



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

2017

科学

STANDARD SCIENCE
BOOKLET A

Date : 24 August 2017

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 17 pages, excluding the cover page.

School : _____

Name : _____

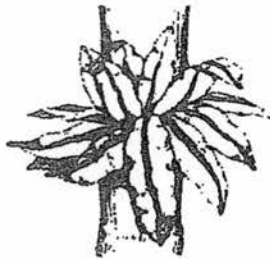
Class : _____

TOTAL	56
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PART I

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet. (56 marks)

1. The diagrams below show three organisms.



fern



bracket fungus



mushroom

What do these organisms have in common?

- A They contain chlorophyll.
 - B They reproduce by spores.
 - C They carry out decomposition.
 - D They are non-flowering plants.
- (1) B only
(2) A and C only
(3) B and D only
(4) A, C and D only

2. Mr Tan has a dog. When Mr Tan throws a ball, the dog runs after it.

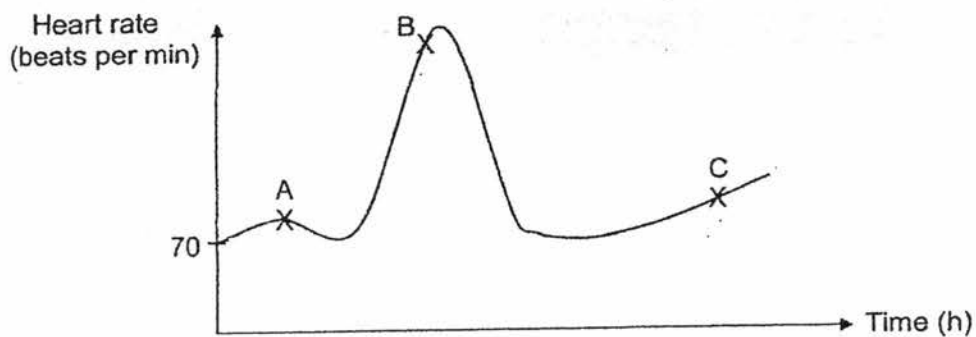


Based on the information above, what characteristic(s) of living things do/does the dog show?

- A It can grow
- B It can reproduce.
- C It can respond to changes.

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

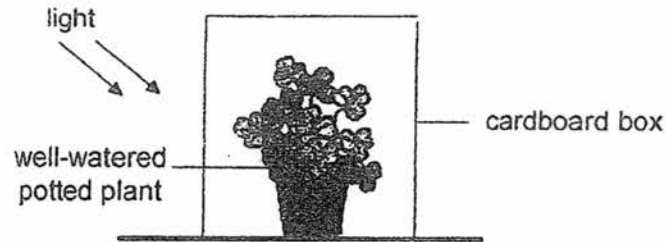
3. The following graph shows Liana's heart rate over a few hours. Her average heart rate when at rest is 70 beats per minute,



Which of the following correctly shows Liana's activity?

	A	B	C
(1)	sleeping	skipping	sitting
(2)	walking	running	jogging
(3)	running	walking	sitting
(4)	jogging	walking	skipping

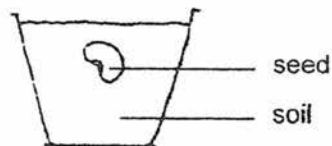
4. Kim placed a well-watered potted plant into a cardboard box. She placed the whole setup under the sun for a few hours.



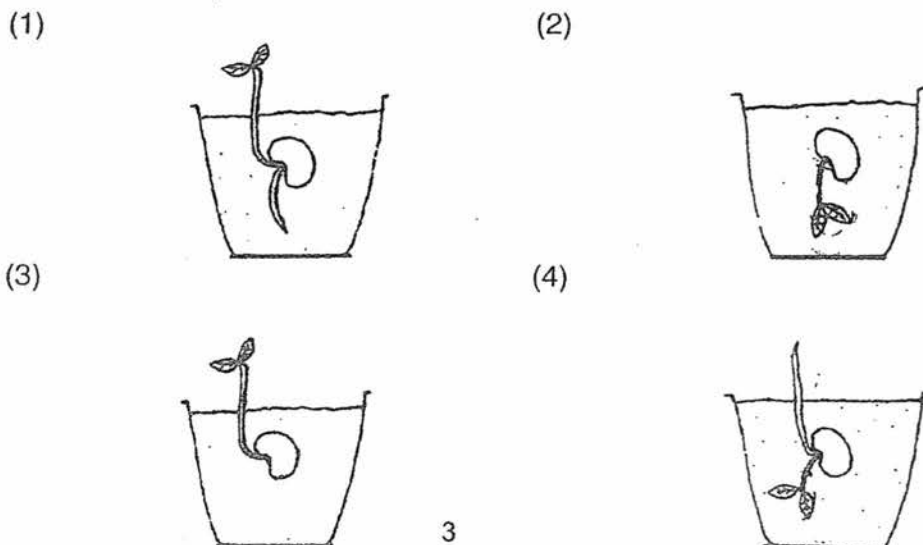
Which of the following correctly shows the changes in the amount of gases inside the cardboard box after a few hours?

	Oxygen	Water vapour	Carbon dioxide
(1)	increases	increases	decreases
(2)	decreases	remains the same	increases
(3)	decreases	increases	increases
(4)	increases	remains the same	decreases

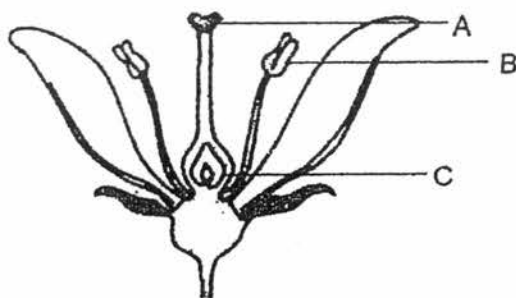
5. Bobby placed a seed into a container of soil as shown below. He poured water on the soil daily.



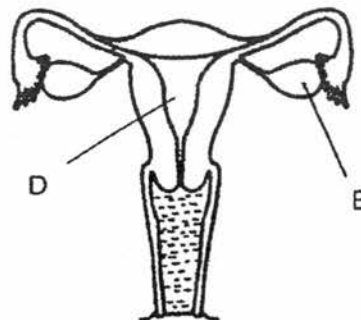
Which one of the following diagrams shows what Bobby would observe after a week?



6. The diagrams below show the plant reproductive system and the human reproductive system.



plant reproductive system

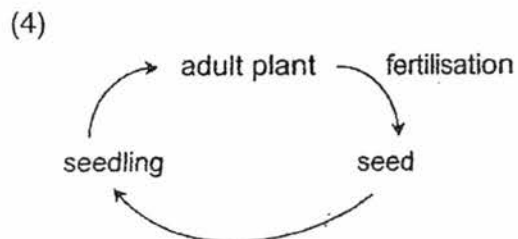
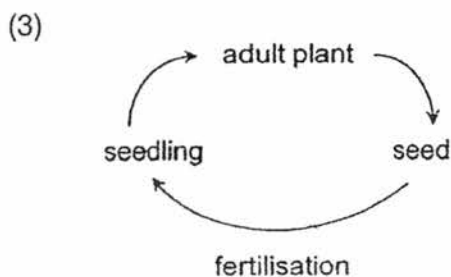
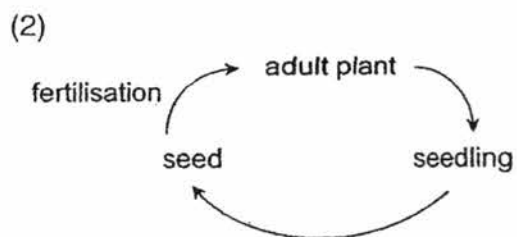
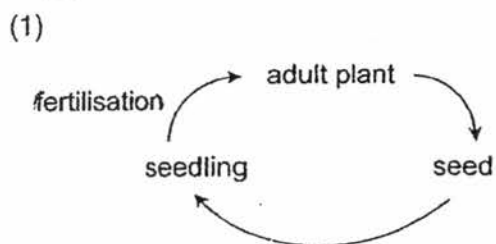


human reproductive system

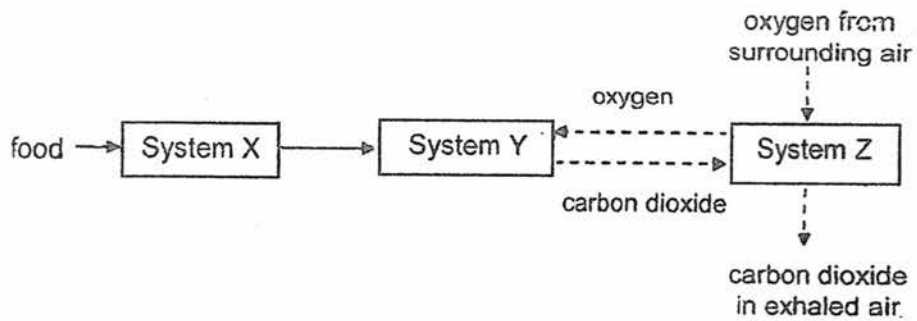
Which one of the following statements about the labelled parts is correct?

	Part	Statement
(1)	B and D	They both produce the male reproductive cells.
(2)	C and E	They both contain the female reproductive cells.
(3)	A and B	They are the male reproductive parts of the flower.
(4)	B and C	They are the female reproductive parts of the flower.

7. Study the diagrams below. Which is correct?



8. Study some of the interactions between systems X, Y and Z as shown below.

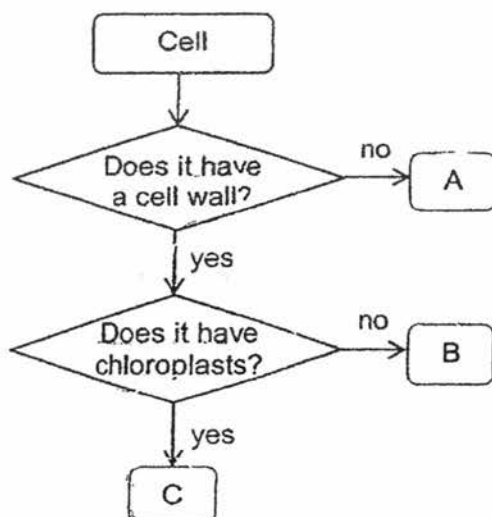


Key —————> path taken by food
 - - - - -> path taken by gases

Which systems do X, Y and Z represent?

	System X	System Y	System Z
(1)	circulatory	digestive	respiratory
(2)	digestive	circulatory	respiratory
(3)	circulatory	respiratory	circulatory
(4)	digestive	respiratory	circulatory

9. Study the chart below.



Which of the following can be represented by the letters A, B and C in the chart above?

	A	B	C
(1)	cheek cell	leaf cell	root cell
(2)	root cell	cheek cell	leaf cell
(3)	leaf cell	root cell	cheek cell
(4)	cheek cell	root cell	leaf cell

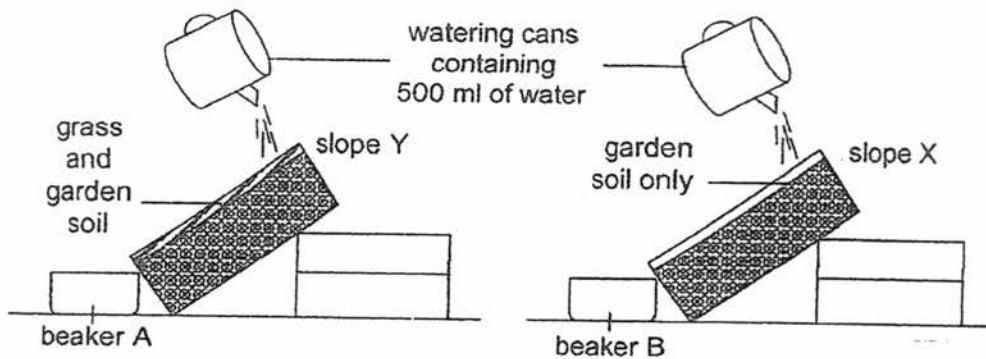
10. Henry observed two organisms X and Y and recorded his observations in the table below.

Organism X	Organism Y
It has a four-stage life cycle.	It has a three-stage life cycle.
Its young does not resemble the parent.	Its young resembles the parent.

Based on the information above, which of the following is most likely to be organism X and organism Y?

	Organism X	Organism Y
(1)	mosquito	frog
(2)	butterfly	mealworm beetle
(3)	frog	butterfly
(4)	mealworm beetle	cockroach

11. William set up an experiment to find out the effects of deforestation. He poured 500 ml of water over the top of each slope as shown below.



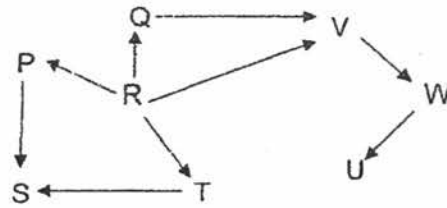
He observed the appearance of water in beaker A and beaker B and recorded his observation in the table below.

	Appearance of water in beakers	
	Not murky	Very murky
Beaker A	✓	
Beaker B		✓

What could have prevented the water collected in beaker A from being murky?

- A The roots of the grass absorbed the mud in the water.
 - B The grass prevented the water from reaching the soil.
 - C The roots of the grass held the soil together preventing it from being carried away by running water.
- (1) C only
(2) A and B only
(3) B and C only
(4) A, B and C

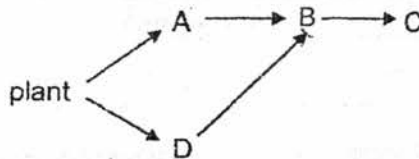
12. Study the food web below.



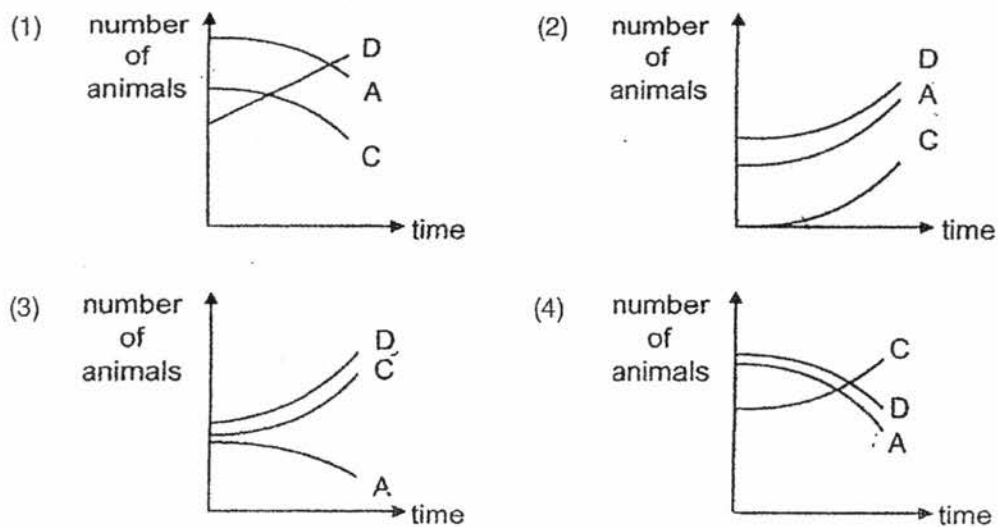
Based on the information above, which of the following is correct?

	Predator only	Prey only	Predator and prey
(1)	Q, W	R, S	P, T
(2)	S, U	P, Q, T	V, W
(3)	S, U	P, T	Q, V, W
(4)	R, W	S, U	P, Q, T

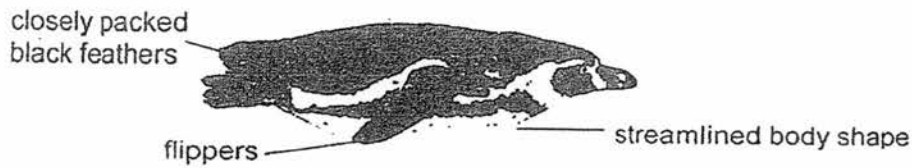
13. A, B, C and D represent animals in the food web shown below.



Which graph shows how the populations of A, C and D are likely to be affected immediately if there is a sudden increase in the population of B in the habitat?



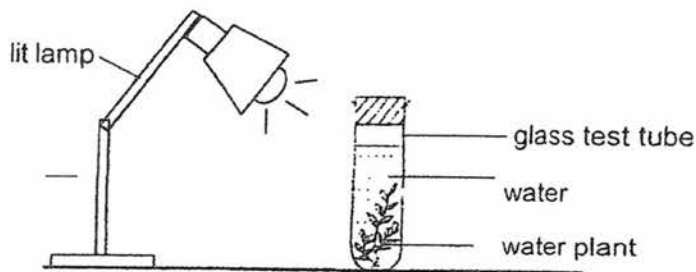
14. Penguins adapt to the surroundings to survive.



Which of the following adaptations has **not** been correctly matched to its purpose?

	Adaptation	Purpose
(1)	flippers	help the penguin swim faster in the water
(2)	black feathers	absorb heat from the sun to keep warm
(3)	closely packed feathers	slow down heat gain from the sun to keep warm
(4)	streamlined body shape	reduces friction between the penguin and water to swim faster

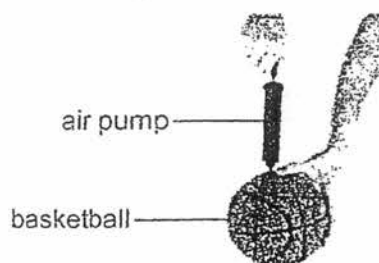
15. Syafiq conducted an experiment on photosynthesis in a dark room using the setup as shown below. He counted the number of gas bubbles produced by the water plant per minute over time.



After two hours, Syafiq observed that the rate of photosynthesis of the plant was slower. This was most likely caused by insufficient amount of _____.

- (1) water
- (2) oxygen
- (3) chloroplasts
- (4) carbon dioxide

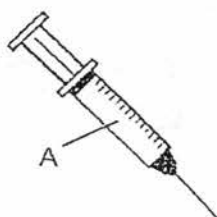
16. Alan is pumping more air into a fully-inflated basketball as shown below.



Which of the following correctly shows the change in the mass and volume of the air in the basketball?

	Mass	Volume
(1)	increases	increases
(2)	increases	remains the same
(3)	remains the same	increases
(4)	remains the same	decreases

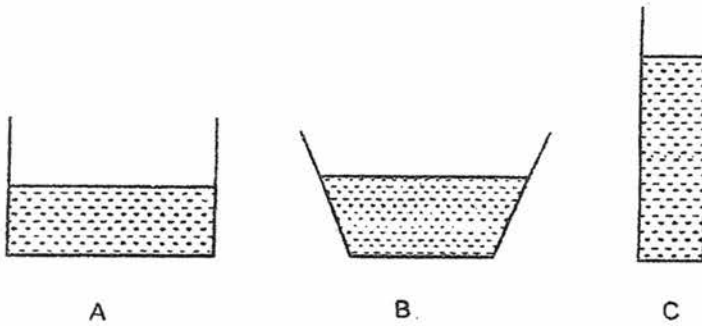
17. The diagram below shows a syringe which a doctor uses to draw 10 ml of blood from our body.



Which one of the following is **not** a property of A?

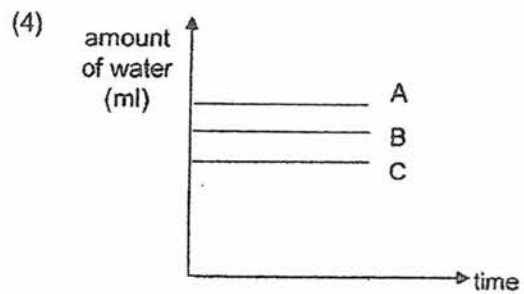
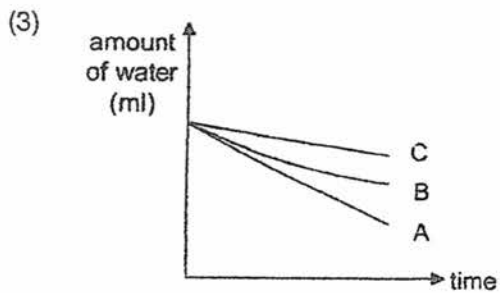
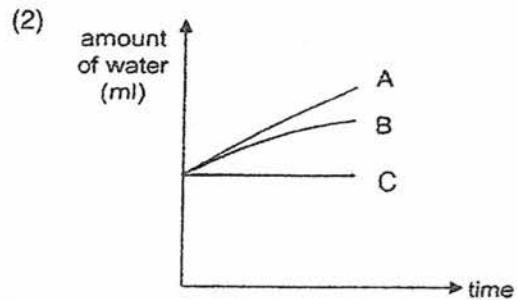
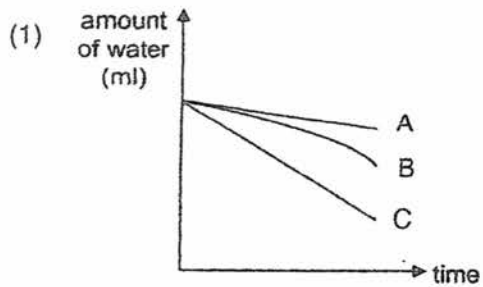
- (1) strong
- (2) flexible
- (3) waterproof
- (4) transparent

18. Jeff poured the same amount of water into three different containers A, B and C and placed them in the garden.

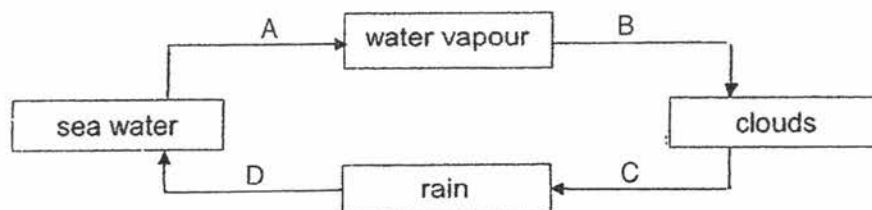


He measured the amount of water left in each container over a period of time.

Which graph shows the correct amount of water in each container?

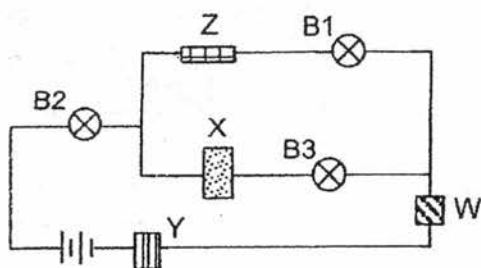


19. The diagram below shows the water cycle.



Which letter, A, B, C or D, represents a process where heat is lost?

- (1) A
 - (2) B
 - (3) C
 - (4) D
20. Yati set up the circuit shown below to find out if materials W, X, Y and Z are electrical conductors or insulators.



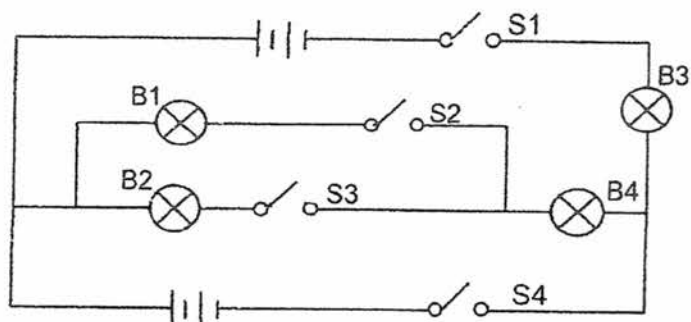
She recorded her results in the table below.

Bulb	Did the bulb light up?
B1	no
B2	yes
B3	yes

Which of the following correctly identifies the electrical conductor(s) and insulator(s)?

	Electrical insulator(s)	Electrical conductor(s)
(1)	Z	W, X and Y
(2)	X and Y	W and Z
(3)	Y and Z	W and X
(4)	W, X and Y	Z

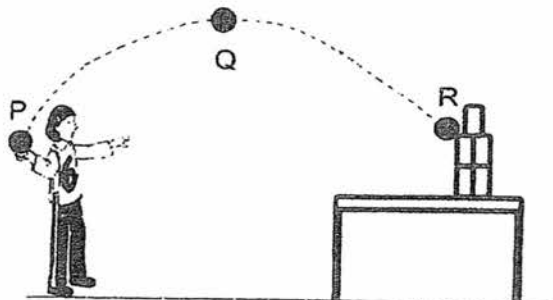
21. Study the circuit as shown below.



Which of the following is correct?

	Switches closed	Bulbs that would light up
(1)	S1 S4	B3 and B4
(2)	S2 and S3	B1 and B2
(3)	S1, S2 and S3	B1, B2, B3 and B4
(4)	S2, S3 and S4	B2, B3 and B4

22. Jane threw a ball towards the tin cans on the table. Points P, Q and R showed the path taken by the ball after she threw it.



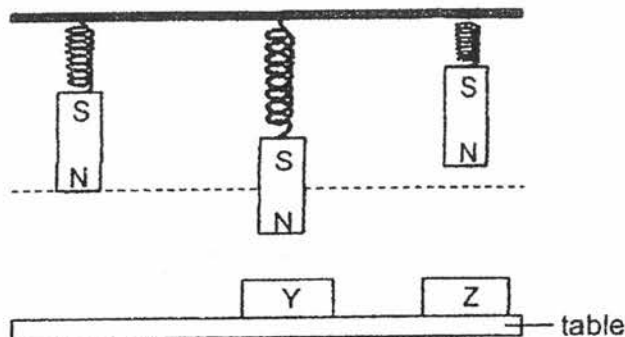
Jane made the following statements after the throw.

- A A pushing force was exerted on the ball at point P.
- B The forces acting on the ball caused it to change direction.
- C Amount of gravity acting on the ball decreased from Q to R.

Which of the following statements is/are correct?

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

23. Three identical magnets were suspended on three identical springs as shown below. Objects Y and Z are fixed to the table.



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

- A Object Y is a magnet.
- B Object Z is made of magnetic material.
- C Gravity acting on the magnet cannot overcome the force of repulsion between object Z and the magnet.

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

24. Polly could not remove the tightly closed metal lid from the jar as shown below.



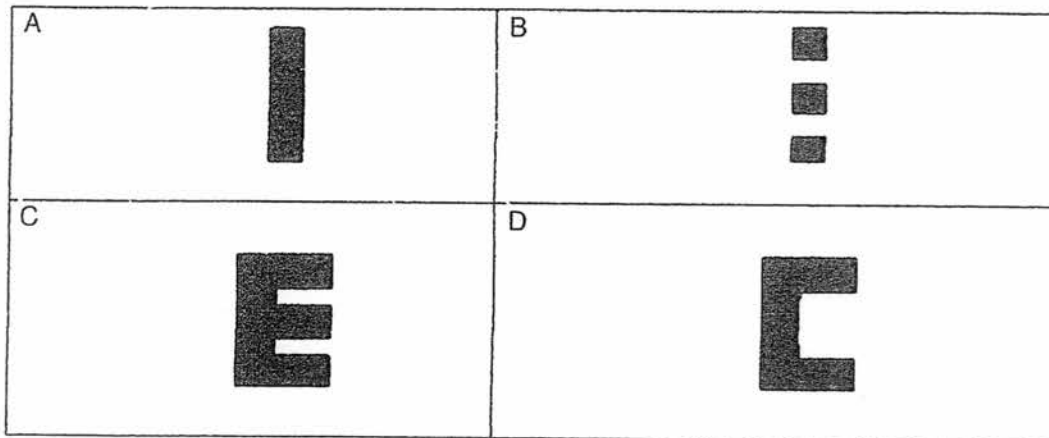
What could Polly do to remove the metal lid from the glass jar?

- (1) Place some ice cubes on the metal lid.
- (2) Place the glass jar in a basin of hot water.
- (3) Place the metal lid in a basin of hot water.
- (4) Wrap a hot towel around the glass jar only.

25. Jimmy shone a torch at object E from different directions.

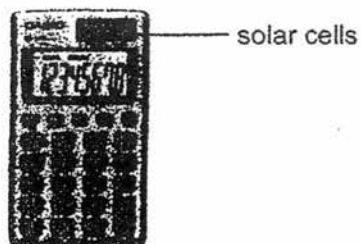


Which of the following shadows can be formed?



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

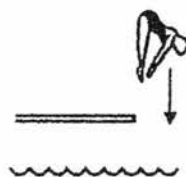
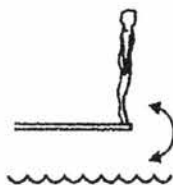
26. The diagram below shows a solar-powered calculator.



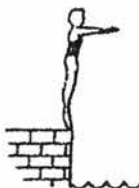
Which one of the following correctly shows the energy conversion in the solar-powered calculator?

- (1) electrical energy \rightarrow light energy
 - (2) light energy \rightarrow electrical energy \rightarrow light energy
 - (3) light energy \rightarrow chemical potential energy \rightarrow light energy
 - (4) chemical potential energy \rightarrow electrical energy \rightarrow light energy
27. Which one of the following shows an activity that has no change in the potential energy of the person?

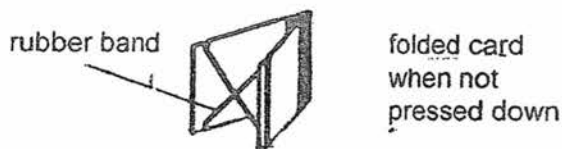
- (1) person bouncing on a diving board
- (2) person performing a dive



- (3) person standing at the edge of a pool
- (4) person sliding down a water slide



28. Gayle made a jumping toy using a folded card and a rubber band as shown in the diagram below.



When she pressed the toy down fully and released it, the toy jumped off the ground.



She wanted to find out how the number of rubber bands used to make the toy affects the height it jumps. She measured the height jumped by the toy and recorded the results in the table below. She then repeated the experiment using two and three rubber bands.

Number of rubber bands used	Height jumped by the toy (cm)		
	1 st attempt	2 nd attempt	3 rd attempt
1	5	6	5
2	9	9	10
3	13	12	14

From her observation, she listed down the following statements.

- A The stretched rubber band is the source of energy for the toy.
- B The height that the toy jumps can be increased by adding 1 more rubber band to the toy.
- C After she released the toy, it possesses kinetic energy, potential energy, heat energy and sound energy.

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

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

~~ End of Booklet A ~~

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

2017

科学

STANDARD SCIENCE
BOOKLET B

Date : 24 August 2017

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 : _____

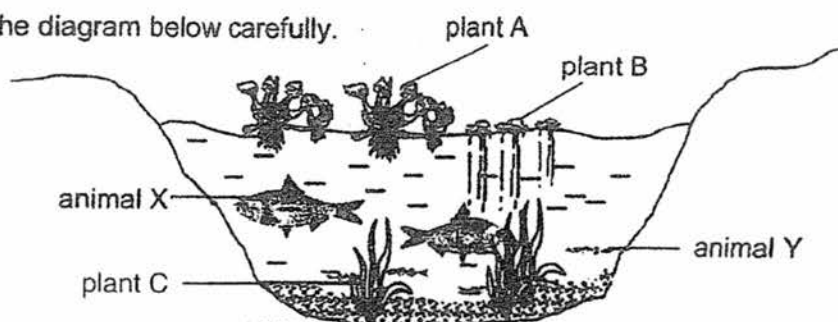
TOTAL	44
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PART II

For questions 29 to 40, write your answers in this booklet.

The number of marks available is shown in brackets [] at the end of each question or part question. (44 marks)

29. Study the diagram below carefully.



- (a) Explain why the population of plant B decreases when the population of plant A increases.

[1]

- (b) Some plant C died and started to rot, causing the level of oxygen in the pond to decrease. Give a reason why the rotting plants caused a decrease in the level of oxygen.

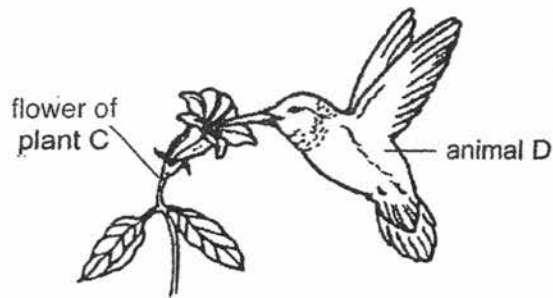
[1]

- (c) Animal X preys on animal Y. How does the removal of plant C cause animal Y to be more easily preyed on by animal X?

[1]

SCORE	3
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30. Plant C and animal D depend on each other as shown in the diagram below.



(a) How does plant C and animal D benefit from this relationship? [2]

(i) Benefit for plant C: _____

(ii) Benefit for animal D: _____

(b) Suggest one characteristic that the flower of plant C has to attract animal D. [1]

(c) Animal D flaps its wings very quickly, allowing it to hover around the flower of plant C. State another structural adaptation that animal D has to help it carry out the activity as shown in the diagram above. [1]

31. Organism X is a tiny living organism that lives in water and feeds on algae.



organism X

Flamingoes prey on organism X from the water as shown below.

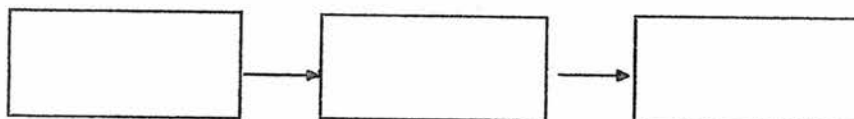


- (a) Explain how the flamingo's neck helps it to prey on organism X.

[1]

- (b) Complete the food chain that shows the food relationship between organism X, algae and flamingo in the boxes provided below.

[1]

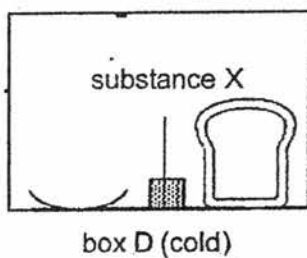
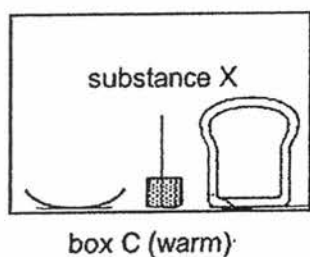
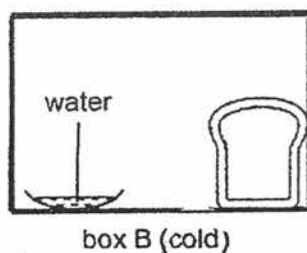
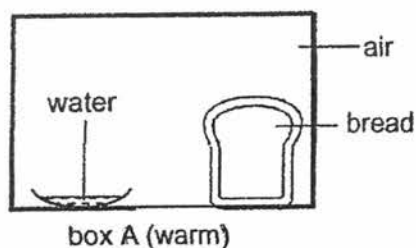


- (c) A new population of organism H was introduced into the community. It interacted directly with organism X only. Soon, the population of flamingo decreased. Based on the information, explain why the population of flamingo decreased.

[2]

SCORE	4
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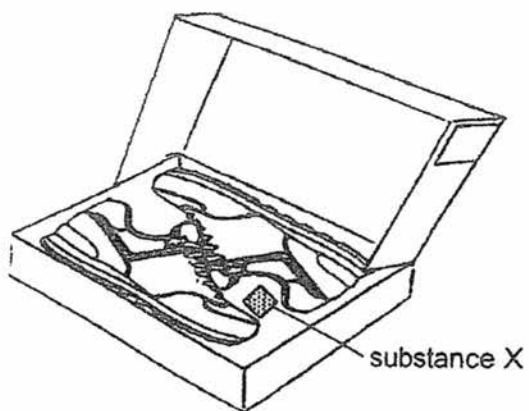
32. Minghao placed four similar slices of bread in four identical sealed boxes. He placed both boxes A and C in a warm place and boxes B and D in a cold place. Substance X absorbs water from the surrounding.



- (a) In which box A, B, C or D would mould first appear on the bread? Give a reason for your answer. [2]

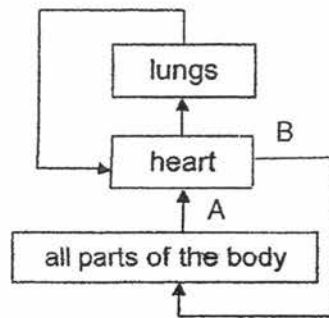
Please continue Qn 32 on the next page.

- (b) Substance X is often placed in boxes containing leather shoes as shown in the diagram below.



Based on the experiment that Minghao carried out, explain why substance X is often found in shoe boxes. [2]

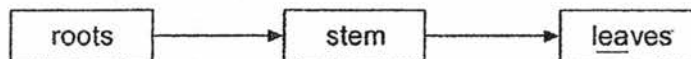
33. The arrows below show the flow of blood in a human body.



- (a) Name one gas in the blood where its amount is lower in A than in B.
Explain your answer.

[2]

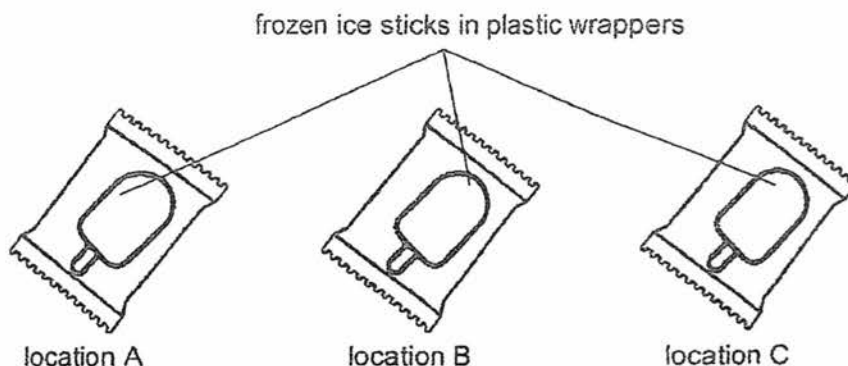
The diagram below shows the movement of water in a plant.



- (b) State one difference between the flow of water in plants and the flow of blood in the human body.

[1]

34. Malcolm had three identical frozen ice sticks and placed them in three different locations A, B and C.



After thirty minutes, he cut open the plastic wrappers and poured out the liquid in each wrapper. He measured the volume of liquid and recorded his results in the table below.

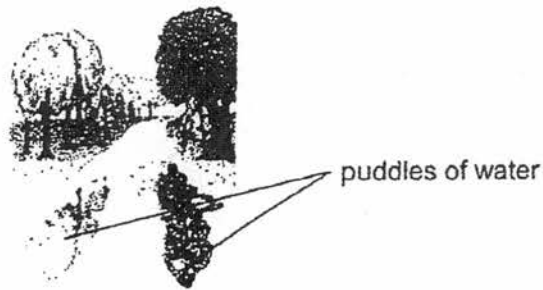
Location	A	B	C
Temperature of the surrounding ($^{\circ}\text{C}$)	28	20	32
Volume of liquid collected (cm^3)	15	8	18

- (a) Based on Malcolm's results, what is the relationship between the volume of liquid collected at the end of the experiment and the temperature of the surrounding? [1]

- (b) Scientists have discovered that a number of low-lying islands are slowly being submerged in water due to global warming.

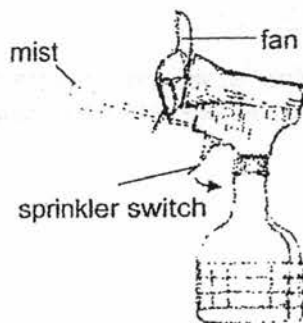
Explain how global warming causes low-lying islands to become submerged in water. [1]

35. The diagram below shows puddles of water on a road after a heavy rain.



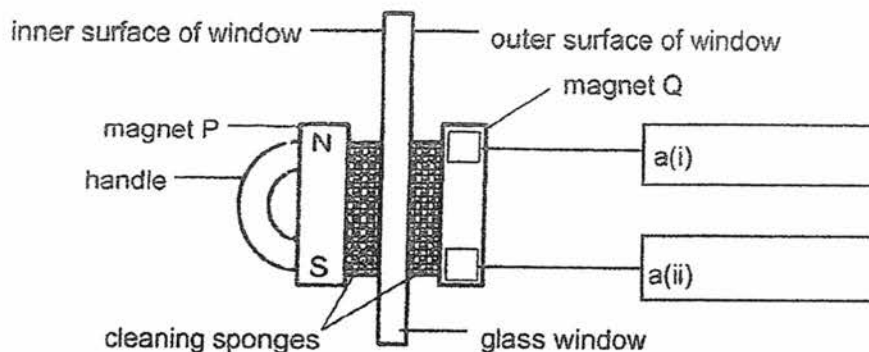
- (a) A few hours later, the puddles of water dried up. Explain why. [1]

On a hot day, Mabel bought a mist spray fan to help cool herself down more effectively as shown below.



- (b) When she pushes the sprinkler switch, the fan spins and mist comes out from the device. Explain clearly how using the mist spray fan is able to cool her down more. [2]

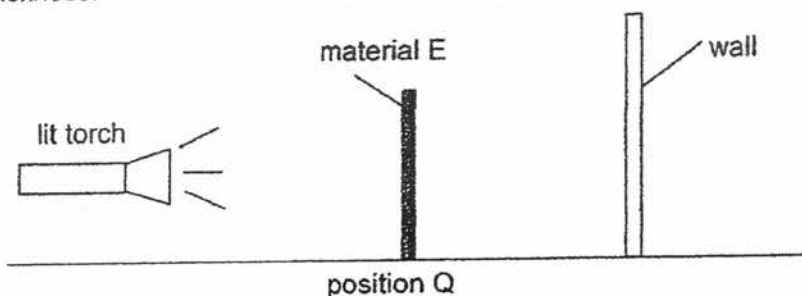
36. Sean bought a device to clean both sides of a window at the same time. The device has two magnets P and Q as shown below.



To use the device, Sean had to hold the handle and move the device up and down the window. The two cleaning sponges would then move together in the same direction and clean both sides of the window.

- (a) In the diagram above, label the poles of magnet Q in a(i) and a(ii). [1]
- (b) State two forces which were acting on the cleaning device. [1]
-
- (c) Based on the information above, explain clearly why the two cleaning sponges could be moved in the same direction when only the handle was moved. [2]
-
-
-
- (d) Sean dropped the device on the floor a few times and he observed that the two cleaning sponges could not stay on the window anymore. Suggest a reason why. [1]
-
-

37. Susan conducted an experiment in a dark room to compare the transparency of four different materials E, F, G and H as shown below. The four materials are of identical size and thickness.



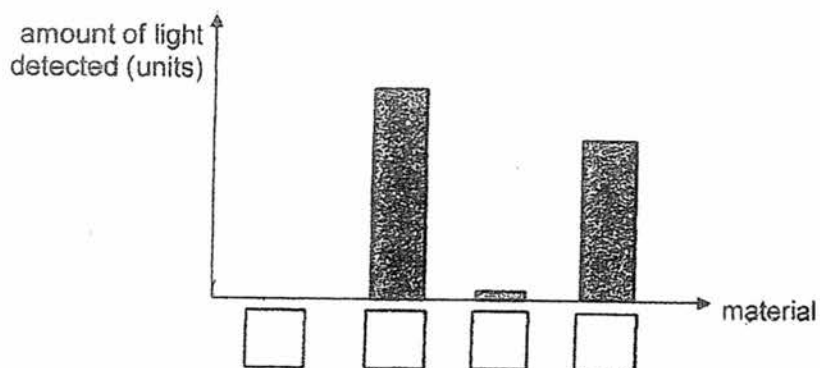
Susan placed material E at position Q and observed the shadow formed on the wall. She repeated the same experiment with materials F, G and H and recorded her observations as shown below.

Material	Shadow formed
E	faint
F	dark
G	very dark
H	very faint

- (a) Susan's teacher said that she should use a light sensor to measure the amount of light passing through the material. Explain how this suggestion would improve her experiment. [1]
-
- (b) The experiment was conducted in a dark room. Explain why this helped to make the experiment a fair test. [1]
-
-

Please continue Qn 37 on the next page.

Susan followed her teacher's suggestion and presented her results in the bar graph below.

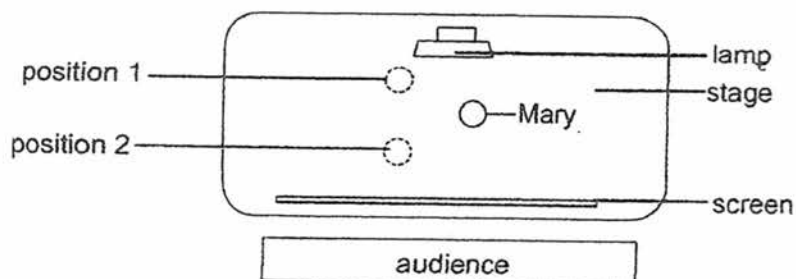


- (c) Based on Susan's previous experimental results, label materials E, F, G and H in the boxes provided in the graph above. [1]

Susan put up a shadow performance with her friend, Mary, who is of the same height and size as her. The diagram below shows what the audience saw on the screen.



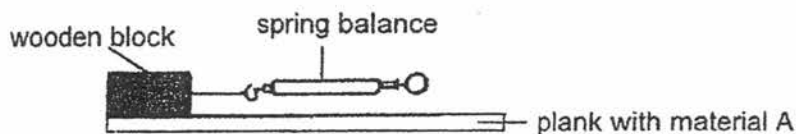
The diagram below shows the layout of the stage and where Mary was standing.



- (d) At which position 1 or 2 was Susan standing? Explain your answer. [2]

SCORE	5
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38. Diana conducted an experiment as shown below.



She used a spring balance to find out the amount of force needed to pull a wooden block across a plank made with material A. She then repeated the experiment with materials B, C and D and recorded the results in the table below.

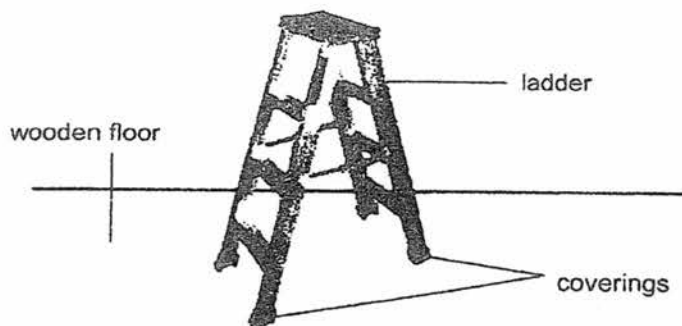
Material	A	B	C	D
Amount of force required (units)	275	245	145	175

- (a) What should Diana do to ensure that her results are reliable? [1]

- (b) Besides using the same spring balance, identify one other variable that Diana had to keep constant in order to ensure a fair test. [1]

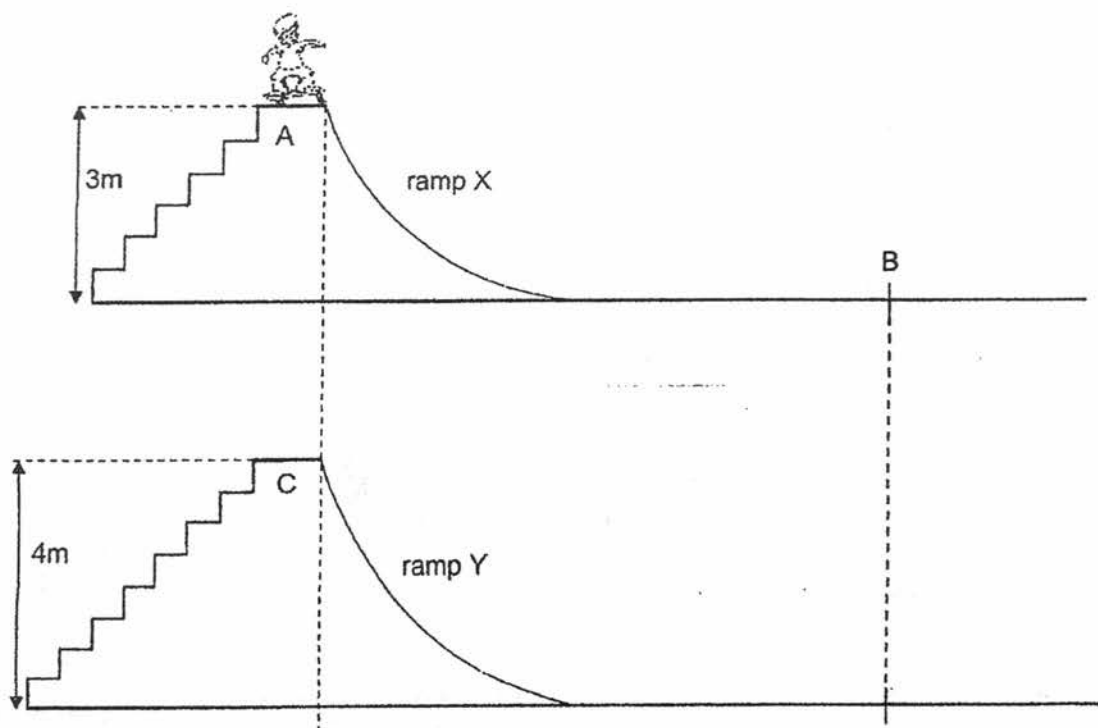
Please continue Qn 38 on the next page.

- (c) Diana wanted to choose a material to make the coverings of a ladder. The coverings are used to wrap the base of the ladder as shown below.



Based on her results, which material A, B, C or D is most suitable for making the coverings so that the ladder is the safest for the user? Explain your answer. [2]

39. The diagram below shows Tom standing on his skateboard at the top of the skateboard ramp X.



- (a) Tom skated down ramp X from point A. Fill in the blanks below to show the energy conversion as the skateboard moves from A to B. [1]

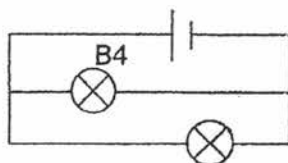
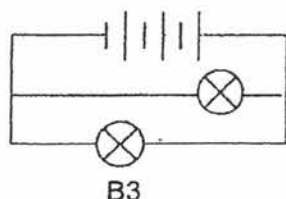
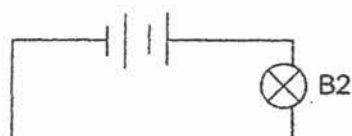
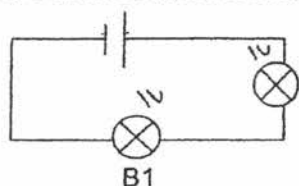
<div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> <div style="position: absolute; top: 5px; left: 5px; right: 5px; border-bottom: 1px solid black; height: 5px;"></div> <div style="position: absolute; bottom: 5px; left: 5px; right: 5px; border-top: 1px solid black; height: 5px;"></div> <div style="position: absolute; left: 10px; right: 10px; top: 50px; text-align: center;">energy</div> </div>	changed into	<div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> <div style="position: absolute; top: 5px; left: 5px; right: 5px; border-bottom: 1px solid black; height: 5px;"></div> <div style="position: absolute; bottom: 5px; left: 5px; right: 5px; border-top: 1px solid black; height: 5px;"></div> <div style="position: absolute; left: 10px; right: 10px; top: 50px; text-align: center;">energy</div> </div>	+	<div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> <div style="position: absolute; top: 5px; left: 5px; right: 5px; border-bottom: 1px solid black; height: 5px;"></div> <div style="position: absolute; bottom: 5px; left: 5px; right: 5px; border-top: 1px solid black; height: 5px;"></div> <div style="position: absolute; left: 10px; right: 10px; top: 50px; text-align: center;">energy</div> </div>
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- (b) When Tom skated from point A on ramp X, he came to a stop at point B. Give a reason for this. [1]

Please continue Qn 39 on the next page.

- (c) Assuming that both ramp X and ramp Y are made of the same material, would Tom skate beyond point B when he skated down from point C on ramp Y? Explain your answer. [2]

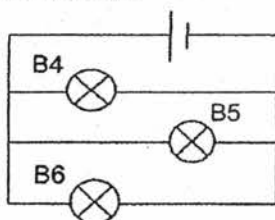
40. Julie set up four circuits as shown below. The bulbs and the batteries in the four circuits are identical. All the bulbs are lit up.



- (a) Arrange the bulbs B1, B2, B3 and B4 based on the brightness of the bulbs, starting from the brightest bulb to the dimmest bulb. [1]

Brightest	→			Dimmest

Julie added another bulb to the circuit that had bulb B4. She labelled the other bulbs B5 and B6 as shown in the diagram below.



- (b) Compare the change in the brightness of bulbs B4 and B5 after bulb B6 is added. [1]

- (c) If bulb B5 fused, what would happen to bulbs B4 and B6? Explain your answer. [1]

~~ End of Booklet B ~~

YEAR : 2017
 LEVEL : PRIMARY 6
 SCHOOL : HOKKIEN 5-SCHOOL
 SUBJECT : SCIENCE
 TERM : PRELIMINARY EXAMINATION

Booklet A

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

Booklet B

- Q29 (a) Plant A would block sunlight from reaching plant B. Thus, plant B would trap less light and make less food.
- (b) Decomposition need oxygen to respire.
- (c) Plant C would not be able to provide protection for Animal Y to hide from Animal X.
- Q30 (a) (i) Benefit for plant C : The flower of plant C gets pollinated by animal D.
- (ii) Benefit for animal D : Animal D obtains food (nectar) from the flower of plant C.
- (b) Brightly coloured flowers.
- (c) Well-developed wings / hollow bones / lightweight / long and thin sharp beak.

- Q31 (a) The neck of the flamingo is long. Hence, it can reach deeper in the water to prey on more organism X which lives in the water.
- (b) Algae → Organism X → Flamingo
- (c) Organism H would prey on organism X. So, population of organism X decreases. Since flamingo preys on organism X, the flamingo would have less organism X to prey on as there is competition for food with organism H. This would cause the population of flamingo to decrease.
- Q32 (a) Box A. Mould needs warmth, water, oxygen and food to grow and all these conditions are found in Box A.
- (b) Substance X would absorb water in the shoe boxes, causing no water to be left in the boxes containing leather shoes when the box is closed. Without water, mould will not be able to grow on the leather shoe since mould will only grow when there is water, warmth and oxygen, thus substance is often found in shoe boxes.
- Q33 (a) Oxygen. Arrow A is from other parts of the body back to the heart. The body parts needs oxygen and digested food in order to respire.
- (b) Water moves in 1 direction from the roots to all parts of the plants. Blood in human moves from other parts of the body to the heart then to the lungs and from the lungs, blood moves back to the heart and to all parts of the body (cycle).
- Q34 (a) As the temperature of the surrounding increases, the volume of liquid collected at the end of the experiment also increases.
- (b) When global warming happens, the temperature of the surroundings will increase, the iceberg in cold regions will melt thus, causing the water level to rise, submerging the low-lying islands.

Hokkion pichin

- Q35 (a) The puddles of water will gain heat from the surrounding and evaporate, thus the puddles of water dried up.
- (b) The mist on her body would gain heat from her body and evaporated. The wind from the fan would increase the rate of evaporation of the mist.

- Q36 (a) (i) South-pole (S)
- (ii) North-pole (N)
- (b) Gravity
- (c) The unlike poles of magnets, P and Q, were facing each other to allow both magnets to be attracted to each other. Magnetism can pass through non-magnetic glass window and sponges.
- (d) The device contains two magnets, P and Q, when the device is dropped, the magnets, Q and P, would lose some of their magnetism. The magnetic force of attraction will hence not be able to overcome gravity and friction, thus the two cleaning sponges could not stay on the window anymore.

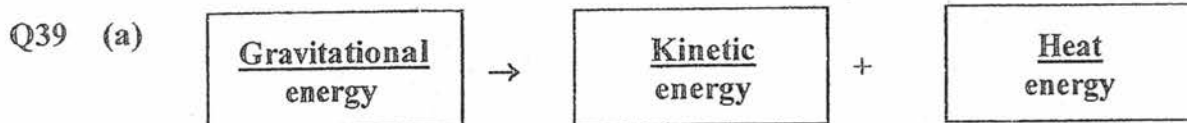
- Q37 (a) To ensure that her results would be more accurate and to minimize human error.

- (b) This is to ensure that the lit torch is the only light source in the experiment. Susan could thus conclude the transparency of the materials by looking at the shadow formed by each material.

- (c)
- | | | | |
|---|---|---|---|
| G | H | F | E |
|---|---|---|---|

- (d) Position 1 is nearer to the lamp as compared to the position where Mary is standing, thus Susan was standing at position 1.

- Q38 (a) Diana should repeat the whole experiment thrice and calculate the average amount of force required to pull the wooden block over each material to ensure that her results are reliable.
- (b) Same distance that the block moved.
- (c) Material A. The amount of force required to pull the wooden block across plank with material A is the most, showing that there is most amount of friction between the wooden block and material A. We can hence conclude that material A is the roughest. By using material A to make the coverings, there will be most amount of friction between the coverings and the wooden floor, prevent the ladder from moving, making it safest for the user.



- (b) All the kinetic energy had been converted to heat and sound energy. There is also friction between the wheels of the skateboard and the Ramp. Friction oppose movement, thus Tom came to a stop at point B.
- (c) Yes, point C is higher than point A. At point C, Tom will be at a higher height than at point A, Tom will hence store more amount of gravitational potential energy at point C which is converted to more amount of kinetic energy, allowing Tom to skate beyond point B.

Q40 (a) Brightest ————→ Dimmest

B3	B2	B4	B1
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- (b) Nothing will happen.
- (c) B4 and B6 would remain lit. The three bulbs were arranged in parallel. When B5 fused, B4 and B6 form part of the closed circuit and electricity could still flow through the closed circuit.

End