Anglo-Chinese School (Junior)

SEMESTRAL ASSESSMENT 1 (2018)

PRIMARY 6

SCIENCE

BOOKLET A

Friday **11 May 2018** **1 hr 45 min**

Name: _____ ( ) Class: 6.( )

INSTRUCTIONS TO PUPILS

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 28 questions in this booklet.

4 Answer ALL questions.

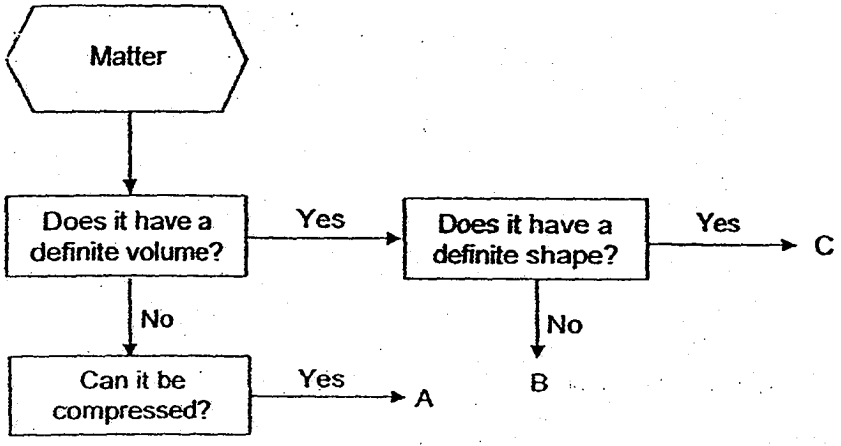
5 Shade your answers in the Optical Answer Sheet (OAS) provided.

This question paper consists of 18 printed pages (inclusive of cover page)

Booklet A (46 marks)

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

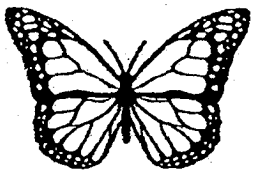
1. The flowchart below shows how matter can be classified.



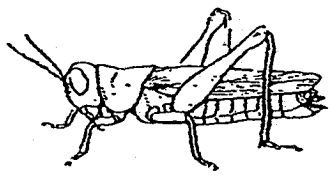
What do A, B and C represent?

	A	B	C
(1)	sand	water	ice
(2)	water	oxygen	sand
(3)	oxygen	water	ice
(4)	oxygen	sand	ice

2. Below are Animal E and Animal F.



Animal E

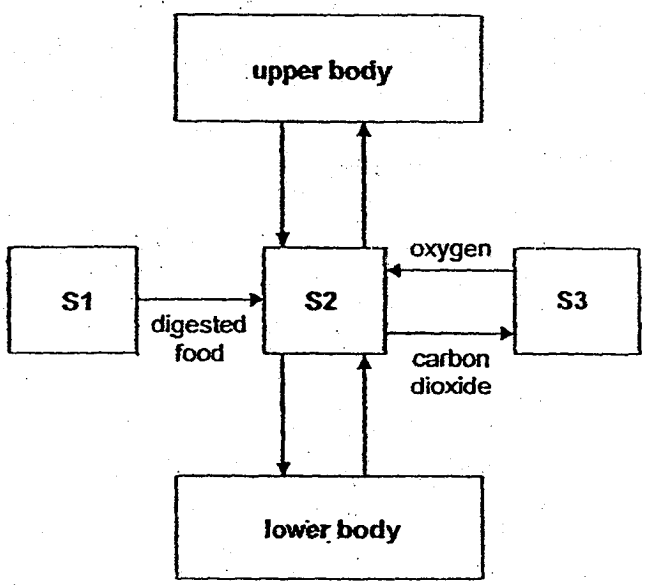


Animal F

Which of the following comparisons between the life cycles of Animal E and Animal F is correct?

		Animal E	Animal F
(1)	Its young has wings.	Yes	Yes
(2)	Its young is harmful to plants.	Yes	Yes
(3)	The young looks like the adult.	Yes	No
(4)	There are 4 stages in its life cycle.	Yes	Yes

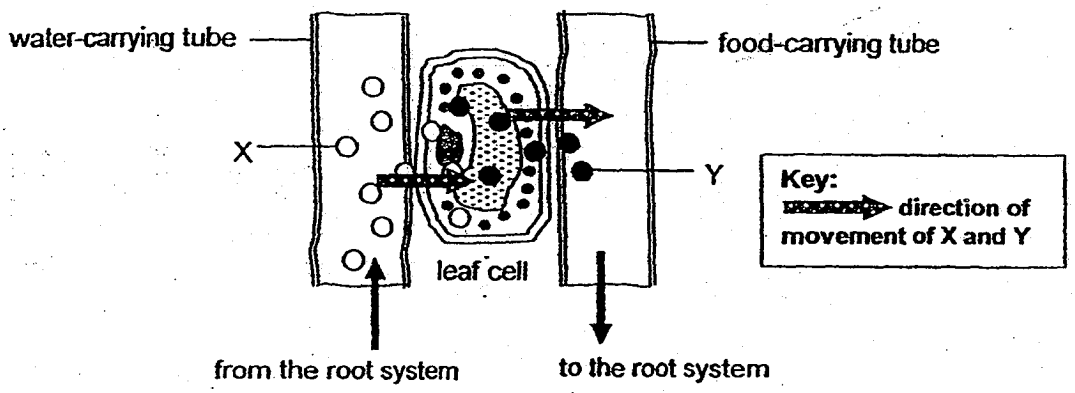
3 The diagram below shows the different systems in the human body working together.



Based on the diagram above, which of the following correctly represents systems S1, S2 and S3?

	S1	S2	S3
(1)	Circulatory	Digestive	Respiratory
(2)	Respiratory	Circulatory	Digestive
(3)	Digestive	Respiratory	Circulatory
(4)	Digestive	Circulatory	Respiratory

4. The diagram below shows a leaf cell, water-carrying tube and food-carrying tube in the presence of light.



What could X and Y be?

	X	Y
(1)	water	oxygen
(2)	oxygen	starch
(3)	sugar	water
(4)	water	sugar

5. Andrew observed three cells (X, Y and Z) and completed the table below. A tick (✓) indicates that the part was observed in the cell.

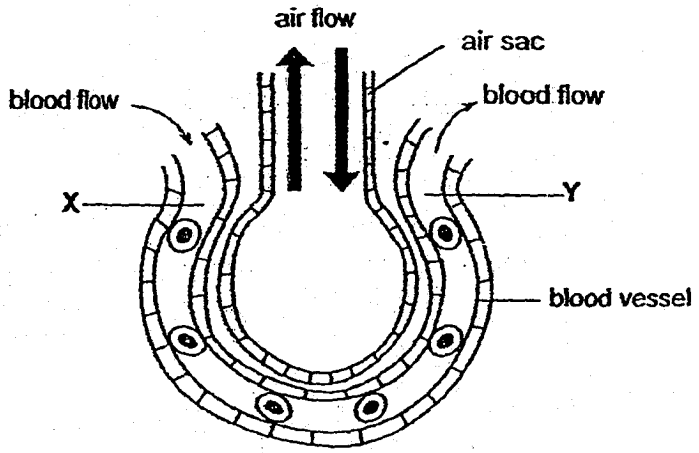
Parts of Cell	Cell X	Cell Y	Cell Z
Cytoplasm	✓	✓	✓
Cell wall	✓		✓
Cell membrane	✓	✓	✓
Chloroplasts			✓
Nucleus	✓	✓	✓

Based on what he had observed, he classified the three cells (X, Y and Z) into two groups.

Which of the following shows the correct classification?

	Animal Cells	Plant Cells
(1)	X , Z	Y
(2)	Y	X , Z
(3)	X, Y	Z
(4)	Z	X, Y

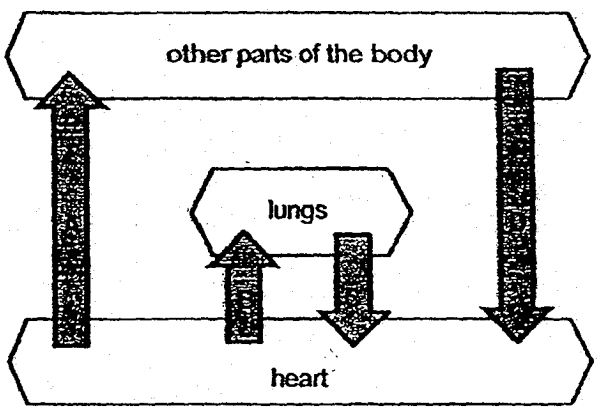
6. The diagram below shows an air sac and a blood vessel found in the lungs of a man. Blood flows through the blood vessel from point X to Y.



Which of the following describes the levels of oxygen and carbon dioxide in the blood at points X and Y?

	X		Y	
	Oxygen	Carbon Dioxide	Oxygen	Carbon Dioxide
(1)	low	high	low	high
(2)	high	low	low	high
(3)	low	high	high	low
(4)	high	low	high	low

7. The diagram is a simple representation of the human circulatory system. Blood vessels are represented by the letters A, B, C and D.



Which two blood vessels carry blood rich in carbon dioxide?

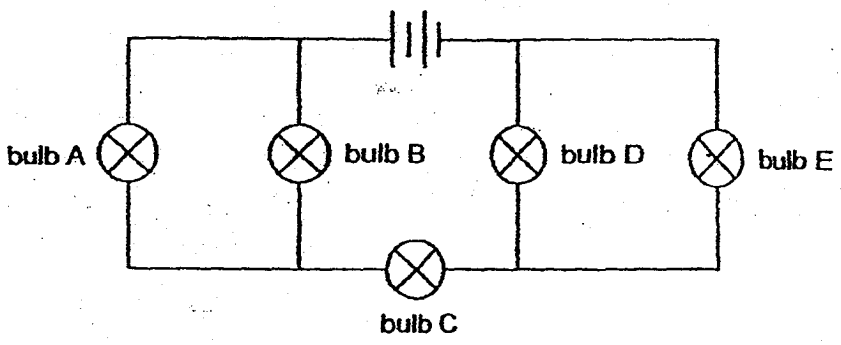
(1) A and C

(2) A and D

(3) B and C

(4) B and D

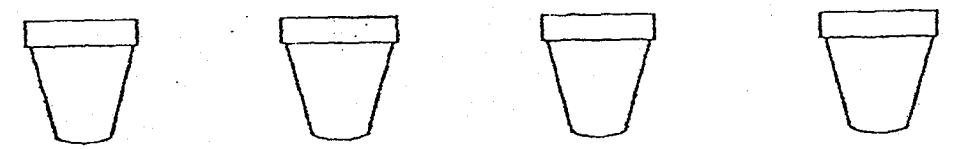
8. The diagram below shows five bulbs connected to two batteries.



How many bulbs will still light up if bulb C fuses?

(1) 0
(2) 2
(3) 3
(4) 4

9. An equal amount of boiling water was poured into four identical containers, W, X, Y and Z, made of different materials.



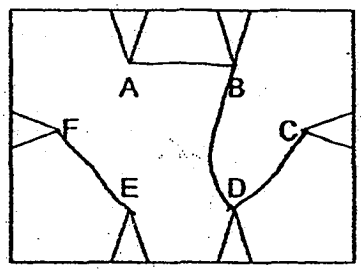
After ten minutes, the temperature of the water in each container was measured and recorded in the table shown below.

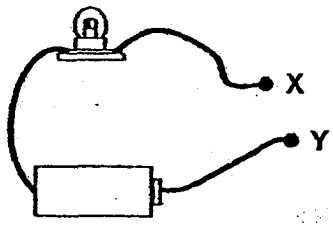
Container	W	X	Y	Z
Temperature (°C)	68	75	37	43

Based on the results, which container is made of a material that is the best conductor of heat?

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

10. Jonas made a circuit card with clips A, B, C, D, E and F as shown below.





circuit tester

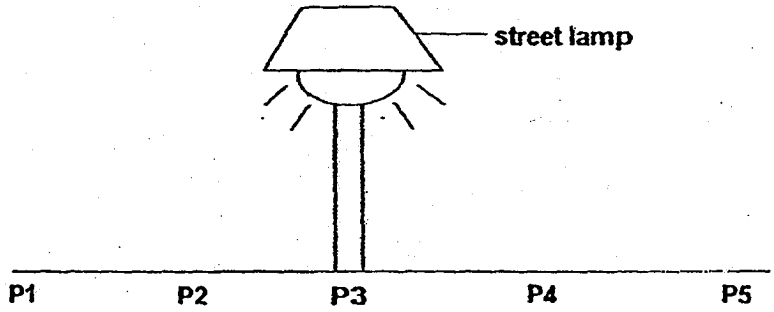
The table shows the results when he connected the points X and Y of the circuit tester to the various clips of the circuit card to see if the bulb would light up. He recorded the results of his experiment in the table below.

Clips connected to circuit tester		**Light bulb of circuit tester**
X	**Y**	
A	B	Lights up
B	D	Lights up
C	E	Does not light up
C	D	Lights up
D	F	Does not light up
E	F	Lights up

Which of the following shows the correct results when the following combination of clips are connected to the circuit tester?

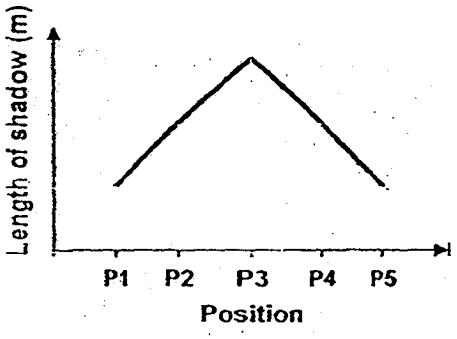
	A and C	**B and F**	**D and E**
(1)	Lights up	Does not light up	Lights up
(2)	Does not light up	Lights up	Lights up
(3)	Lights up	Does not light up	Does not light up
(4)	Does not light up	Lights up	Does not light up

11. Zachary walked past a lighted street lamp from point P1 to P5 on a dark night.

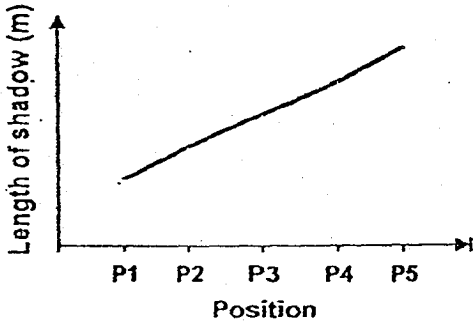


Which of the following graphs best represents the changes in the length of Zachary's shadow as he walked from point P1 to P5?

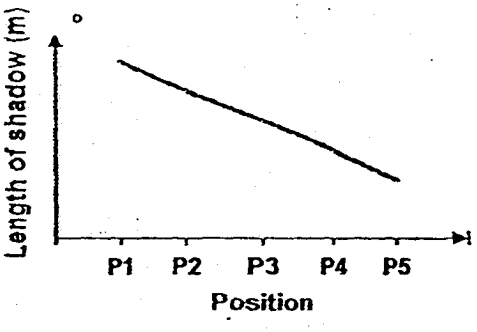
(1)



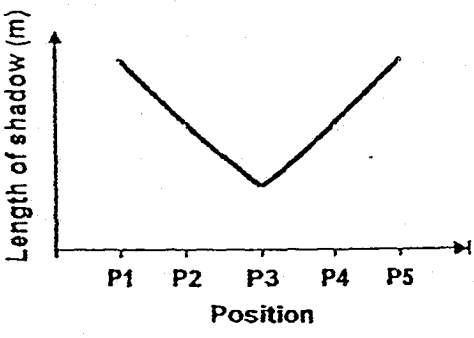
(2)



(3)

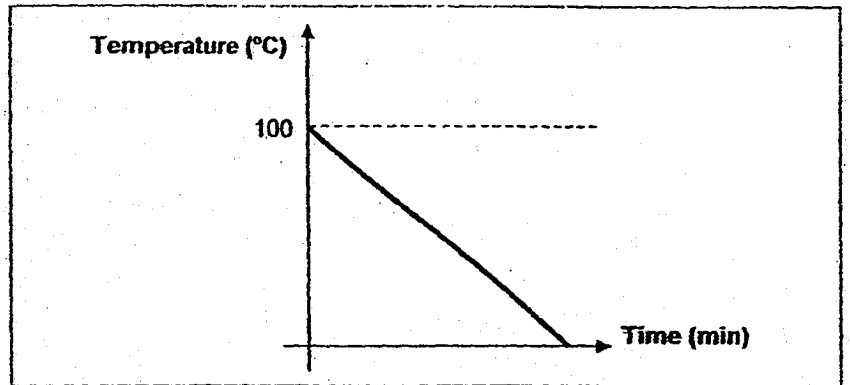


(4)

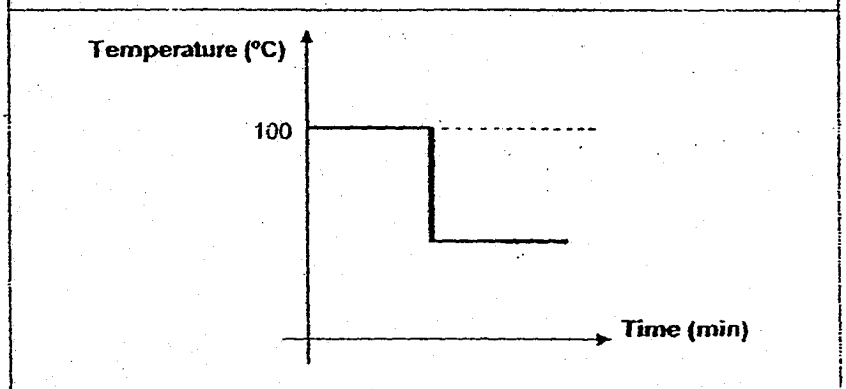


12. Karl poured some boiling water from the kettle into a beaker in the science lab. He then added a few ice cubes into the beaker. Which of the following graphs shows the best representation of the temperature changes of the content in the beaker?

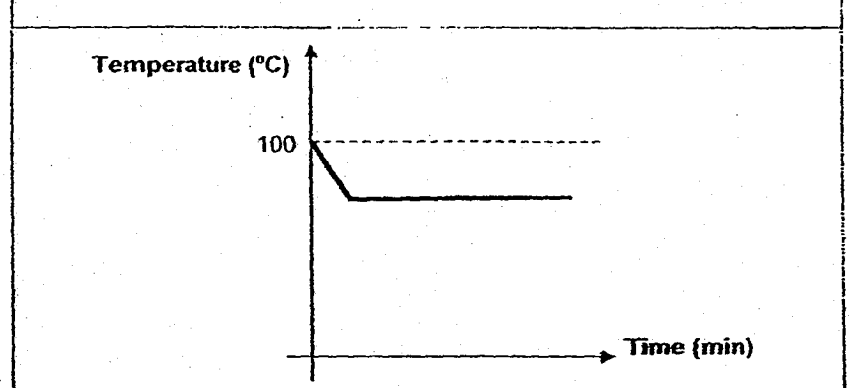
(1)



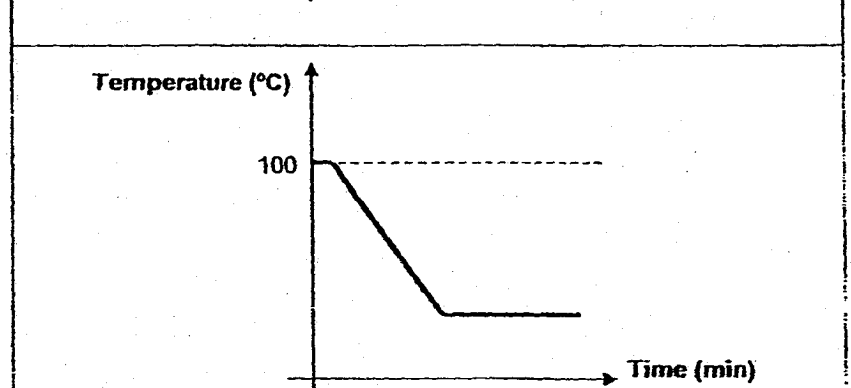
(2)



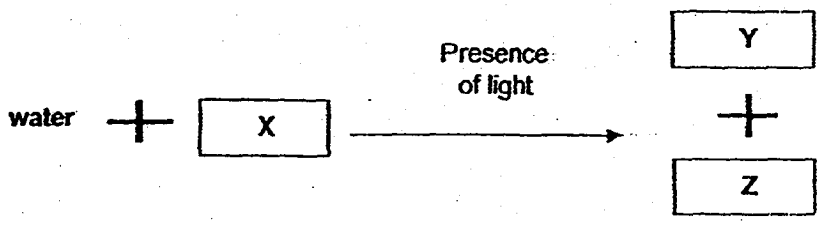
(3)



(4)

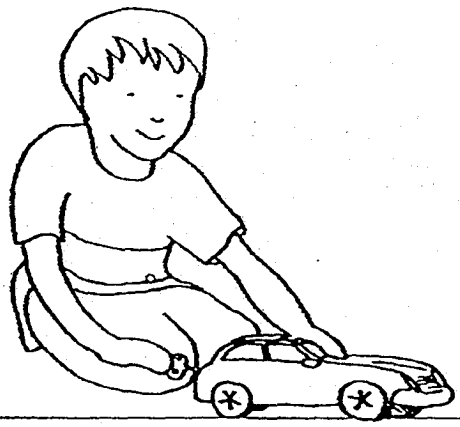


13. The diagram shows the process of photosynthesis in plants.



	X	Y	Z
(1)	glucose	carbon dioxide	water
(2)	oxygen	starch	carbon dioxide
(3)	starch	oxygen	glucose
(4)	carbon dioxide	glucose	oxygen

14. Gabriel has a toy car. He turns the key a few times to wind it up.



Which of the following statements are true after he released it?

A The potential energy of the car will increase as it moves along the floor.

B The potential energy in the car decreases then increases as it moves along the floor.

C The kinetic energy of the car starts to increase and then decrease as it moves along the floor.

D The potential energy in the car will be converted to kinetic energy and heat energy as it moves along the floor.

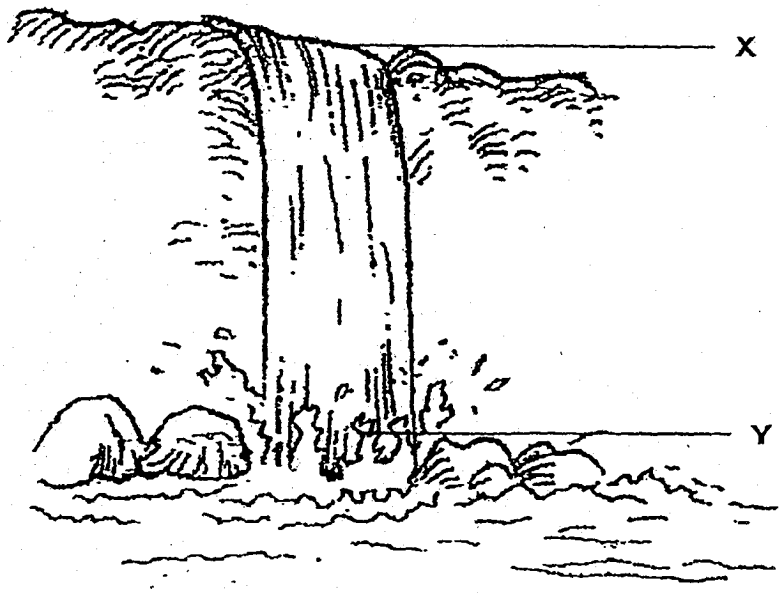
(1) C and D only

(2) A, B and C only

(3) B, C and D only

(4) All of the above

15 The diagram below shows a waterfall.



Which of the following shows the correct changes in the energy of the water from X to Y?

	Potential Energy	Kinetic Energy
(1)	increases	increases
(2)	increases	decreases
(3)	decreases	increases
(4)	decreases	decreases

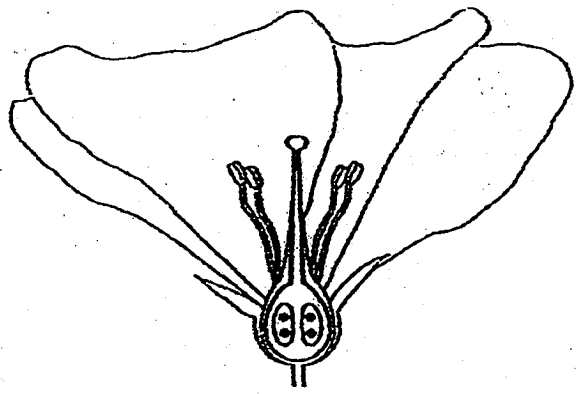
16. The table below shows the boiling and melting points of three substances, E, F and G.

Substances	Melting Point	Boiling Point
E	5 °C	40 °C
F	20 °C	120 °C
G	-5 °C	20 °C

Based on the table above, which one of the following is the state of substance E, F and G at room temperature of 26°C?

	E	F	G
(1)	Liquid	Liquid	Gas
(2)	Liquid	Solid	Gas
(3)	Gas	Liquid	Solid
(4)	Solid	Gas	Liquid

17. The diagram below shows the cross-section of a flower.



Which of the following best explains why the flower is most likely to be pollinated by animal?

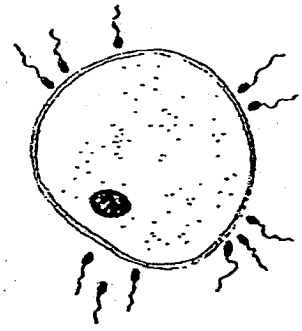
(1) There are several stigmas.

(2) It has more than one anther.

(3) The stigma is within the flower.

(4) The anthers are as high as the stigma.

18. The diagram below shows sperms and an egg.



Which of the following statements are true?

A The sperm and egg are cells.

B All the sperms can fertilise the egg at the same time.

C The fertilized egg contains genetic information from both parents.

D The fertilized egg develops in the womb of the female reproductive system

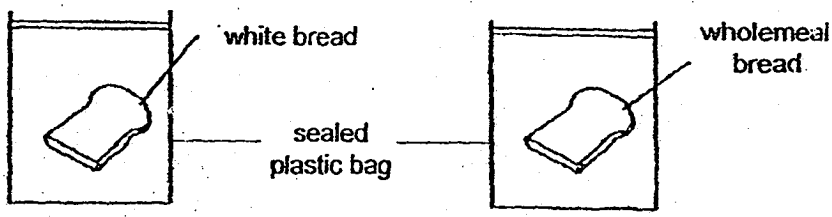
(1) A and B only

(2) B and C only

(3) A, B and C only

(4) A, C and D only

19. George wanted to find out if moisture was needed for mould to grow. He placed one piece of bread into similar plastic bags as shown below.



The table below shows the variables in George's experiment.

Variable	Set-up S	Set-up T
Type of bread	White bread	Wholemeal bread
Material of plastic bag	Transparent	Transparent
Amount of water	0 ml	10 ml
Location	Dark cupboard	Dark cupboard

His teacher said that one of the variables was incorrect for the experiment to be a fair test. Which of the following variables was **incorrect**?

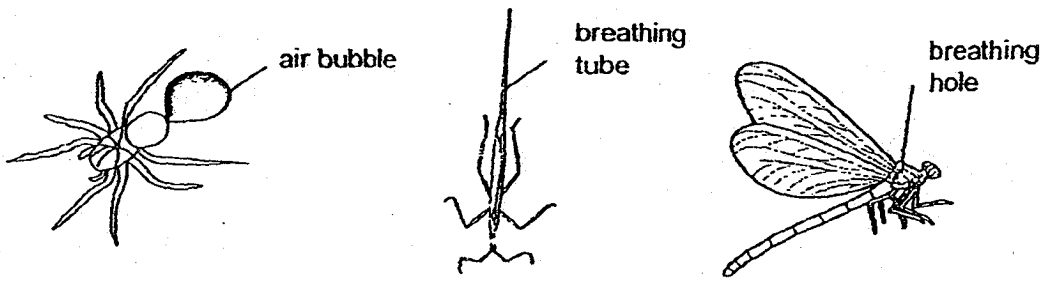
(1) Location

(2) Type of bread

(3) Amount of water

(4) Type of plastic bag

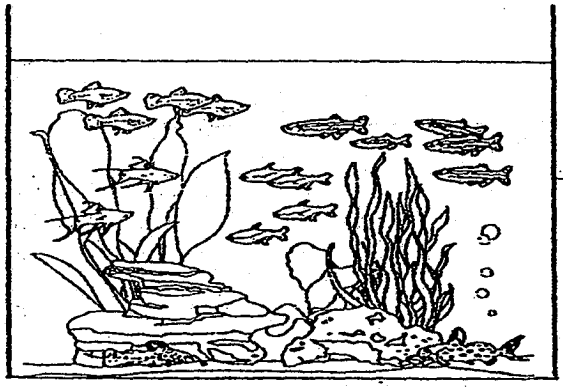
20. Fred observed 3 organisms, P, Q and R at the school pond. Below are the drawings of the organisms Fred made.



Which one of the following correctly shows where the organisms were likely found?

	Just below the pond surface	Above the pond surface	At the bottom of the pond
(1)	P	Q	R
(2)	R	P	Q
(3)	Q	R	P
(4)	R	Q	P

21. Ali, Bala, Carl and Deming made a statement each about the living things in the school aquarium.



Ali	The fishes breathe through their gills.
Bala	The fishes give out oxygen for the plants.
Carl	Plants take in oxygen through their roots.
Deming	The plants take in dissolved oxygen in the water.

Which of the students made the correct statements?

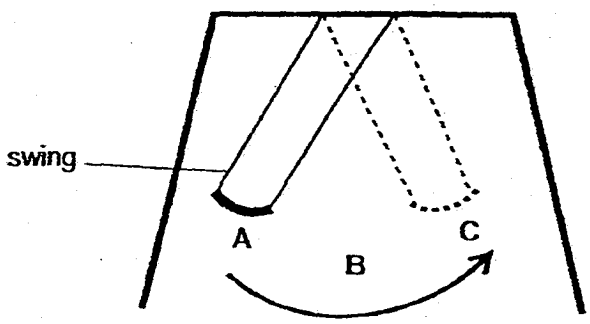
(1) Ali and Bala

(2) Bala and Carl

(3) Ali and Deming

(4) Carl and Deming

22. The diagram below shows how a swing moves from the start position A to B and then to C.



What force(s) is/are acting on the swing as it moves from position A to C?

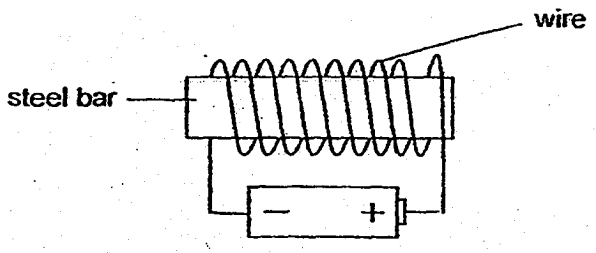
(1) Frictional force

(2) Gravitational force

(3) Kinetic force and gravitational force

(4) Frictional force and gravitational force

23. Ivan conducted an experiment to find out if the number of times a wire is coiled around a steel bar affects the number of iron nails it will attract.



The table below shows the results of Ivan's findings.

Number of coils of wire around the steel bar	Number of iron nails attracted
2	0
6	3
10	6
14	9
18	12

What is the least number of times the wire must be coiled around the steel bar for it to attract 11 iron nails?

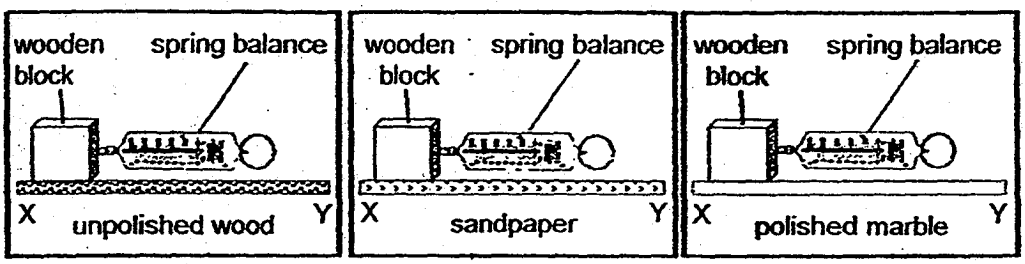
(1) 6

(2) 12

(3) 16

(4) 19

24. Randy wanted to find out how the surface of a material affects the amount of force need to move an object. He attached a wooden block weighing 200g to a spring balance which he used to pull the block across 3 different materials - unpolished wood, sandpaper and polished marble from Point X to Y as shown below.

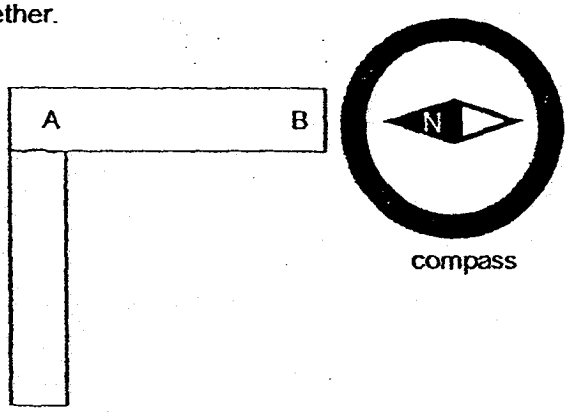


Set-up A Set-up B Set-up C

Which of the following shows the correct order of the set-ups in showing the amount of force required to pull the wooden block, starting with the least amount of force?

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

25. The diagram below shows what happens when a compass and two bar magnets are placed together.

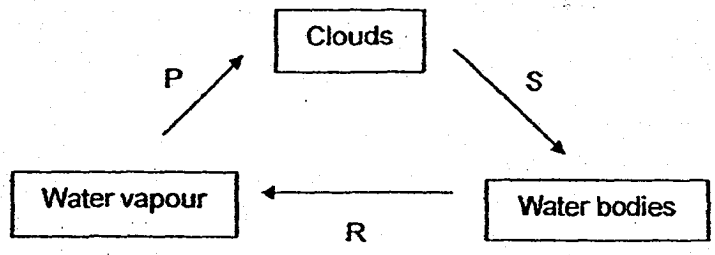


compass

Which of the following correctly identifies the poles of each end of the bar magnet?

	A	B	C	D
(1)	North	South	South	North
(2)	North	South	North	South
(3)	South	North	South	North
(4)	South	North	North	South

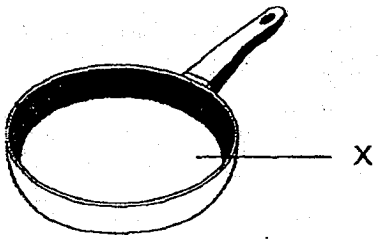
26. The diagram below shows the water cycle.



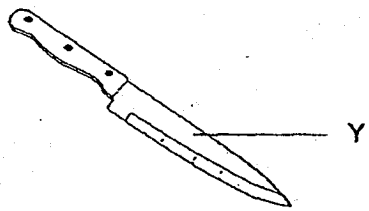
Which of the following shows the processes P, R and S correctly?

	P	R	S
(1)	Evaporation	Condensation	Raining
(2)	Condensation	Evaporation	Raining
(3)	Raining	Condensation	Evaporation
(4)	Condensation	Raining	Evaporation

27. Chefs need equipment that enable them to cook the ingredients easily and quickly without getting themselves burnt or hurt. Below are items that a chef uses to cook his dish in the kitchen.



sauce pan

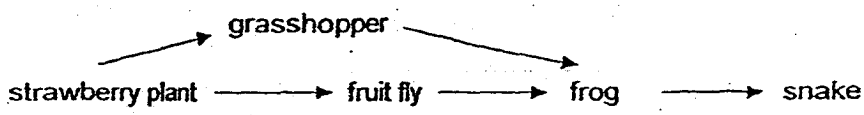


knife

Which one of the following shows the most important properties of materials X and Y to be used to make the sauce pan and knife?

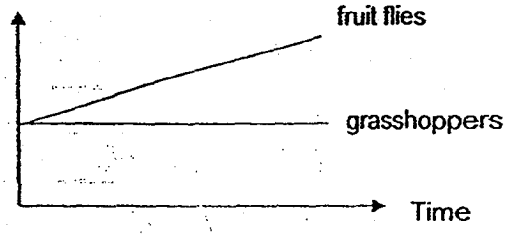
	sauce pan	knife
(1)	strong and flexible	strong and heavy
(2)	strong and good conductor of heat	strong and light
(3)	strong and heavy	strong and flexible
(4)	strong and waterproof	strong and good conductor of heat

28. Harry studied the interactions of fruit flies, grasshoppers, strawberry plants and frogs in a particular habitat. A few snakes were subsequently introduced into this habitat. He drew the food relationships in the diagram below.

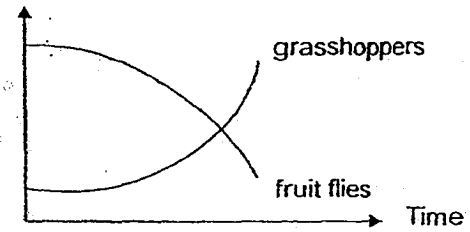


Which one of the following graphs correctly shows the changes in the populations of fruit flies and grasshoppers after the snake population was introduced?

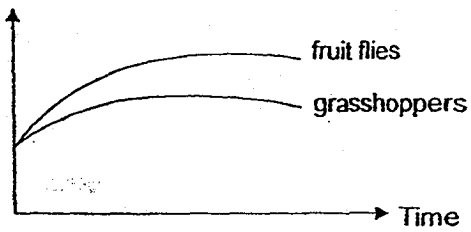
(1) Population



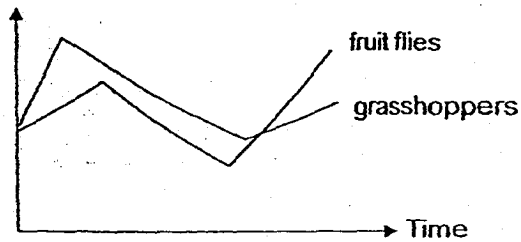
(2) Population



(3) Population



(4) Population



End of Booklet A

Anglo-Chinese School (Junior)

SEMESTRAL ASSESSMENT 1 (2018)

PRIMARY 6

SCIENCE

BOOKLET B

Friday **11 May 2018** **1 hr min**

Name: _____ ( ) Class: 6.( ) Parent's Signature: _____

INSTRUCTIONS TO PUPILS

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 13 questions in this booklet.

4 Answer ALL questions.

5 The marks are given in the brackets [ ] at the end of each question or part question.

Booklet	Possible Marks	Marks Obtained
A	56	
B	44	
Total	100	

This question paper consists of 16 printed pages (inclusive of cover page).

Booklet B (44 marks)

For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

29. Martin created the table below to compare the volume of oxygen and water vapour of inhaled air and exhaled air by man. [1]

(a) Insert a tick (✓) in the correct columns to show the changes in the volume of oxygen and water vapour in inhaled and exhaled air.

Gas	Inhaled air			Exhaled air		
	Higher	Lower	No change	Higher	Lower	No change
Oxygen						
Water vapour						

(b) Is there a difference in the temperature between inhaled air and exhaled air? Explain your answer clearly. [1]

_____

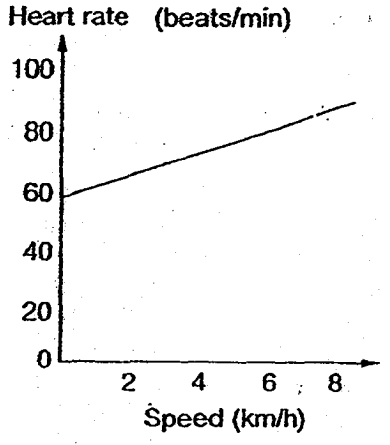
_____

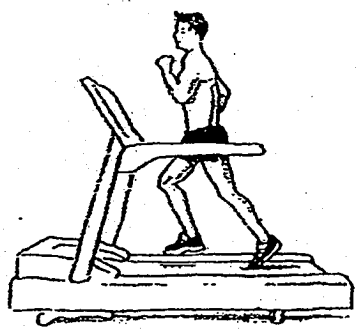
(c) Plants also exchange gases with their surroundings. State the gas(es) plants need(s) in the presence and absence of light. [1]

Gas(es) plant need(s)	
In the presence of light :	_____
In the absence of light :	_____

(Go on to the next page)

30. Lincoln is running on a treadmill.
The graph below shows how Lincoln's heart rate changes with the speed at which he runs.

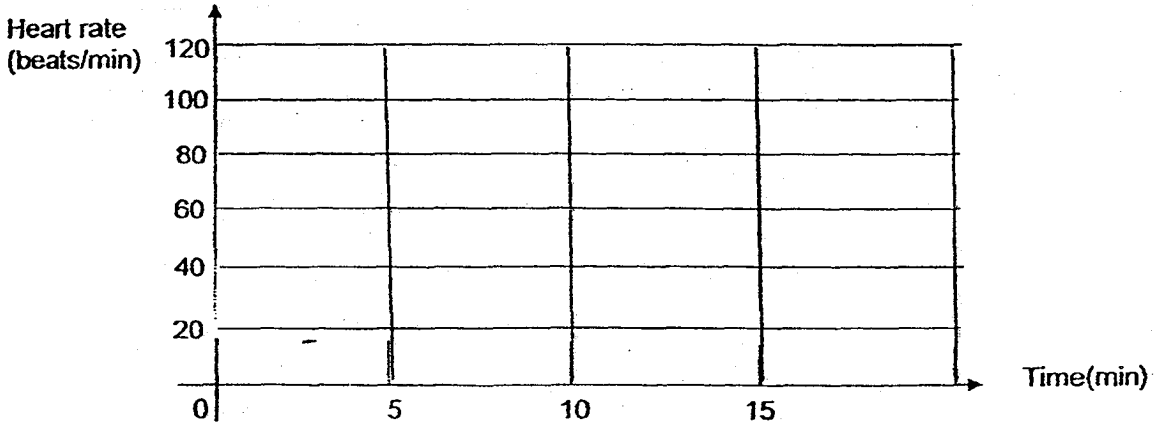




(a) State the relationship between the speed at which he runs and his heart rate. [1]

(b) Describe how oxygen in the surrounding reaches Lincoln's legs. [2]

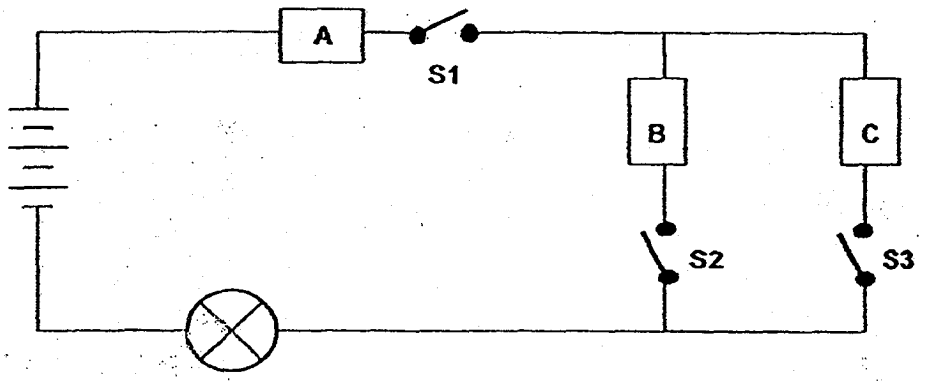
(c) Lincoln stopped running and rested. [1]
In the graph below, draw a line graph to show the changes in Lincoln's heart rate immediately after he stopped running for 15 minutes.



(Go on to the next page)

SCORE

31. Jaden sets up an electrical circuit as shown in the diagram below. He used different materials, A, B and C, and switches, S1, S2 and S3, to connect the circuit.



The table below shows the result when the different switches are closed. A tick (✓) indicates that the switch is closed.

Switches closed			Did the bulb light up?
S1	S2	S3	
✓	✓		No
		✓	No
	✓		No
✓		✓	Yes

(a) Based on the results, which of the material(s) is/are electrical conductor(s)? [1]

_____

(b) Give an example for material C. [1]

_____

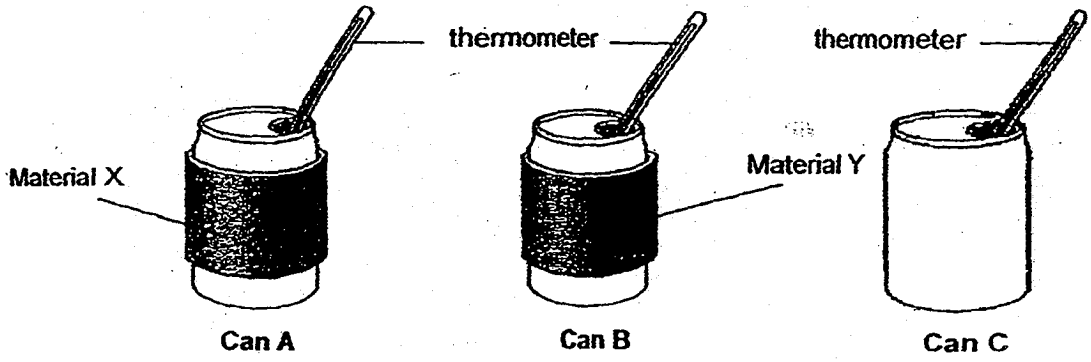
(c) Jaden replaces Switch S1 with another light bulb and then closes switch S2. What will he observe? Explain your answer. [1]

_____

_____

(Go on to the next page)

32. Aiden conducted an experiment in the science lab using three identical metal cans, A, B and C, which were filled with hot water of 98°C. Aiden used 2 different materials, X and Y, to wrap around cans, A and B respectively, as shown below.



He then read and recorded the temperature of the water in each can every 5 minutes in the table below.

Time (minutes)	Temperature of water in can (°C)		
	Can A	Can B	Can C
0	98	98	98
5	83	90	81
10	68	82	64
15	53	74	43
20	38	66	26

(a) Based on the results, what can you conclude from the experiment? Explain your answer. [1]

_____

_____

(b) Based on the results, which material, X or Y, is more suitable for making the handle of a cooking pot? Explain your answer. [1]

_____

_____

(c) What is the purpose of setting up Can C?

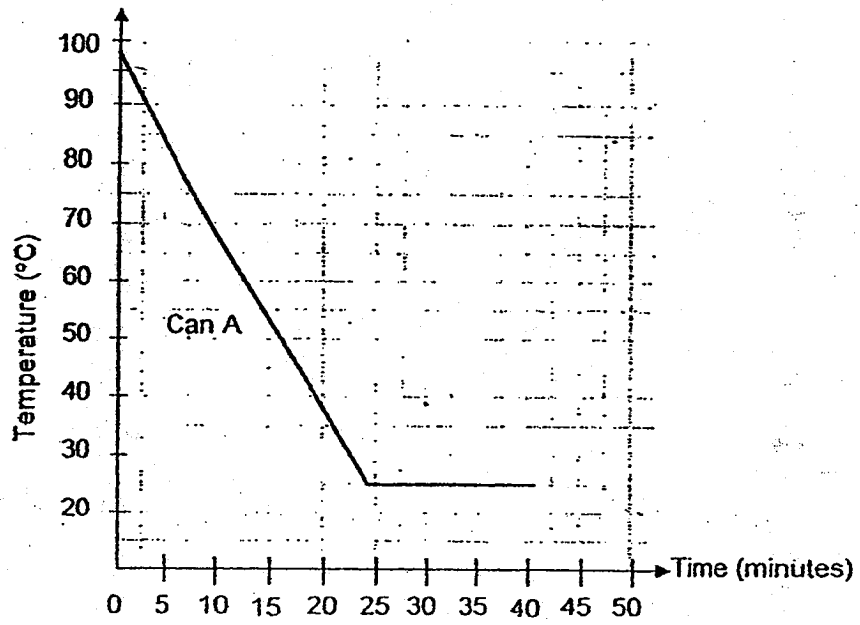
_____

_____

(Go on to the next page)

SCORE

(d) The graph below shows the changes in the temperature of water in Can A over time. [1]



Explain clearly why the temperature of the water in Can A remains at 25°C after 23 minutes?

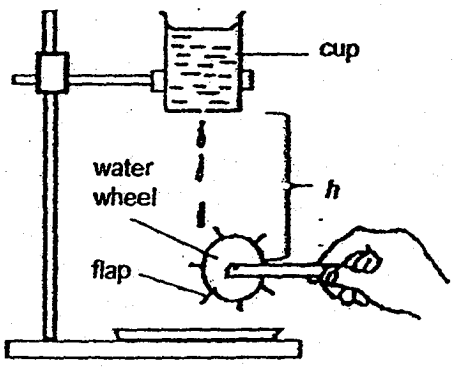
_____

_____

(Go on to the next page)

SCORE

33. Denzel placed a water wheel below a cup with a hole in the bottom. The water dripping from the cup caused the water wheel to spin.

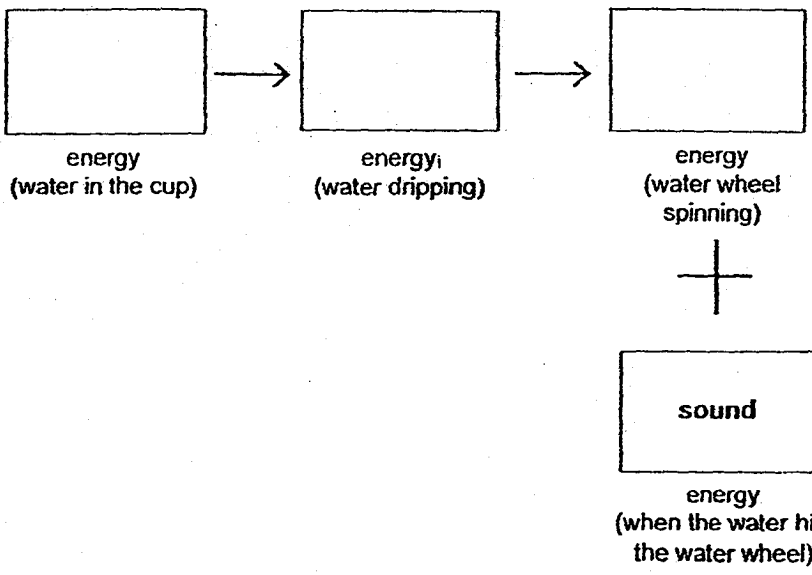


(a) Without changing height, *h*, state two things Denzel can do to make the water wheel spin faster? [2]

_____

_____

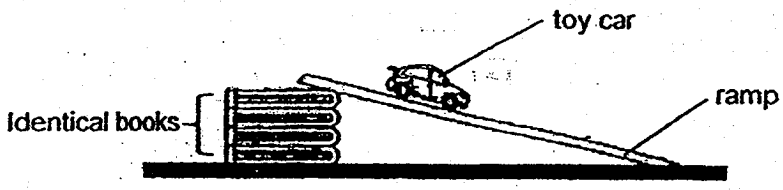
(b) Complete the energy conversion below. [1]



(Go on to the next page)

SCORE 3

34. Jerome set up an experiment in the school hall as shown below. He wanted to find out how the height of the ramp affects the distance travelled by the toy car.



(a) State two variables that must be kept the same for the experiment to be a fair test. [1]

_____

_____

(b) Describe clearly what Jerome must do to the set-up to test his aim? [1]

_____

_____

(c) Apart from the answer given in (b), describe clearly what Jerome can do to the set-up to decrease the speed of the same toy car? [1]

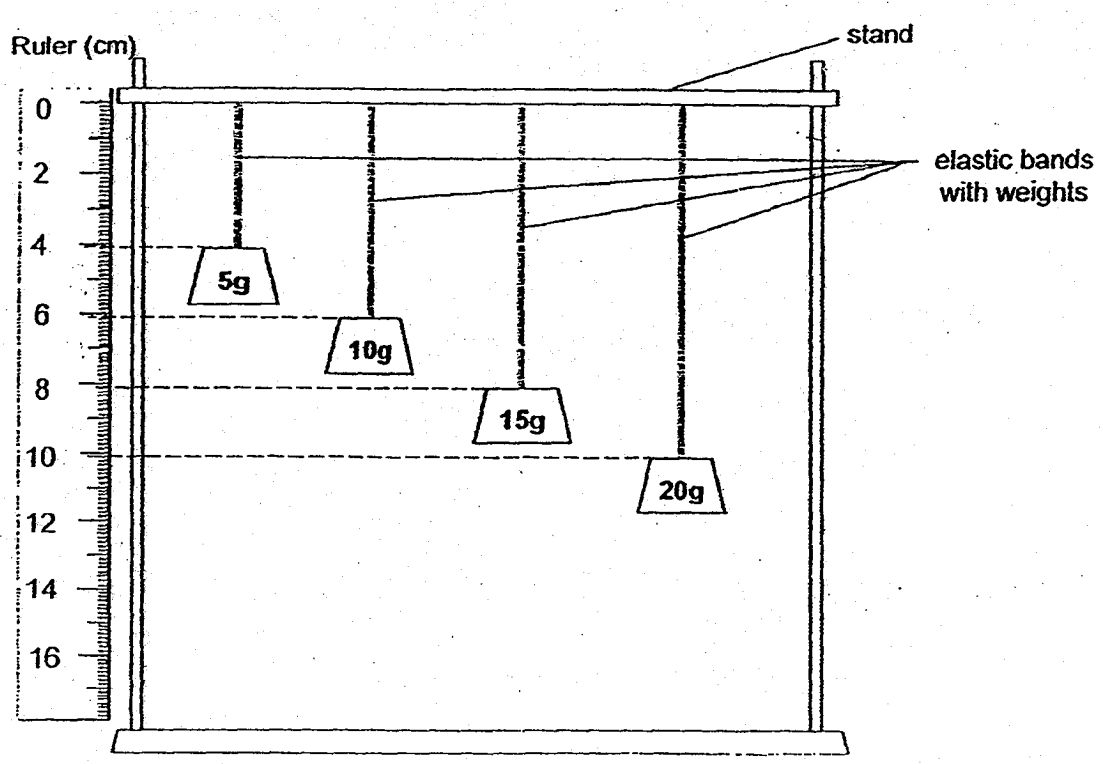
_____

_____

(Go on to the next page)

SCORE /

35. Joshua set up an experiment using four similar elastic bands as shown below.



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

_____

_____

(b) (i) What is the likely length of the elastic band if a 30g weight was hung on it? [½]

_____

(ii) Based on the results of the experiment, what is the original length of the elastic band? [½]

_____

(c) Name the forces acting on the hanging weights. [1]

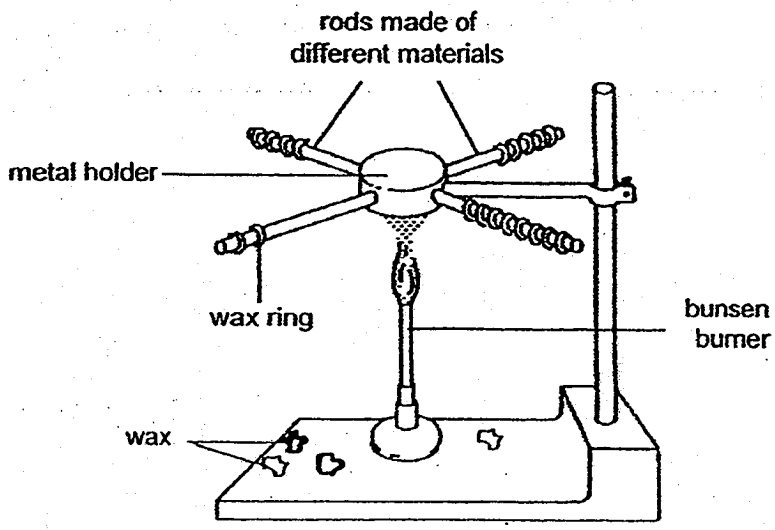
_____

_____

(Go on to the next page)

SCORE	

36. Leela wanted to find out which material can best slow down heat loss. She stuck four rods made of different materials into a metal holder and placed some wax rings around the rods before heating it above the flame. At the end of 2 minutes, she counted the number of wax rings left on each rod.



(a) Which of the following variable(s) must she keep constant so that the experiment is a fair test? [1]

Statement	Tick (✓) if correct
The length of each type of rod.	
The number of wax rings placed on each rod.	
The surface area of the wax rings in contact with the rods.	
The time taken for all the wax rings on each rod to drop off.	

(b) The table below shows the number of wax rings left on each rod at the end of 2 minutes. [1]

Rod	K	L	M	N
Number of wax rings left	2	4	5	8

Based on the results, give an example of a material that Rod K and Rod N could be made of.

Rod K : _____

Rod N : _____

(Go on to the next page)

SCORE	

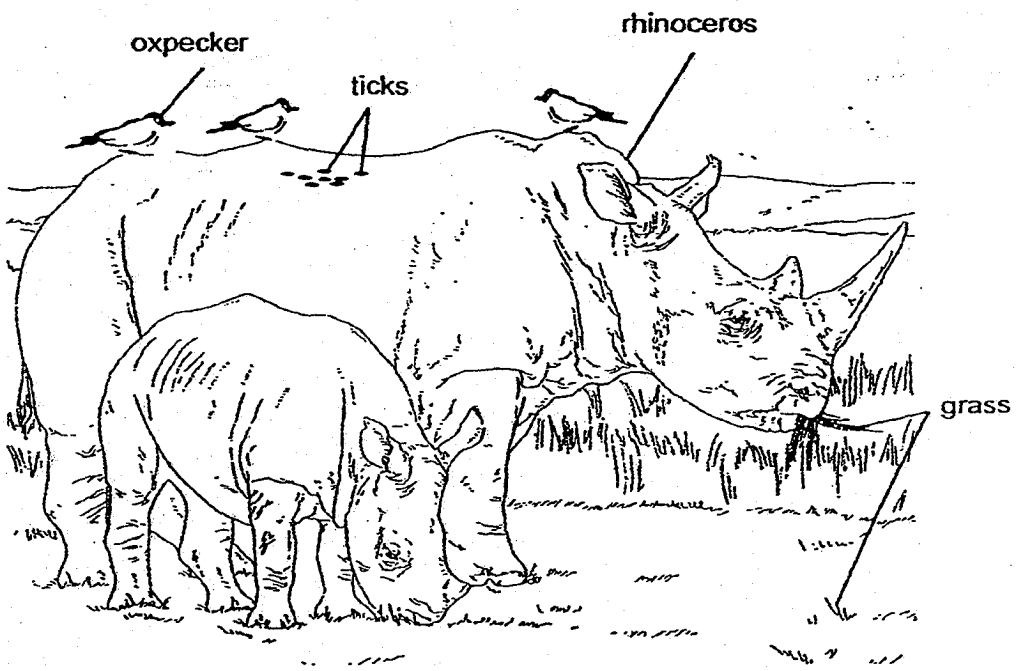
(c) Leela wanted to repeat the experiment to ensure the reliability of her results. [1]
After turning off the bunsen burner, she waited 30 minutes before repeating the experiment. Give a reason why she did so.

_____

_____

_____

37. Study the picture below.



The bird on the back of the African rhinoceros is an oxpecker that feeds on ticks which feed on the blood of mammals like the rhinoceros.

(a) In the space below, draw a food chain to show the food relationship of all the organisms in the picture above. [1]

(Go on to the next page)

(b) Explain how the oxpecker and rhinoceros are dependent on each other. [2]

_____

_____

_____

(c) In the 1970s and 1980s, there was persistent poaching of the African rhinoceros. This led to changes in the population size of the other organisms. How will the other organisms in the picture be affected when the number of rhinoceros decreased? [2]

_____

_____

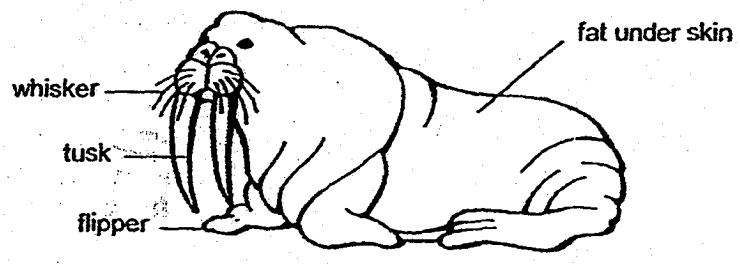
_____

_____

(Go on to the next page)

SCORE	/4

38. Animal P is a large mammal that lives in herds at the Earth's cold, northern region. Both the females and males have tusks. Their sensitive whiskers are used to detect food. They have a thick layer of fat under their skin and their flippers have bumps on them.



Animal P

(a) In the table below are the functions of the structural adaptations of Animal P. Based on the information given in the question, state the correct adaptation in the box to match the function. [2]

Physical Adaptation	Function of the adaptation
	To defend its territory.
	To help keep it warm in the cold water.
	To find shellfish and clams at the bottom of the ocean, where it can be too dark to see.
	To move on the slippery ice and rock surfaces.

(b) Animal P lives in herds. State 2 benefits of this. [2]

_____

_____

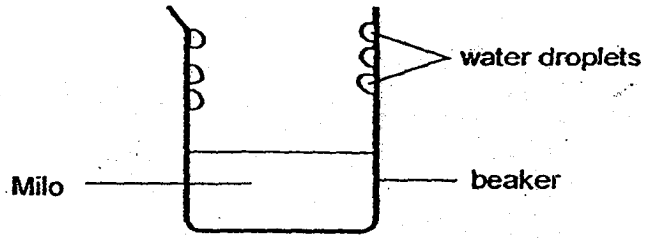
_____

_____

(Go on to the next page)

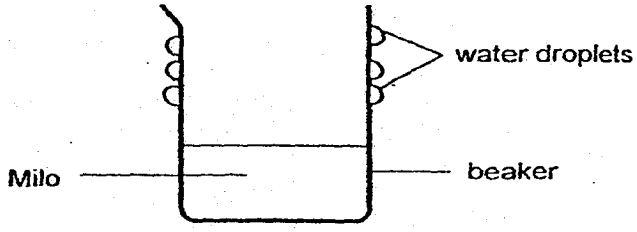
SCORE	4

39. Lily poured some Milo into a beaker and left it in a room at a temperature of 25°C. After ten minutes, she noticed that a few water droplets formed on the inside of the beaker as shown below.



(a) How did the water droplets form on the inside of the beaker? [2]

Lily did something to the setup and observed that the water droplets now formed on the outside of the beaker as shown below.

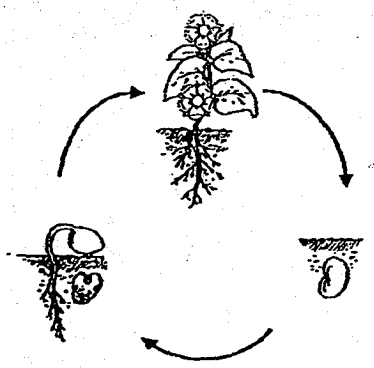


(b) What could Lily have done to the setup? [1]

(Go on to the next page)

SCORE	/ 3

40. The diagram shows the growth of a seed to an adult plant.



(a) What are the necessary conditions for a seed to become a seedling? [1]

_____

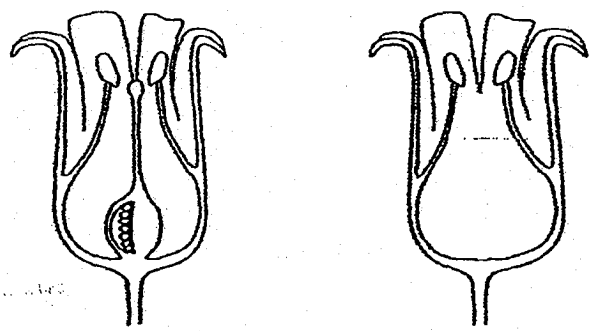
_____

(b) Describe the process of pollination. [1]

_____

_____

(c) The diagrams below show the cross-sections of two flowers from the same plant.



Flower X Flower Y

Pollen grains have been transferred by insects to Flower X and Flower Y. [1]
Which flower(s) can develop into a fruit? Explain your answer.

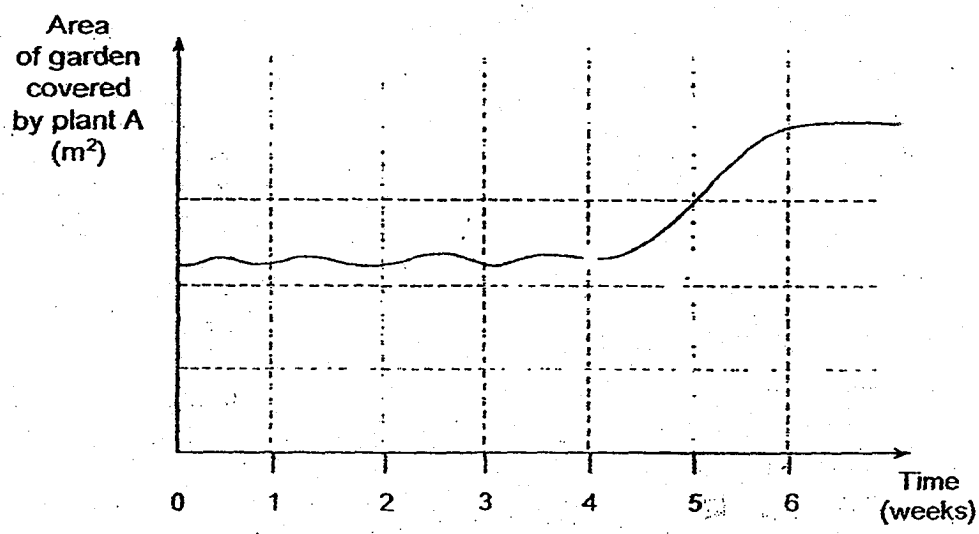
_____

_____

_____

(Go on to the next page)

41. At the start of the year, an animal population was introduced into the school garden community which caused the population of plant A to change.



(a) On the above graph, mark with the letter 'X' to show during which week the animal population was introduced into the garden. [1]

(b) Suggest two possible reasons for the change in the area covered by plant A when the animal population was added to the garden community. [2]

(i) _____

_____

(ii) _____

_____

End of Paper

SCORE	

YEAR : 2018
LEVEL : PRIMARY 6
SCHOOL : : ANGLO-CHINESE (JUNIOR/PRIMARY)
SUBJECT : : SCIENCE
TERM : SA1

Booklet A

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

Booklet B

Q29 (a)

Gas	Inhaled air			Exhaled air		
	Higher	Lower	No change	Higher	Lower	No change
Oxygen	✓				✓	
Water vapour		✓		✓		

(b) Yes. When air is inhaled, the air will gain heat from our body as it goes through the blood vessels, thus there is a difference in the temperature between inhaled air and exhaled air.

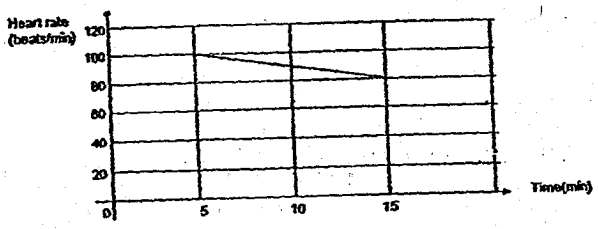
(c) In the presence of light : Carbon dioxide

In the absence of light : Oxygen

Q30 (a) The greater the speed at which he runs, the greater the number of beats of his heart per minute.

(b) The air in the surrounding enters his nose through the windpipe into his lungs, oxygen is absorbed into the bloodstream. The blood then transports it to all parts of the body.

(c)



Q31 (a) Materials A and C.

(b) Copper

(c) The bulbs will not light up. Material C is conductor of electricity thus electricity can flow through. Howerver, material B is an electrical insulator, hence it cause an open circuit which does not allow electricity to flow through. Therefore the bulbs will not light up.

Q32 (a) Material X is a better conductor of heat than material Y as it loses heat faster.

(b) Material Y. Material Y gained heat slower than material X, thus is an insulator of heat. Hence material Y is most suitable for making the handle of a cooking pot.

(c) To have a control set-up to ensure that the rate of the loss of heat is solely affected by X and Y.

(d) The temperature of the room Can A was about 25°C, can A lost most of its heat to the surroundings, hence can A remains at 25°C after 23 minutes.

Q33 (a) He can enlarge the hole of the cup. He can also change the water wheel to another one with a smaller mass.

(b)

Q34 (a) The roughness of the ramp and the type of wheels used on the toy car.

(b) He can add more books and measure the distance moved by the car.

(c) He can add sand on the ramp.

Q35 (a) To find out if the mass of the weights affect the length stretched by the elastic bands.

(b) (i) 14cm

(ii) 2cm

(c) Elastic spring force.

Q36 (a)

Statement	Tick (✓) if correct
The length of each type of rod.	✓
The number of wax rings placed on each rod.	✓
The surface area of the wax rings in contact with the rods.	✓
The time taken for all the wax rings on each rod to drop off.	

(b) Rod K : Iron

Rod N : Glass

(c) So that the rods will lose heat to the surrounding and start from room temperature.

Q37 (a) Galss --> Rhinoceros --> Ticke --> Oxpecker

(b) When there are ticks on the rhinoceors' body the Oxpecker will feed on the sticks and help the rhinoceros to get rid of the ticks which feed on the blood.

(c) As the number of rhinocerous decreases, the ticks that feed on the rhinocerous will decrease. Thus the population of the Oxpecker will also decrease.

Q38 (a)

Physical Adaptation
Tusk
Fat under skin
Whisker
Bumps on

(b) To keep their young safe from dangers like attacks from predators.
To defend their territory better.

Q39 (a) **The water in the milo evaporated and became water vapour. The water vapour came into contact with the cooler inside of the beaker. The water vapour condensed on the beaker and lost heat to it, changing its state to become water droplets. Hence water droplets formed on the inside of the beaker.**

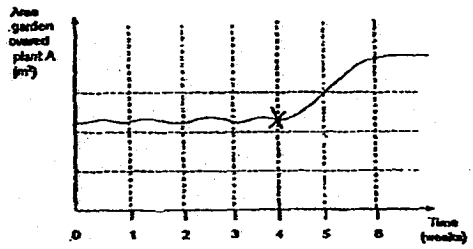
(b) **Make the upper inner surface of the beaker colder by rubbing ice on the inner surface above the milo.**

Q40 (a) **Water, warmth** and air.

(b) The pollen grains from the anther will land on the stigma, thus pollination takes place. A tube will then formed and the pollen grains will be transported to the ovaries and fertilise the ovaries.

(c) Flower X. Without the stigma, pollination and fertilization will not occur, thus the ovaries will not be fertilised and hence will not develop into a fruit.

Q41 (a)



(b) (i) The animal population fed on most of the plant A's consumers.

(ii) **The animal introduced ate other plants which were preventing plant A from growing rapidly.**