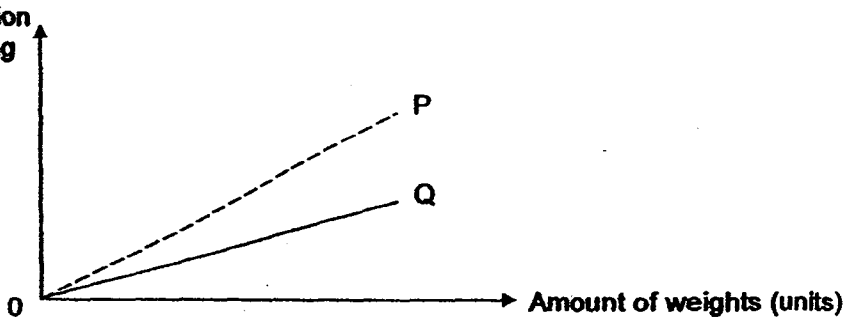
19. Mark had two springs P and Q of the same original length but of different elasticity. Spring P was more elastic than spring Q.

Which of the following graphs correctly shows how springs P and Q extend when increasing amounts of weights are added to them?

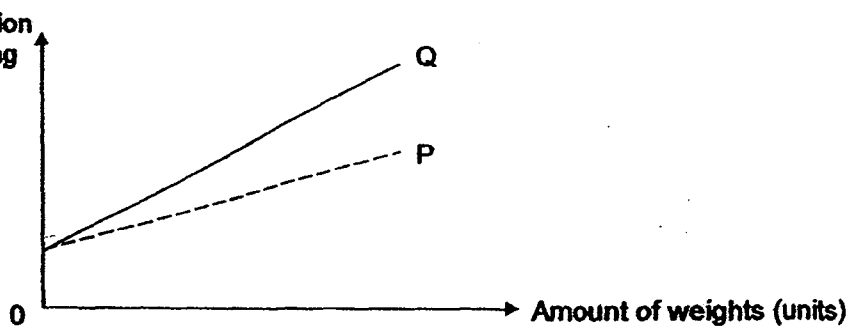
(1)



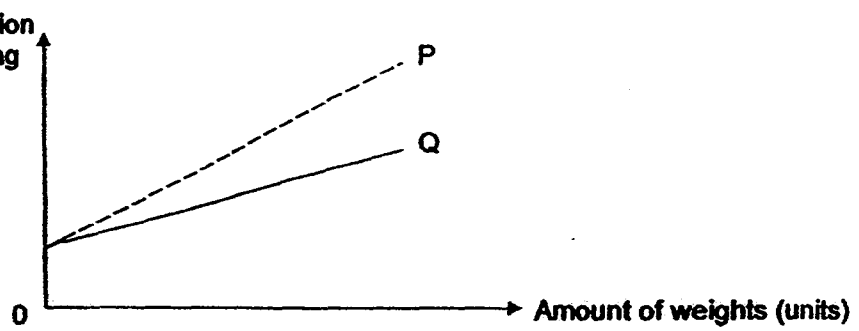
(2)



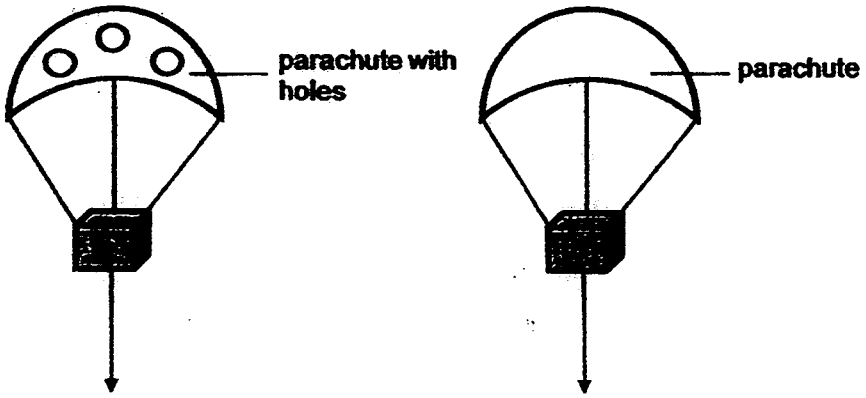
(3)



(4)



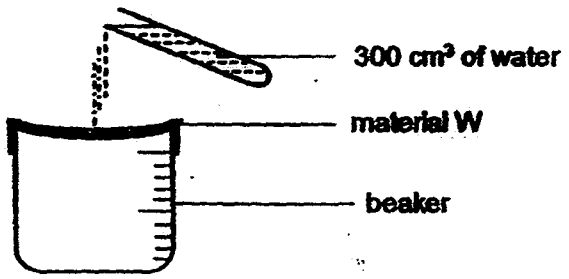
20. The diagram below shows two similar objects A and B being released from the same height.



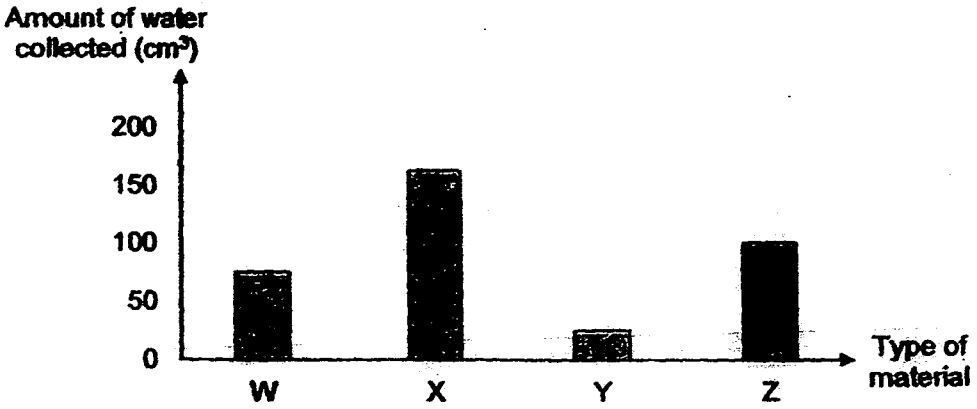
Which one of the following correctly explains why object A falls faster than object B?

(1) More gravitational force is acting on object A.
(2) More air is pushing down on the parachute of object A.
(3) Less force is acting upwards on the parachute of object A.
(4) There was more potential energy in object A than object B before they were released.

21. A piece of material W was wrapped completely over the mouth of an empty beaker as shown in the diagram below. 300 cm^3 of water was poured onto the material.

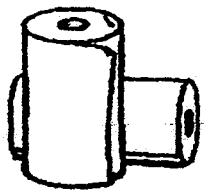


The amount of water collected in the beaker was recorded in the graph below. The experiment was then repeated for materials X, Y and Z which were of similar size and thickness as material W.



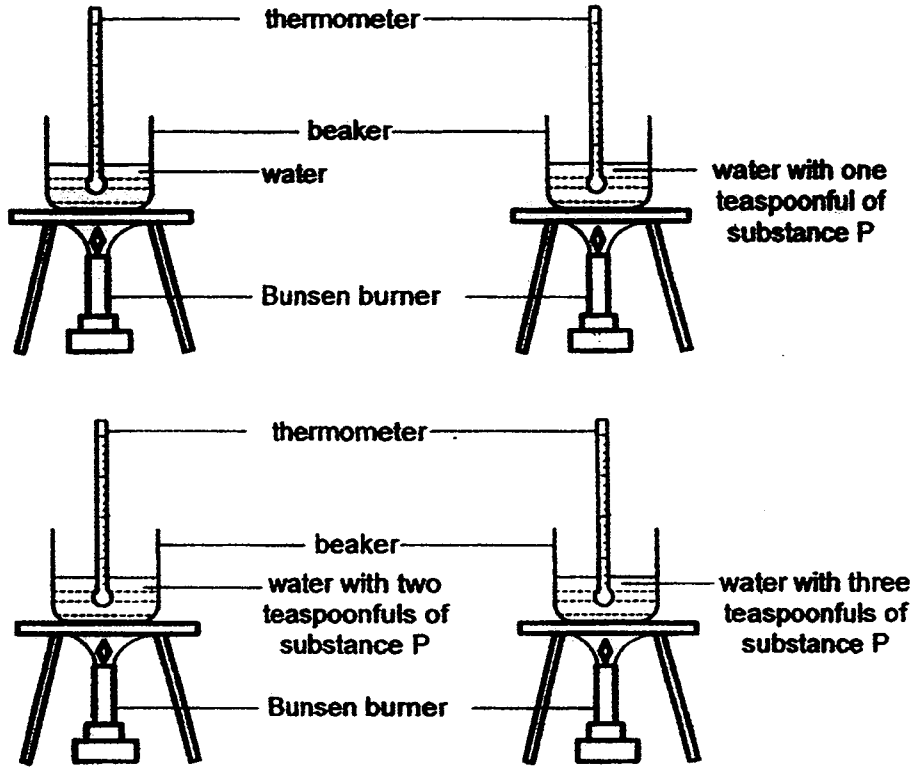
For all four materials, it was observed that no water was collected on the top of each material at the end of the experiment.

Based on the graph, which material, W, X, Y or Z, do you think is most suitable to make kitchen towels used to clean up wet spills quickly?



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

22. Grace had four set-ups as shown below. She heated each beaker of water until its boiling point was reached.



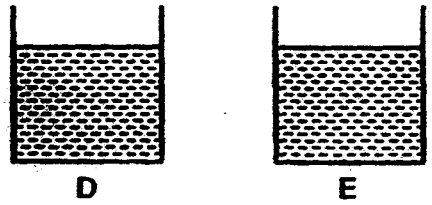
Grace recorded the boiling point of water in the table below.

Number of teaspoonfuls of substance P	Boiling point (°C)
0	100
1	103
2	107
3	110

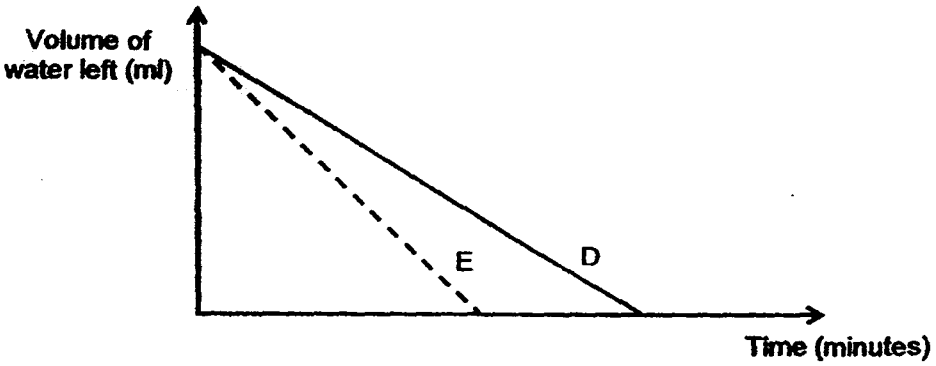
Which of the following statements is correct?

(1) The boiling point of water is not affected by substance P.
(2) Adding more substance P to the water increases the boiling point of water.
(3) The more amount of substance P added, the lower the boiling point of water.
(4) As the boiling point of water increases, the amount of substance P added increases.

23. Siti filled two identical containers D and E with an equal amount of water. The containers of water were left to evaporate at different conditions.



She measured the volume of water left in each container every 10 minutes until all the water had evaporated. She then plotted the graph below.



Based on the results above, which of the following statements about the evaporation of water in containers D and E could be true?

A Container E was placed in a more windy location than container D.

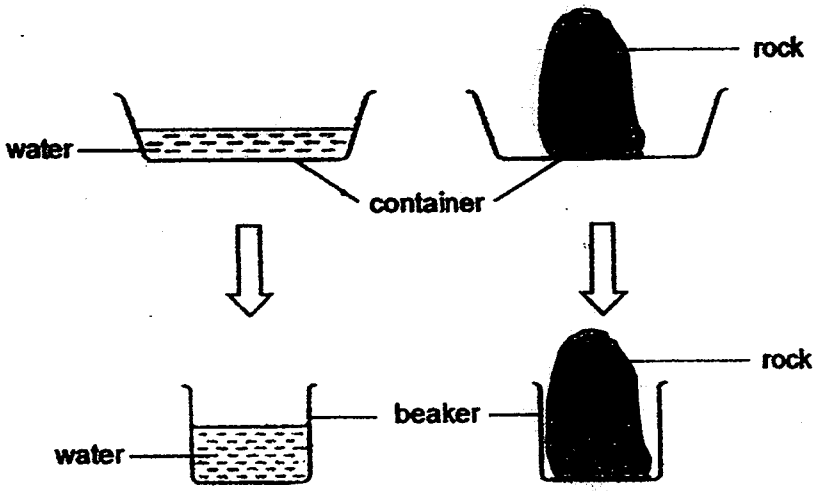
B The amount of exposed surface area for container E is more than container D.

C There was more sunlight in the location where container D was placed than container E.

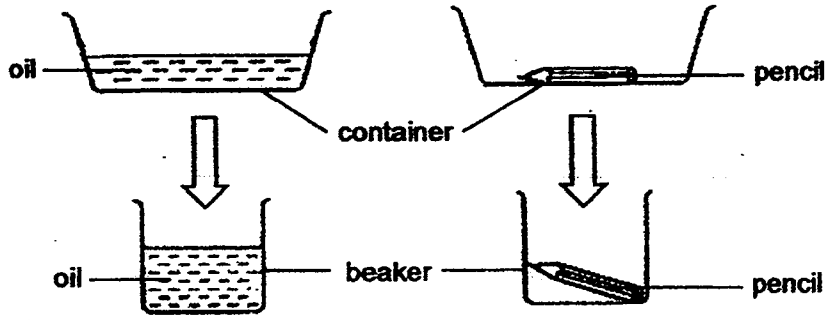
D The temperature of water in container E was higher than the temperature of water in container D.

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

24. Gary poured some water into a container and placed a rock into another identical container. He then poured the water from the container into a beaker and placed the rock into an identical beaker as shown in the diagram below.



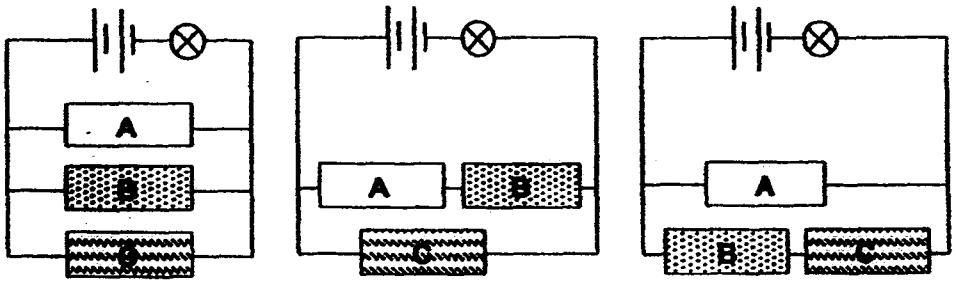
He repeated the experiment with oil and a pencil as shown below.



Based only on the experiments above, what can Gary conclude about the property of liquids and solids?

(1) Both liquids and solids have mass.
(2) Liquids always take up more space than solids.
(3) Liquids do not have a definite volume but solids have.
(4) Liquids take the shape of its container but solids do not.

25. Each of the circuits below has rods A, B and C connected to it. All the batteries and bulbs are new.

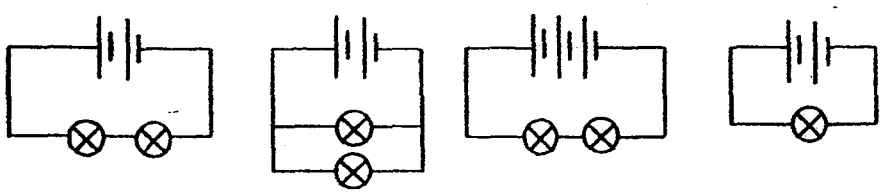


circuit P circuit Q circuit R

The bulb in circuits P and R lit up but the bulb in circuit Q did not light up. Which one of the following is correct?

	Electrical Insulator	Electrical Conductor
(1)	A	B and C
(2)	A and B	C
(3)	B and C	A
(4)	C	A and B

26. Tim wanted to find out if the arrangement of bulbs affects the brightness of the bulbs. He set up four circuits W, X, Y and Z as shown below with new batteries and bulbs.

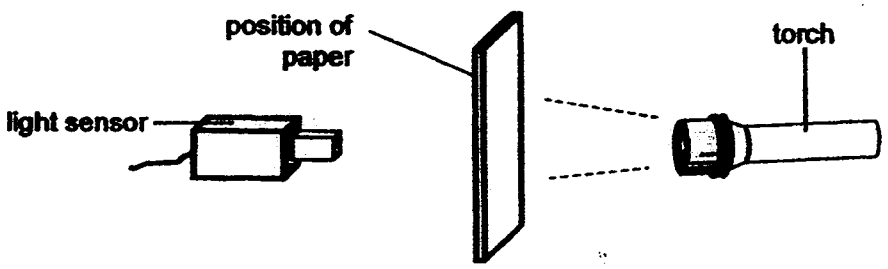


circuit W circuit X circuit Y circuit Z

Which pair of circuits should Tim use to carry out his investigation?

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

27. Vasan wanted to find out if the number of pieces of paper would affect the amount of light that could pass through it. He set up an experiment as shown below.



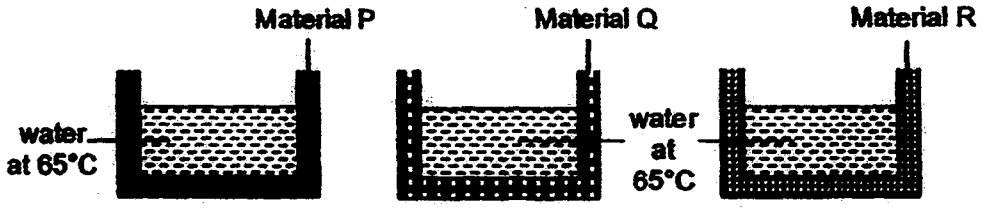
He increased the number of pieces of paper each time and recorded the amount of light that passed through in the following table.

Number of pieces of paper	Amount of light detected (units)
0	48
2	33
4	24
6	12
8	0
10	0

Based on the information Vasan collected, which of the following is definitely true?

(1) Seven pieces of paper did not allow any light to pass through.
(2) The amount of light detected for nine pieces of paper would be 0 units.
(3) The number of pieces of paper did not affect the amount of light passing through.
(4) As the number of pieces of paper increased, the amount of light blocked decreased.

28. Jia Qi wrapped three similar glass containers with three different types of materials, P, Q and R. She poured the same amount of water at 65°C into them as shown in the diagram below.



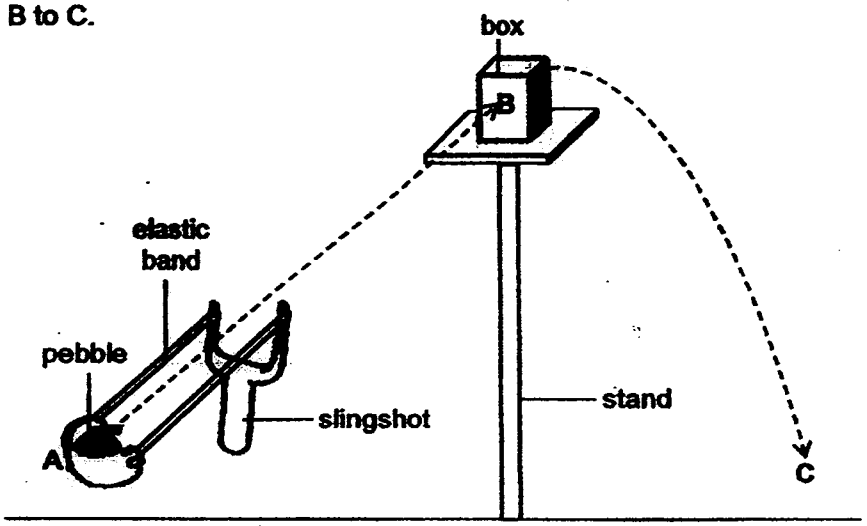
After 30 minutes, she measured the temperature of the water in each container and recorded her findings in the following table.

Material used to wrap the glass container	Temperature at the start of the experiment (°C)	Temperature after 30 minutes (°C)
P	65	55
Q	65	40
R	65	37

Based on the above information, which material is most suitable for Jia Qi to make a food bag that would keep her food warm and a cooler bag that would keep her drinks cold for the longest time?

	Material suitable for making the	
	food bag	cooler bag
(1)	P	R
(2)	R	P
(3)	Q	R
(4)	P	P

29. John set up the experiment as shown below. He pulled the elastic band backwards and upon releasing the band, the pebble moved upwards towards the box from A to B to hit it off the stand. The box then moved from B to C.



Which of the following correctly shows how the amount of energy possessed by the pebble and box changes?

	Amount of potential energy in the pebble from A to B	Amount of kinetic energy in the box from B to C
(1)	Increases	Increases
(2)	Increases	Decreases
(3)	Decreases	Decreases
(4)	Decreases	Increases

30. The diagram below shows a battery-operated toy car. When the toy car is switched on, it moves.

Which of the following correctly shows the energy conversion taking place when the toy car moves?

(1) potential energy → kinetic energy

(2) kinetic energy → electrical energy

(3) potential energy → electrical energy → kinetic energy

(4) electrical energy → potential energy → kinetic energy

Name: _____

Anatomy of a Flower

stamen
male part of a flower

carpel (pistil)
female part of a flower

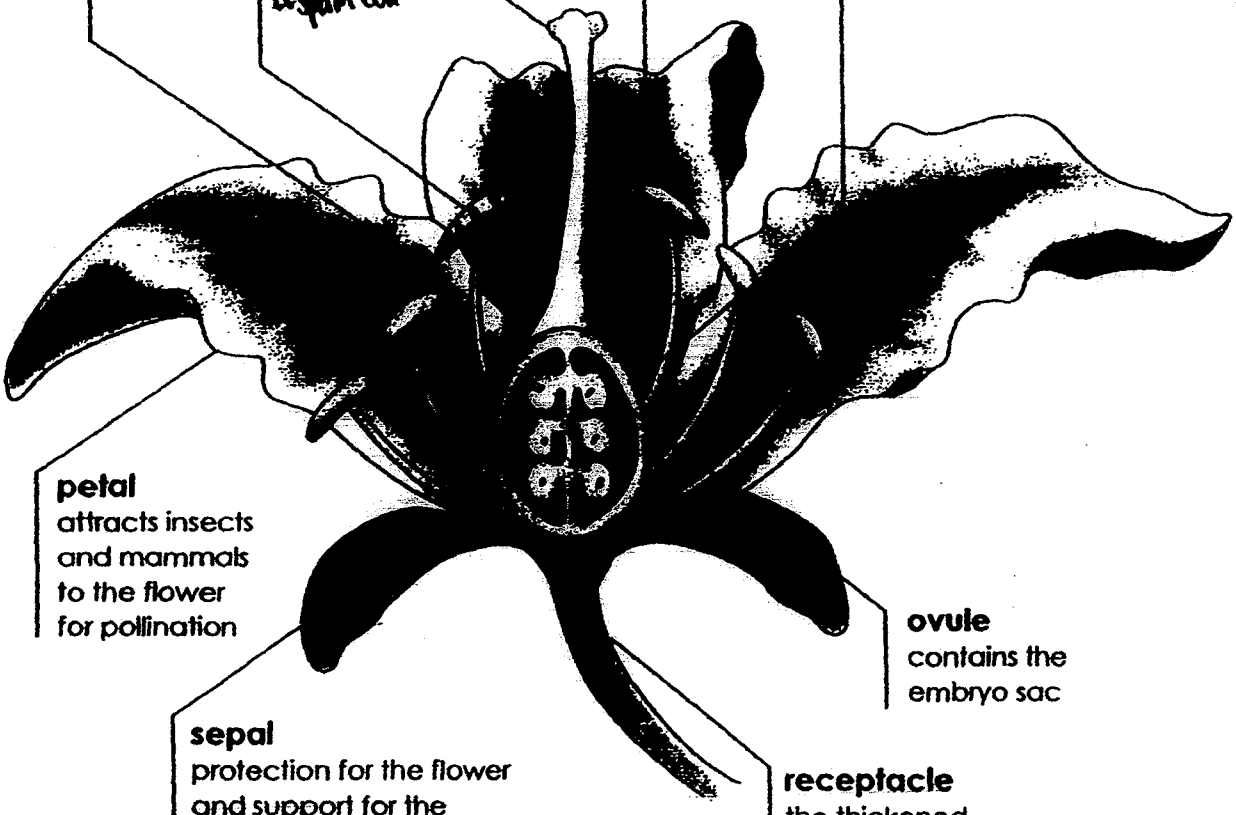
filament
holds up the anther

anther
produces pollen grains
contains sperm cell

stigma
catches pollen

style
connects the stigma to the ovary

ovary
stores the ovule or ovules



petal
attracts insects and mammals to the flower for pollination

sepal
protection for the flower and support for the petals when in bloom

ovule
contains the embryo sac

receptacle
the thickened part of a stem

新加坡福建会馆属下五校小六统一考试

道南 • 爱同 • 崇福 • 南侨 • 光华

SINGAPORE HOKKIEN HUAY KUAN

5-SCHOOL COMBINED PRIMARY 6 PRELIMINARY EXAMINATION

TAO NAN • AI TONG • CHONGFU • NAN CHIAU • KONG HWA

2016

科学 SCIENCE

BOOKLET B

Date : 4 August 2016

Total Time for Booklets A and B : 1 h 45 min

INSTRUCTIONS TO CANDIDATES

- ✓ Write your school's name, name, register number and class.
- ✓ Do not open this booklet until you are told to do so.
- ✓ Follow all instructions carefully.
- ✓ Answer all questions.

This booklet consists of 16 pages, excluding the cover page.

School : _____

Name : _____

Class : _____

TOTAL	/ 40

Section B: 40 marks

For questions 31 to 44, write your answers in this booklet.

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

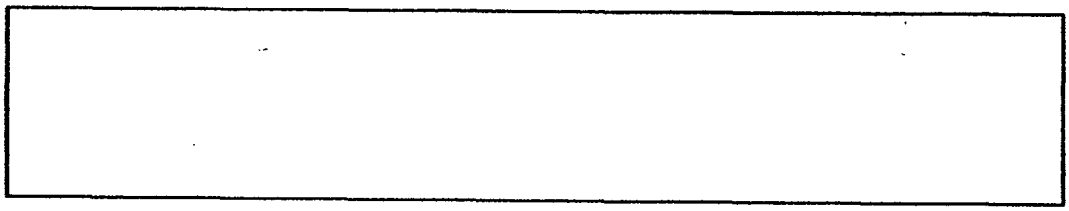
31. **The picture below shows a cat that is about to pounce on a mouse. The mouse is trying to eat a piece of wheat grain.**

(a) State one characteristic of living things that is demonstrated in the above picture. [1]

_____

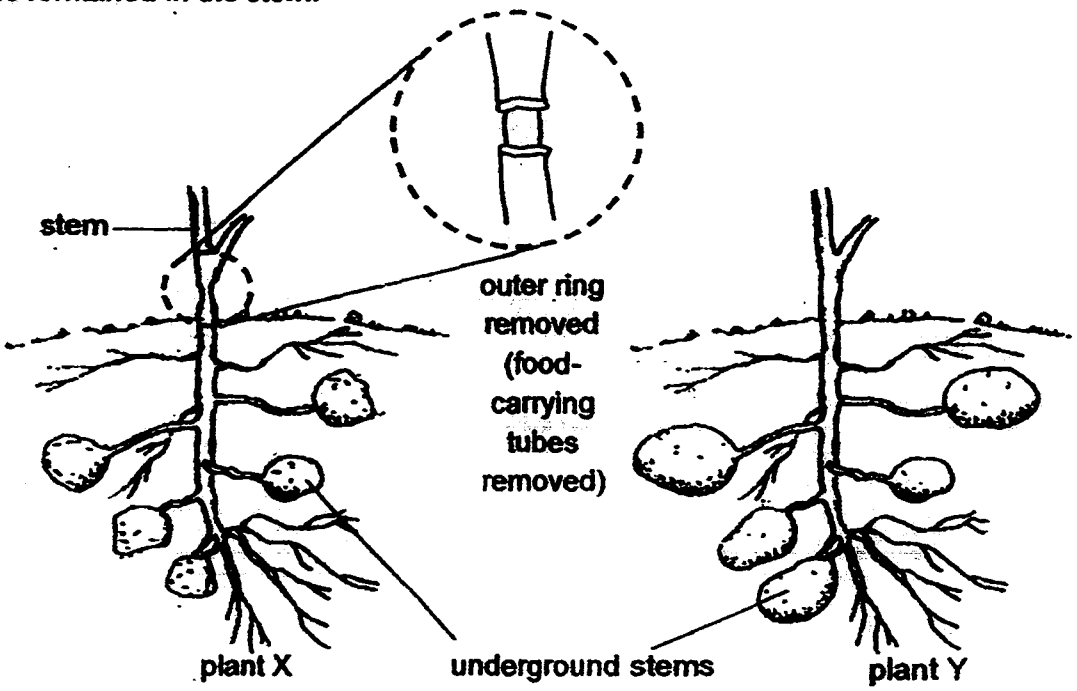
_____

(b) Draw the food chain that shows the food relationship between the wheat grain, cat and mouse in the box provided below. [1]



2

32. James carried out an experiment using two similar plants, X and Y, which store food in their underground stems. He removed the outer ring of the stem of only plant X as shown below, such that the food-carrying tubes were removed but the water-carrying tubes remained in the stem.



(a) After some time, James noticed that the underground stems of plant X did not grow as big as those of plant Y. Suggest a reason why. [1]

_____

_____

(b) The roots of plant X eventually died. Suggest a reason why. [1]

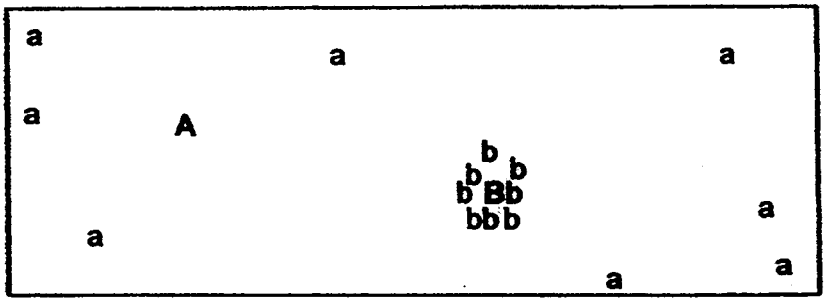
_____

_____

_____

2

33. The following diagram shows the dispersal pattern of the fruits/seeds of two plants, A and B.



Key	
A	Parent plant A
a	Seedling of A
B	Parent plant B
b	Seedling of B

(a) Match the plants, A and B, to the correct description of their fruit in the table below. [1]

Description of fruit	Plant
(i) Has stiff hairs	
(ii) Has fruit walls that split open when it dries up	

The diagram below shows three fruits with different amount of its wing-like structure still attached to it.

Fruit X

Fruit Y

Fruit Z

Julia dropped each fruit from the same height and recorded the time taken for each fruit to reach the ground. The experiment was repeated three times and the readings were recorded in the table below.

(b) Fill in the blanks in the boxes below with the correct letter, X or Z. Fruit Y has been done for you. [1]

	i) Fruit _____	ii) Fruit _____	Fruit Y
1st reading	2.9 s	6.5 s	4.2 s
2nd reading	2.3 s	6.8 s	4.6 s
3rd reading	2.7 s	7.0 s	4.4 s

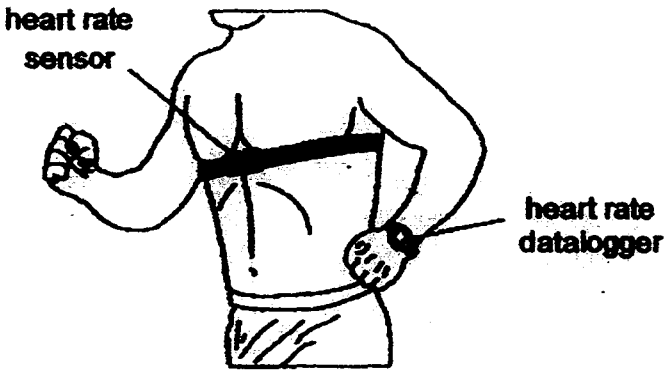
(c) Explain how repeating the experiment three times for each fruit ensures that the results are more reliable. [1]

_____

_____

3

34. John used a sensor to measure his heart rate before he started jogging.



He started jogging and continued to measure his heart rate every five minutes.

(a) John observed that his heart rate increased as he was jogging. Give an explanation for his observation. [2]

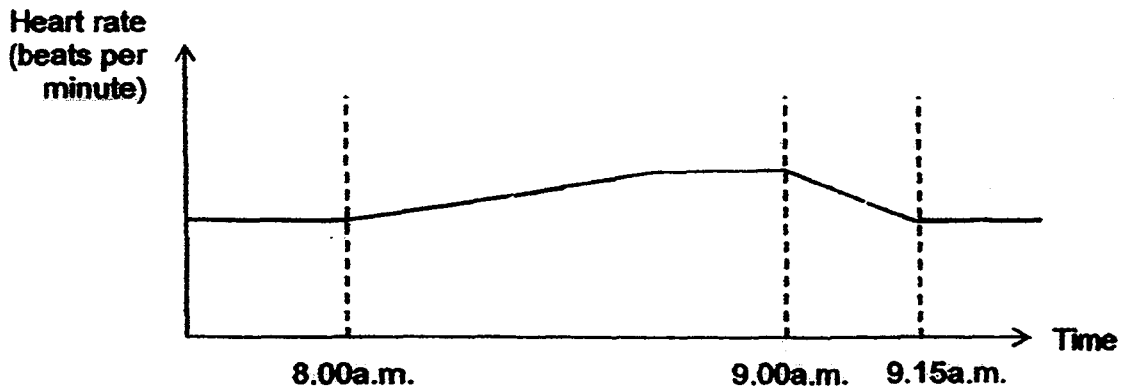
_____

_____

_____

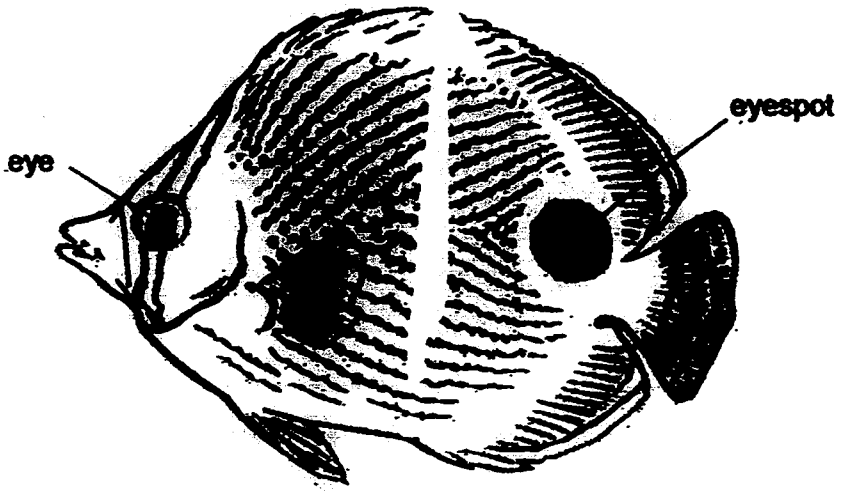
(b) John started jogging at 8.00a.m. and stopped at 9.00a.m.

The graph below shows John's heart rate before 8.00a.m. and after 9.15a.m.. Draw in the missing part of the graph below to show how John's heart rate changes from 8.00a.m. to 9.15a.m.. [1]



3

35. The diagram below shows an adaptation of animal P known as eyespots. Eyespots are rounded eye-like markings on an animal, usually bigger than the actual eyes of the animal.



(a) Explain how the presence of eyespots help increase the chances of survival of animal P. [1]

_____

_____

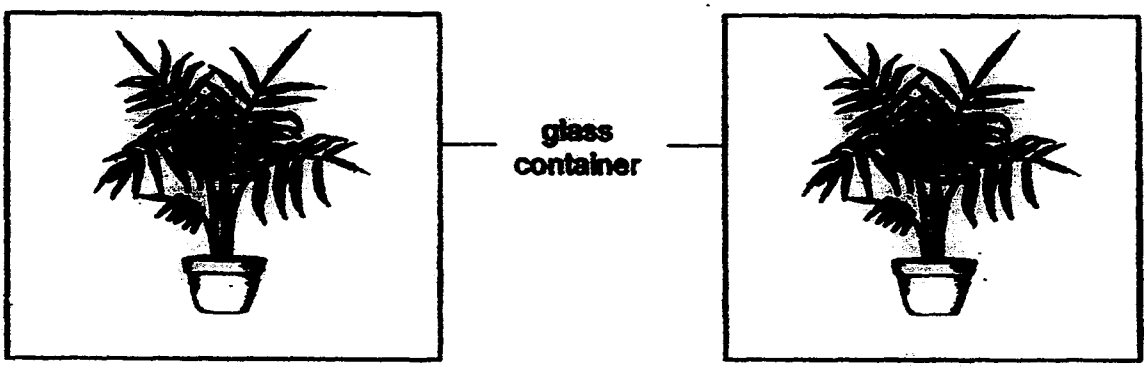
(b) What is another structural adaptation that animal P has which would help it escape from its predators and explain how it helps? [1]

_____

_____

2

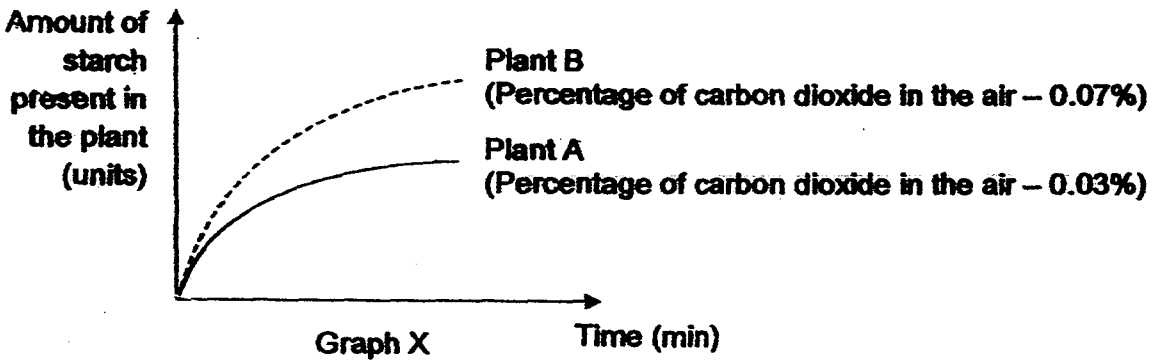
36. Halim carried out two experiments using two similar plants, A and B, as shown below. Both plants had no starch at the start of the two experiments.



Plant A Plant B

In the first experiment, the two plants were placed in the same location under the sun. However, more carbon dioxide was added into the glass container for plant B than for plant A.

Graph X shows the results of the first experiment.



Graph X

(a) Explain why plant B had more starch present in it than plant A over the same period of time. [1]

_____

_____

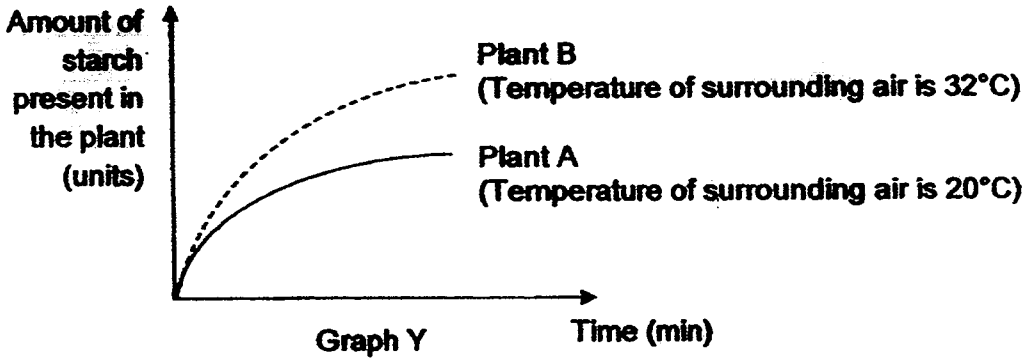
Continuation of Q36 on the next page

1

Q36 continues.

In the second experiment, both plants had the same amount of carbon dioxide in their glass containers. The intensity of light shining on both plants was also kept the same. However, they were placed at different locations with different temperatures.

Graph Y shows the results of the second experiment.



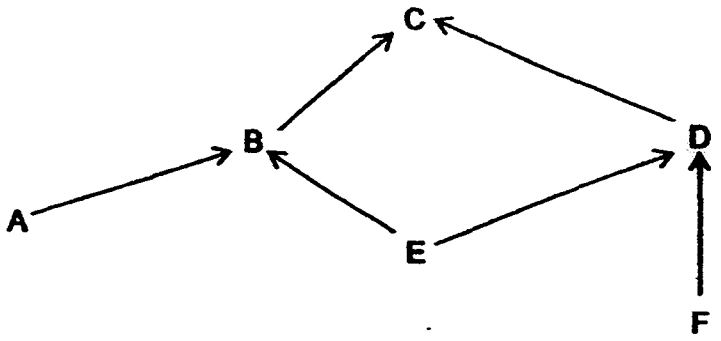
Graph Y

(b) From graph Y, what is the relationship between temperature of the surrounding air and amount of starch present in the plant? [1]

(c) The number of leaves of plants A and B were kept the same in both experiments. Explain how this factor would affect the amount of starch present in plants? [2]

3

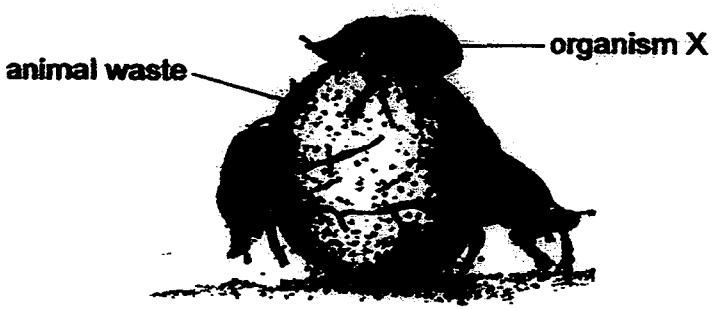
37. The diagram below shows a food web in a community.



(a) Identify all the food producers in the food web above. [1]

(b) Explain why food producers are the most important organisms in the food web? [1]

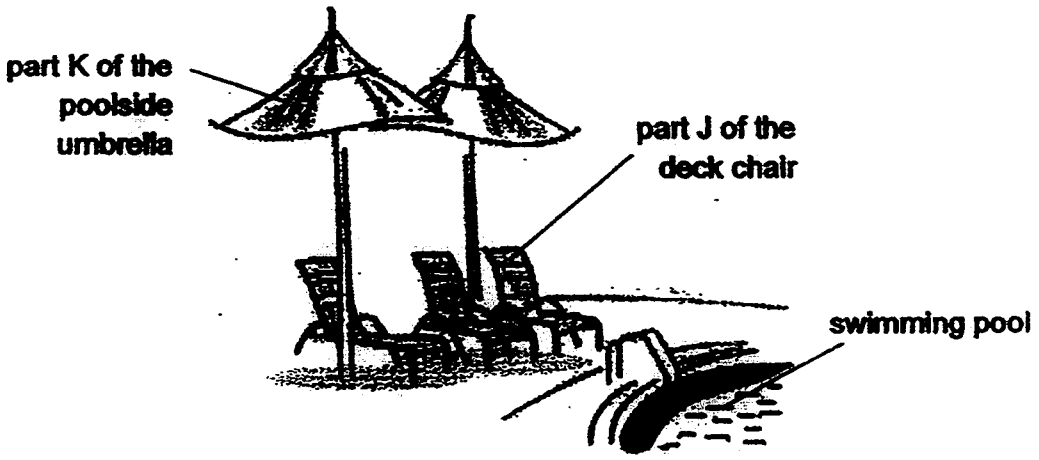
(c) The diagram below shows three organism X feeding on a ball of animal waste.



Explain how the introduction of organism X into the above community would help in the growth of the food producers. [2]

4

38. The diagram below shows some deck chairs and poolside umbrellas next to a swimming pool.



(a) Suggest a property of the material used to make part K of the poolside umbrella. Explain how this property ensures that the person seated under the umbrella is kept cool. [1]

_____

_____

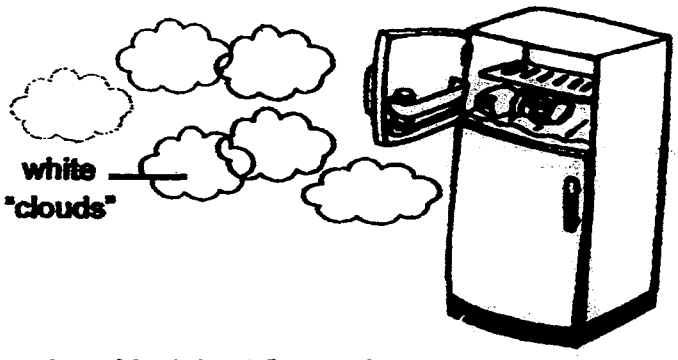
(b) Give a reason why part J of deck chairs placed near swimming pools are often made of plastic rather than cloth. [1]

_____

_____

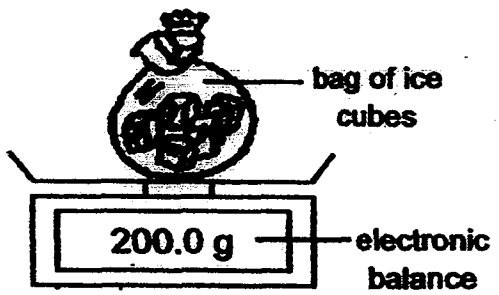
2

39. Ahmad opened the freezer and observed some white "clouds" forming near the door of the freezer.



(a) Explain how the white "clouds" were formed. [2]

He took out a bag of ice cubes and measured its mass using an electronic balance as shown in the diagram below.

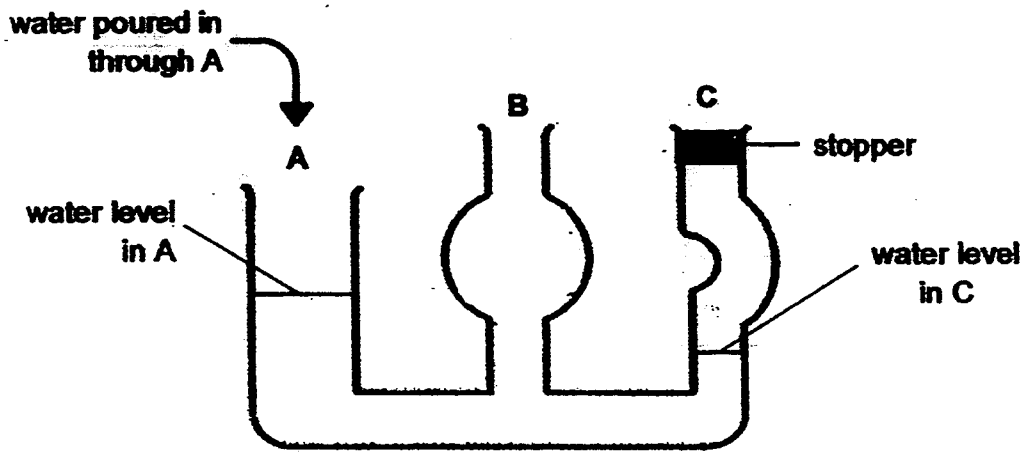


Ahmad waited till all the ice cubes had melted and looked at the electronic balance again.

(b) Explain why the reading on the electronic balance increased

3

40. The diagram below shows a special container. The opening at C is covered with a stopper. Water is poured into the opening at A. The water level in A and C after pouring all the water in is shown below.



(a) In the diagram above, draw in the correct water level for B. [1]

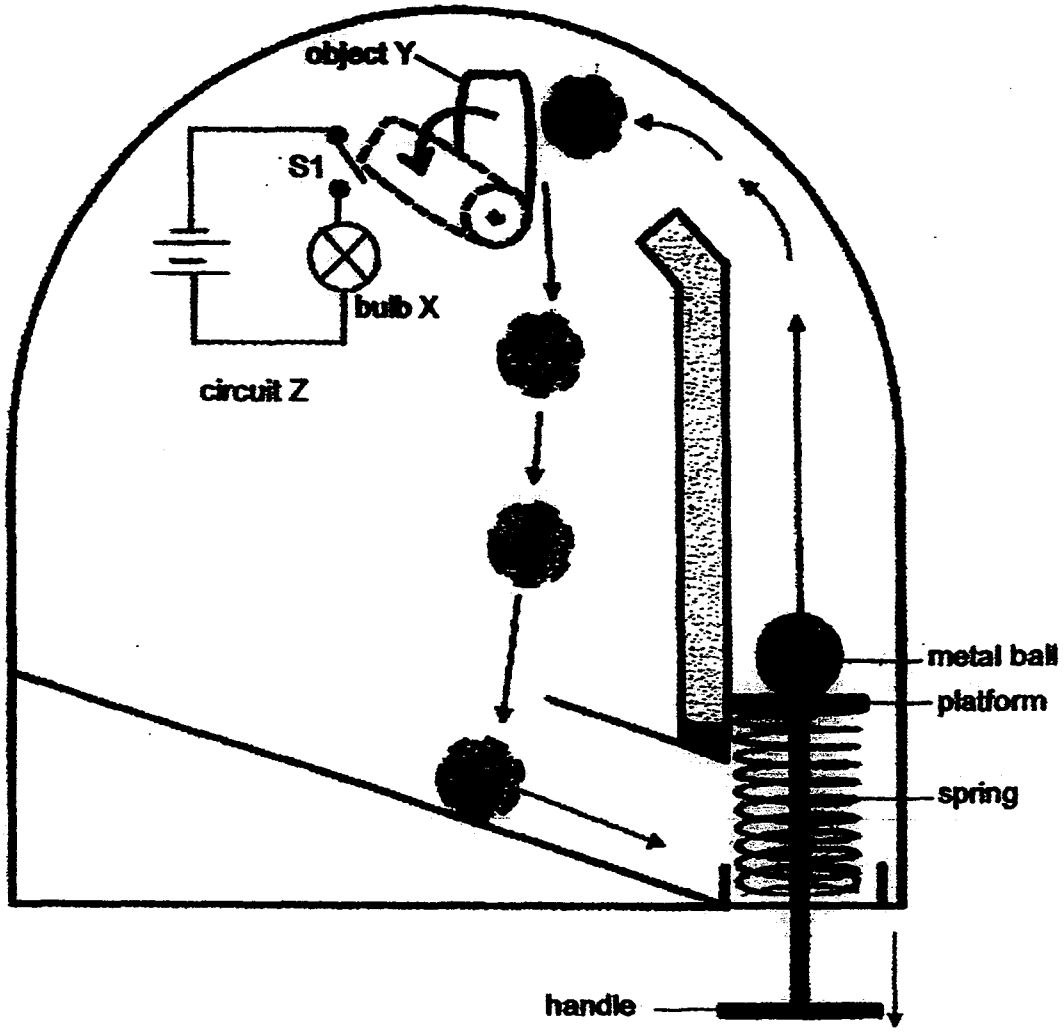
(b) Explain why the water level in C is lower than the water level in A. [1]

_____

_____

2

41. Jim created a toy as shown below. A metal ball rests on a platform which can be moved downwards by a handle. This compresses the spring connected to the platform. When the handle is released, the metal ball moves upwards to hit object Y which tilts to the left. It closes the switch, S1 and bulb X lights up.



(a) Does object Y in the toy have to be made of an electrical conductor for bulb X to light up? Explain your answer. [1]

_____

_____

Continuation of Q41 on the next page

1

Q41 continues

(b) Jim observed that bulb X would not light up if he did not pull the handle of the toy far enough. In terms of forces, explain his observation. [2]

_____

_____

_____

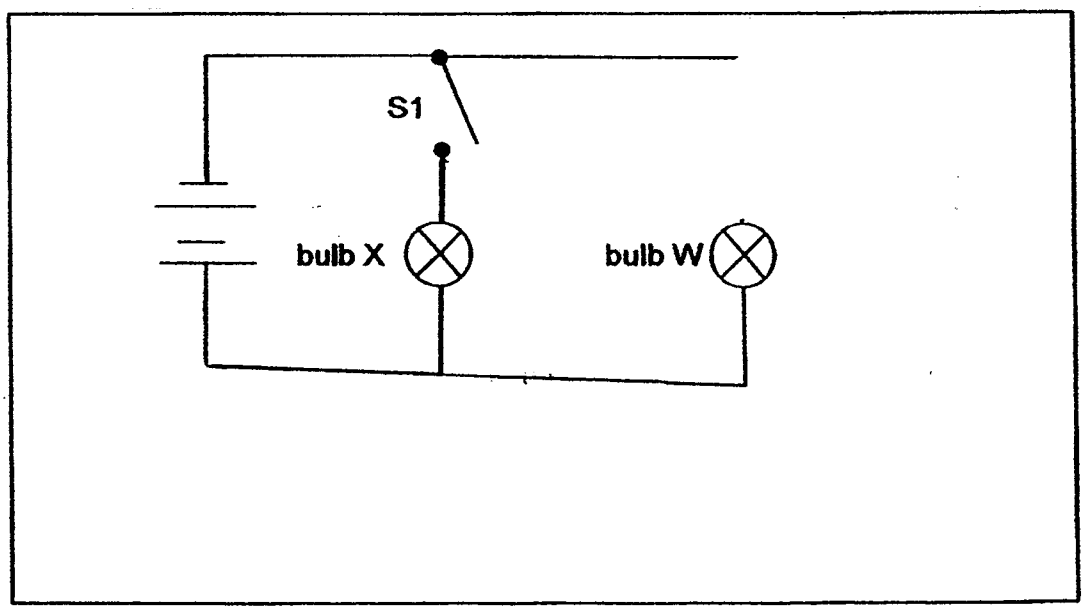
_____

(c) Jim wanted to add another bulb, bulb W, to circuit Z in his toy such that:

- bulbs X and W light up only when S1 is closed;
- bulb W is as bright as bulb X when S1 is closed; and
- the brightness of bulb X does not decrease with the addition of bulb W.

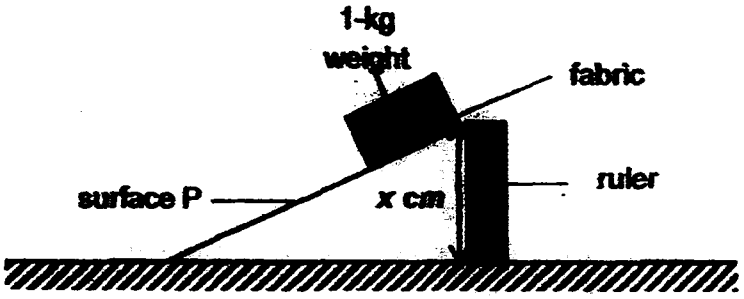
Draw wires (———) to complete the circuit diagram below to show how bulbs X and W should be connected.

The batteries, switch S1 and bulbs X and W have been drawn for you. [1]



3

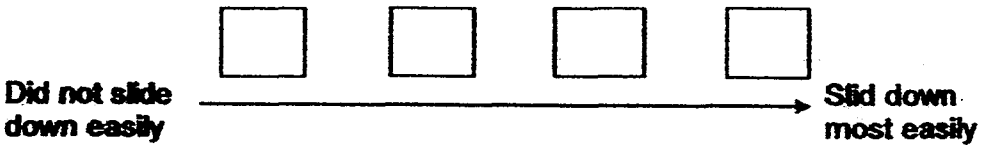
42. Rachel wanted to find out how easily different fabrics move across surfaces. She carried out an experiment using 4 different fabrics, A, B, C and D. She wrapped the base of a 1-kg weight with Fabric A and placed it at one end of surface P. She tilted that end of the surface until the weight started to slide.



In the table below, she recorded x, the height at which surface P was lifted to until the weight started to slide.

	x (cm)		
Fabric	1st reading	2nd reading	Average reading
A	11	12	11.5
B	8	10	9
C	13	13	13
D	16	18	17

(a) Put the fabrics in order of how easily they caused the weight to slide. [1]

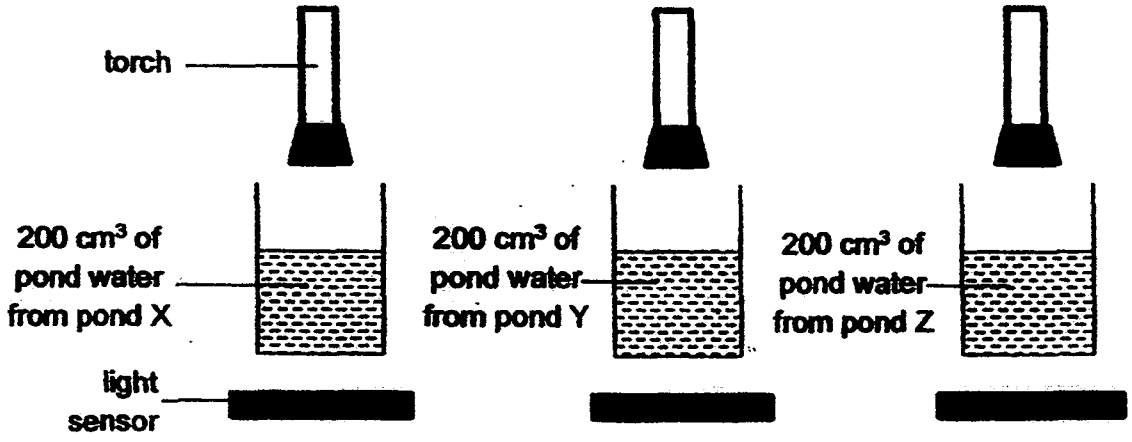


(b) Explain why different textures of fabric would cause x to be different. [1]

(c) If Rachel wants to make a floor mat in a toilet, which material, A, B, C, or D should she use? Explain your answer. [1]

3

43. David collected three samples of pond water from three different ponds, X, Y and Z of the same size. He put each sample of pond water into a beaker and shone a torch through them as shown in the diagram below.



Using a light sensor, the amount of light that passed through each pond water sample was recorded in the table below.

Sample	Amount of light recorded (units)
Pond X	200
Pond Y	50
Pond Z	150

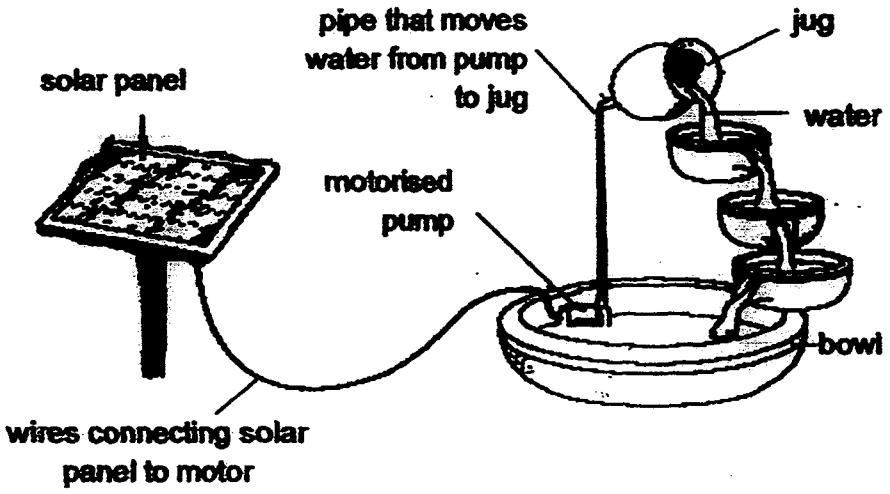
(a) What is the aim of David's experiment? [1]

(b) From the results above, which pond, X, Y or Z, would have the least number of fully submerged plants? Explain your choice. [1]

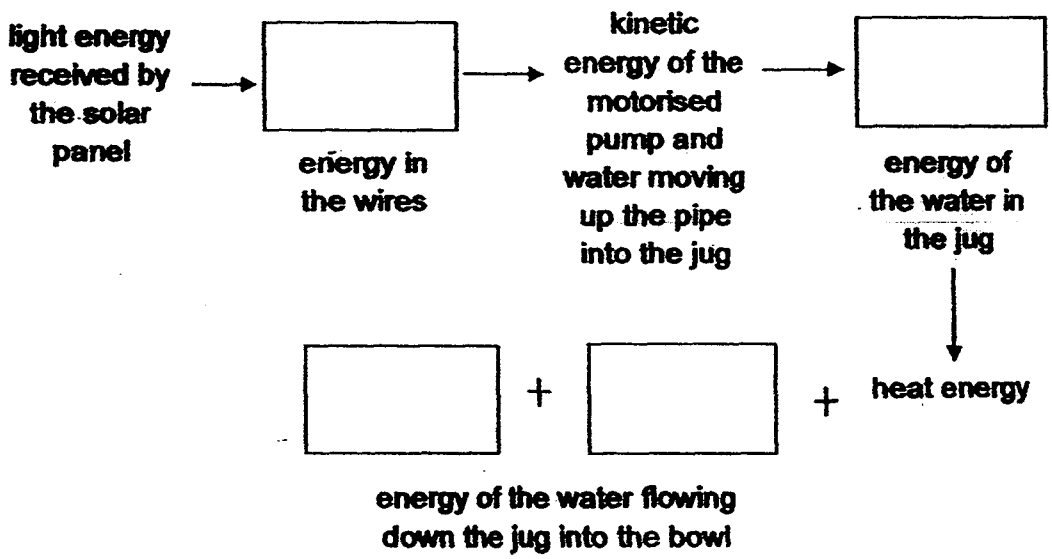
(c) David wanted to find out if the amount of water in a pond sample affects the amount of light that passes through it. What two changes should he make to his experiment? [1]

3

44. Erica bought a solar-powered water feature for her garden.



(a) State the energy conversion for the water feature. [2]



(b) Give one advantage of using a solar panel to run the water feature. [1]

_____

_____

3

END.

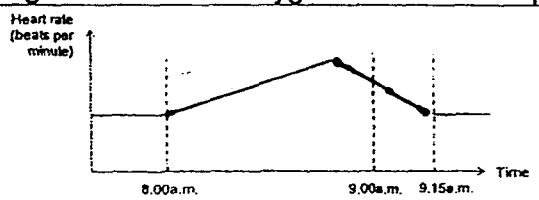
EXAM PAPER 2016

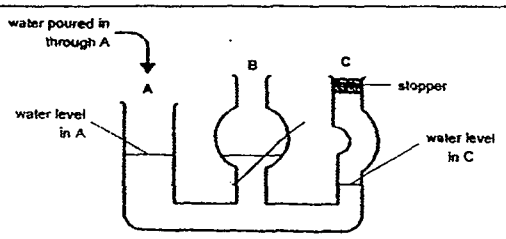
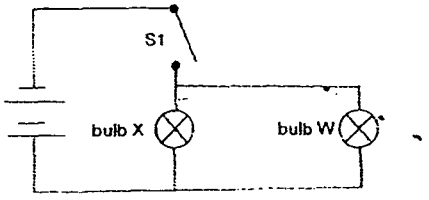
SCHOOL : SHHK
SUBJECT : PRIMARY 6 SCIENCE
TERM : PRELIMINARY EXAMINATION

Booklet A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	2	1	3	4	2	3	2	2	2
Q11	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**	**Q17**	**Q18**	**Q19**	**Q20**
3	2	4	4	3	1	4	3	2	3
Q21	**Q22**	**Q23**	**Q24**	**Q25**	**Q26**	**Q27**	**Q28**	**Q29**	**Q30**
3	2	2	4	3	1	2	3	1	3

Booklet B

Q31	(a)	Living Things needs food to survive.
	(b)	Wheat grain→ mouse → cat
Q32	(a)	This is because food was not being transported to the underground stem of Plant X.
	(b)	The roots did not receive food.
Q33	(a)(i)	A
	(ii)	B
	(b)(i)	Z
	(ii)	X
	(c)	Repeating the experiment 3 times allows one to check for consistency in readings.
Q34	(a)	He needs more energy. His heart needs to pump blood faster to transport digested food and oxygen faster to other parts of the body.
	(b)	
Q35	(a)	The eyespots trick the predators into thinking that the organism is bigger. The predators would not attack the organism.
	(b)	Animal P has a streamline body shape and that helps animal P to swim away faster from predators.
Q36	(a)	Plant B has more carbon dioxide, hence its rate of photosynthesis is higher.
	(b)	As the temperature of the surrounding air increases, the amount of starch present in the plant increases.
	(c)	When there are more leaves the plant will make more food. More food is then stored as/ converted to starch so the amount of starch present in the plant increases.

37	(a)	They are A, E and F.
	(b)	Food producers are the only organisms that can make food using the energy from the sun.
	(c)	Organism X feeds on the animal waste and breaks down the waste down into smaller pieces for the waste to decompose faster and there will be more compost for the food producers to grow better.
Q38	(a)	The material is a poor conductor of heat. This property allows less heat to be conducted into the air and heating the air up
	(b)	Plastic is waterproof while cloth is not.
Q39	(a)	Warmer water vapour in the surrounding air comes into contact with the cooler air from the freezer. The warmer water vapour lost heat and condensed to form tiny water droplets.
	(b)	The water vapour from the surrounding lost hat to the cooler surface of the bag of ice cubes and condensed into water droplets and since water droplets have mass, the reading on the electronic balance increased.
Q40	(a)	
	(b)	The stopper prevented air from escaping and he water could not take up the space occupied by the air.
Q41	(a)	Object Y does not need to be a conductor of electricity as object Y just pushes the switch to close the circuit and can be any material.
	(b)	If the spring is not compressed enough, there is not enough elastic spring force to push the metal ball high enough to push object Y .Then, object Y will not be able to close the switch.
	(c)	
Q42	(a)	D,C,A,B
	(b)	Different textures of fabric causes different friction between the fabric and he surfaces.
	(c)	Fabric C. d has the most amount of friction so that the floor would not be slippery the user will not slip.

Q43	(a)	It is to find out if the type of pond water affects the amount of light recorded.
	(b)	The amount of light detected was the least. Fully submerged plants in Pond Y would have less light to make food.
	(c)	Use water from the same pond. Add a different amount of water in each sample.
Q44	(a)	Electrical, Gravitational potential, Kinetic, Sound
	(b)	Solar energy is a renewable source of energy.

END