

FIRST SEMESTRAL ASSESSMENT 2016

NAME: _____ ()

DATE: _____

CLASS: PRIMARY 6

Parent's Signature:

**SCIENCE
BOOKLET A**

30 questions

60 marks

Total time for Booklets A & B: 1 h 45 min

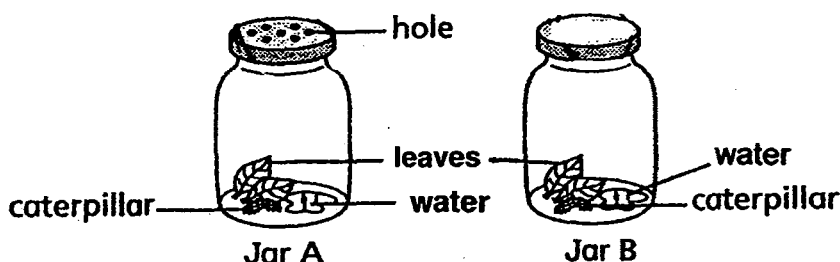
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Part I (60 marks)

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

1. Dave conducted an experiment. He prepared 2 setups as shown in the diagram below. He placed the containers near an open window. At the end of 3 days, the caterpillar in Jar B died.



His experiment shows that living things need _____ to survive.

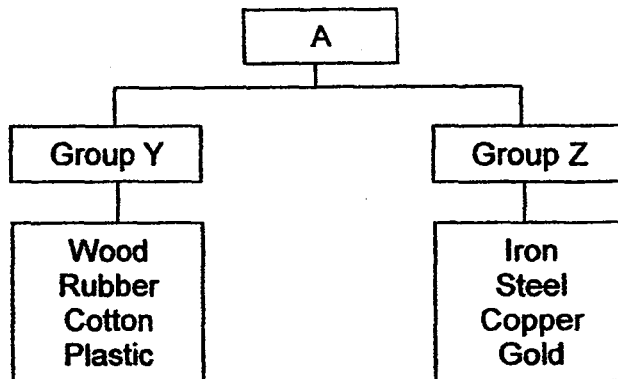
- A: Air
B: Food
C: Light
D: Water

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

2. Marvin matched some parts or organs to the systems in living things. Which one of the following systems has been matched correctly with the parts / organs?

	Systems	Parts / Organs
1)	Skeletal system of an animal	Bones, muscles, skull
2)	Digestive system of a human	Gullet, stomach, intestines
3)	Transport system of plants	Xylem, Phloem, blood
4)	Reproductive system of flowering plants	Seeds, fruits, flowers, leaves

3. Study the following chart.

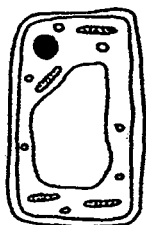


What are the possible headings for Group Y and Group Z respectively?

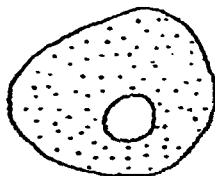
	Group Y	Group Z
A:	Non-magnetic	Magnetic
B:	Poor conductors of heat	Good conductors of heat
C:	Non-conductors of electricity	Conductors of electricity
D:	Made from things that are once alive	Made from things that are never alive

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

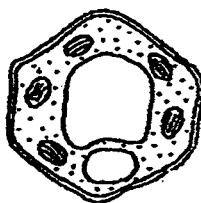
4. Kate viewed the following cells under a microscope.



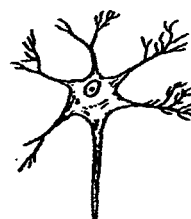
P



Q



R



S

Which one of the above is/are plant cells?

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

5. Which of the following correctly shows the functions of the parts of the cell?

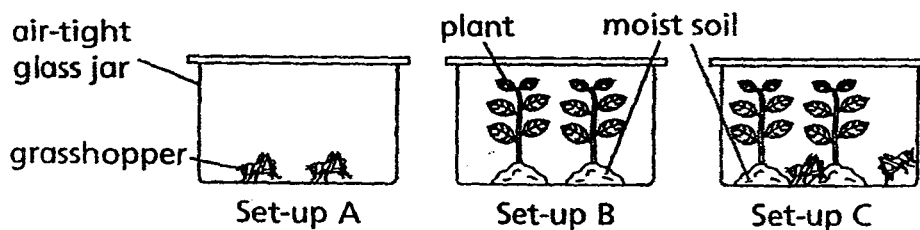
	Nucleus	Cell Wall	Cell Membrane
1)	Gives the cell its regular shape	Controls materials moving in and out	Controls all the activities in the cell
2)	Controls all the activities in the cell	Gives the cell its regular shape	Controls materials moving in and out
3)	Controls all the activities in the cell	Controls materials moving in and out	Gives the cell its regular shape
4)	Controls materials moving in and out	Gives the cell its regular shape	Controls all the activities in the cell

6. Wei Ling notices that her heart beat rate increased whenever she exercises. Which one of the following could be the reason?

- A: To transport oxygen to all parts of her body faster.
- B: To transport digested food to all parts of her body faster.
- C: To transport carbon dioxide to all parts of her body faster.
- D: To transport waste products to all parts of her body faster.

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

7. Junko prepared 3 set-ups and placed them in her garden from 8am to 10pm. She then monitored the amount of oxygen in the set-ups every hour.



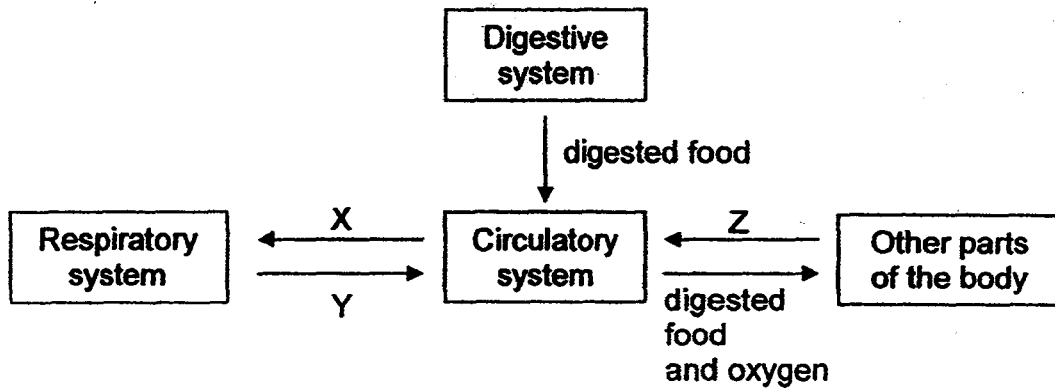
After the experiment has ended, she recorded the following statements.

- A: There is less oxygen in set-up C than set-up B at the end of the experiment.
- B: There is an equal amount of oxygen at 12 noon in all the set-ups. $\rightarrow B$
- C: Set-up C has the most amount of oxygen at the end of the experiment.
- D: There is no carbon dioxide left in set-up A at the end of the experiment.

Which of the above statement/s is/are true?

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

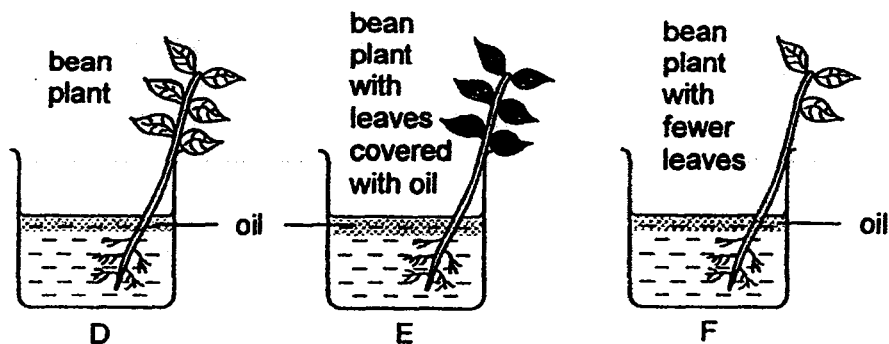
8. Study the flow chart below.



What type of blood do the blood vessels X, Y and Z carry?

	X	Y	Z
1)	Rich in oxygen	Rich in carbon dioxide	Rich in oxygen
2)	Rich in oxygen	Rich in carbon dioxide	Rich in carbon dioxide
3)	Rich in carbon dioxide	Rich in oxygen	Rich in oxygen
4)	Rich in carbon dioxide	Rich in oxygen	Rich in carbon dioxide

9. Peggy wanted to conduct an experiment to show what affects the rate in which plants take in and give out water. Arrange in order from the fastest to the slowest rate in which the plants take in and gives out water.



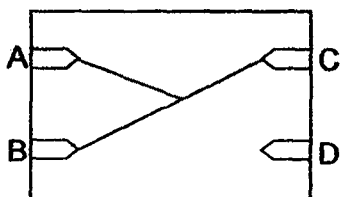
- | | |
|------------|------------|
| 1) D, E, F | 3) E, F, D |
| 2) F, E, D | 4) D, F, E |

10. A circuit card is tested and the results are as shown in the table below.

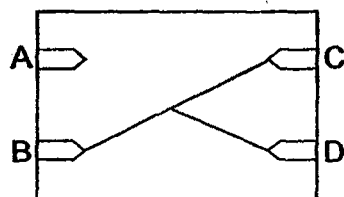
Clips tested	Bulb lights up? (Yes/No)
A and B	No
B and D	Yes
A and C	No
B and C	Yes
C and D	Yes

Which one of the following could be the correct circuit card tested?

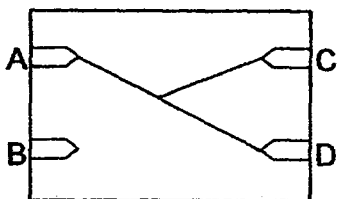
1)



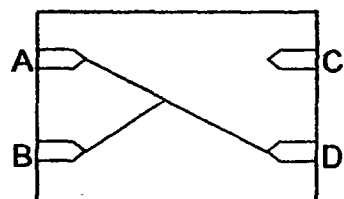
3)



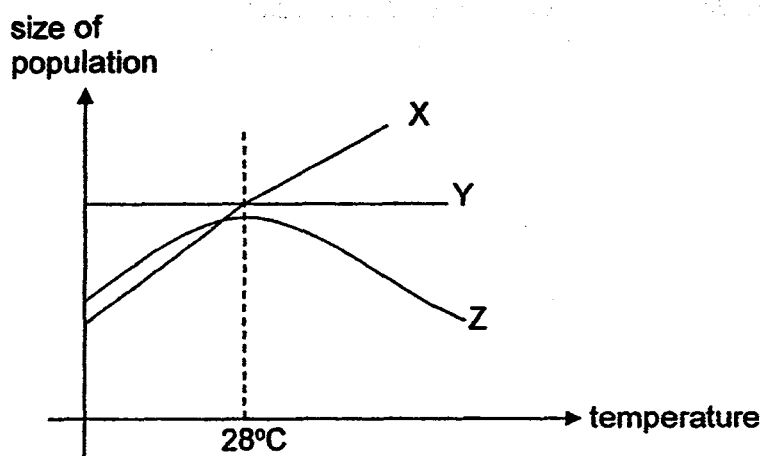
2)



4)



11. The following line chart shows the effect of temperature on the population size of 3 different organisms, X, Y and Z.



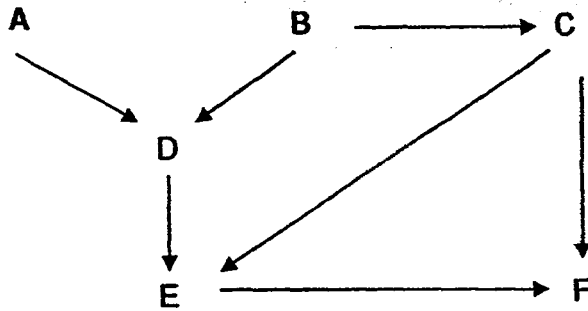
Which one of the following statements is false?

- 1) Organism Y is able to live with the change in temperature.
- 2) Organism Z must move to a place cooler than 28°C in order to survive.
- 3) The population size of X increases as the temperature increases.
- 4) Organism Z thrives at about 28°C.

12. Teresa was doing spray painting and she noticed that the paint was sprayed onto the upper side of all the leaves of her potted plants. After 1 day, the plants were still able to survive because _____

- 1) there were no stomata on the upper side of the leaves.
- 2) the stomata on the underside of the leaves could still perform gaseous exchange.
- 3) the plant could make food as the stomata were blocked.
- 4) there were stomata on the roots and stem of the plant.

13. Study the following food web carefully.



If all the Organism A are removed, which of the following is the most likely to happen?

- 1) number of Organism F will decrease
- 2) number of Organism E will decrease
- 3) Organism D will have less competition for food
- 4) Organism C will have more competition for food

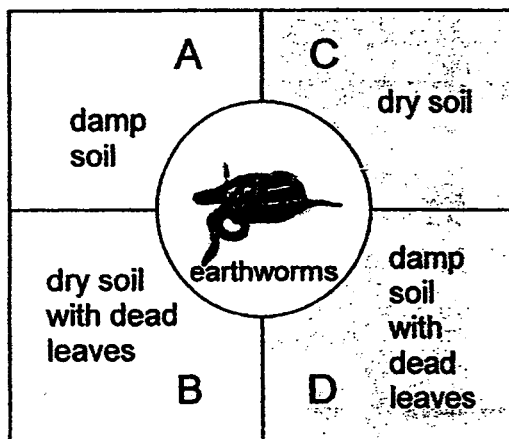
14. Joseph found the following plants and animals in a certain habitat while camping.

adult mosquito	water stick insect	water lettuce
frog	tadpole of a frog	mosquito pupa
mosquito larva	duckweed	pond skater

How many populations are there in the habitat?

- 1) 5
- 2) 6
- 3) 7
- 4) 8

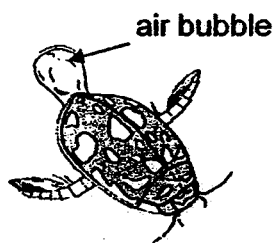
15. A tray was divided into 4 sections and damp soil was placed in sections A and D while dry soil was placed in sections B and C. The tray was placed in a bright place and sections C and D were covered with dark cloth. Some earthworms were then released into the empty middle part of the tray.



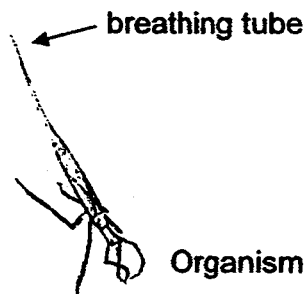
After some time, in which section would the most number of earthworms be found?

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

16. Xiao Ming observed 2 organisms, P and Q. Organism P is an insect that has an air bubble attached to its body and Organism Q is an insect with a breathing tube.



Organism P

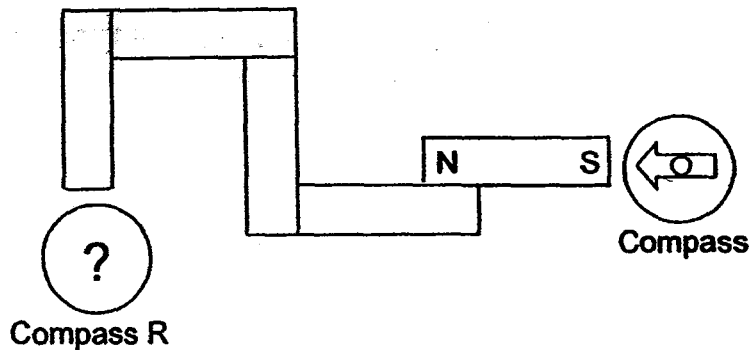


Organism Q

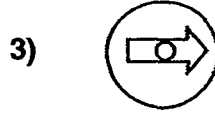
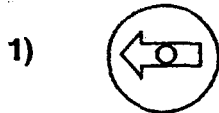
Which one of the following most likely shows where Xiao Ming found the 2 organisms?

	P	Q
1)	on plants above pond	at the bottom of pond
2)	just under the surface of the pond	at the bottom of pond
3)	at the bottom of pond	just under the surface of the pond
4)	at the bottom of pond	on plants above pond

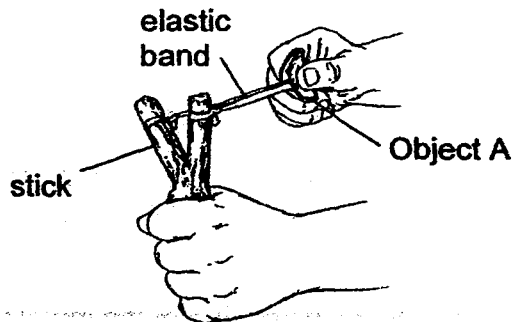
17. Connie conducted an experiment with 4 bar magnets and 2 compasses and made a set-up as shown below.



Which of the following compasses correctly represents Compass R in the above set-up?



18. The diagram shows a catapult that will hit a target when Object A placed at the end of the elastic band is released.

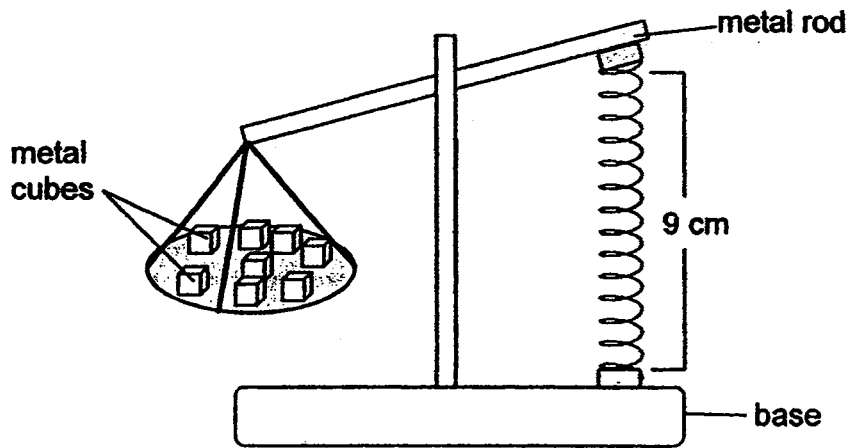


Which of the following factors will affect the distance travelled by Object A?

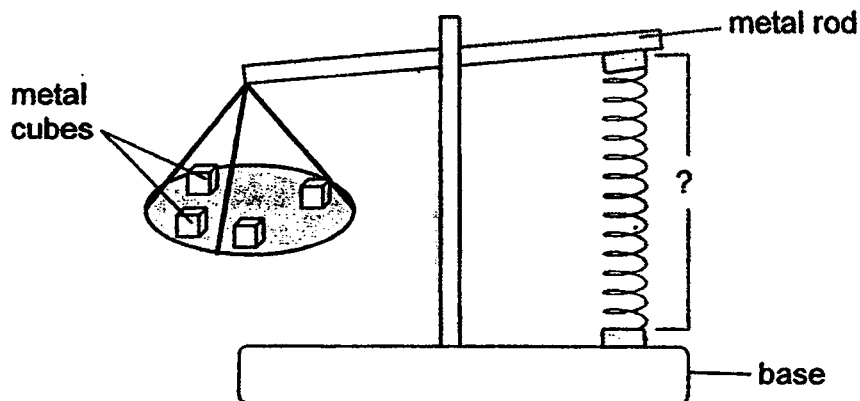
- A: mass of Object A
- B: material of the stick used
- C: distance the elastic band is pulled back

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

19. Pam set up an experiment as shown below. She placed 8 metal cubes in the tray, and she measured the extension of the metal spring.



Pam then removed 4 metal cubes and 4 metal cubes were left on the tray.



The metal spring originally measures 5 cm when it was attached to the metal rod and base at the start of the experiment when there were no metal cubes on the tray.

What would be the most likely length of the extension of the metal spring when only 4 cubes remain in the tray?

- | | |
|----------|-----------|
| 1) 11 cm | 3) 7 cm |
| 2) 2 cm | 4) 4.5 cm |

20. Aziz made a comparison between the life cycle of a mosquito and a frog. He drew up the following table to chart the comparisons.

	<u>Comparison</u>	<u>Mosquito</u>	<u>Frog</u>
A:	Lay eggs in water	✓	✓
B:	Spends its entire life cycle on land		✓
C:	4 stages in life cycle	✓	
D:	Young moults	✓	✓

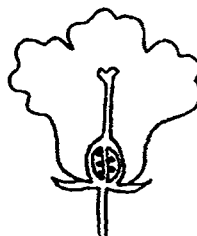
Which of the above comparison/s is/are correct?

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

21. The diagram below shows the cross-section of 2 different flowers.



Flower D

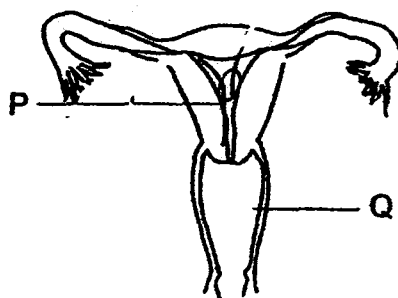


Flower E

What can be concluded from the diagrams above?

- | | |
|---|--|
| A: Flower E will not be pollinated. | |
| B: Flower E does not have male parts. | |
| C: Flower D has both male and female sex cells. | |
| D: After fertilisation, both flowers D and E can develop into fruits. | |
-
- | | |
|------------|------------------|
| 1) A and D | 3) B, C and D |
| 2) B and C | 4) A, B, C and D |

22. Pupils from Class S observed a diagram of a part of the female reproduction system and wrote down some statements about fertilisation in humans.



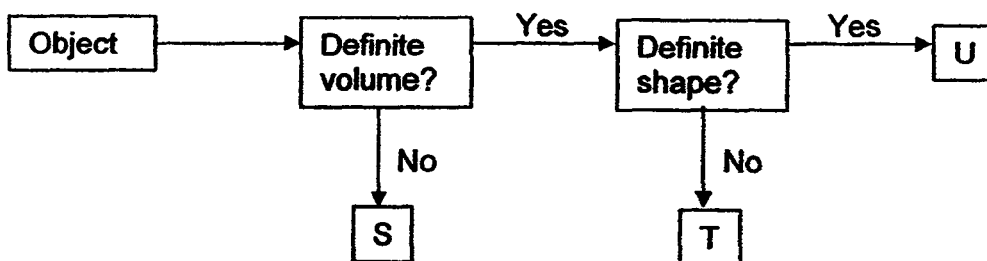
4 pupils' statements were chosen for discussion.

- Mike: The womb is missing from the diagram.
 Josh: The ovaries are missing from the diagram.
 Siew Lee: Part Q is where the foetus will develop.
 Mohan: Part P produces and releases the eggs for fertilisation.

Who was correct?

- 1) Mike
 2) Josh
 3) Siew Lee
 4) Mohan

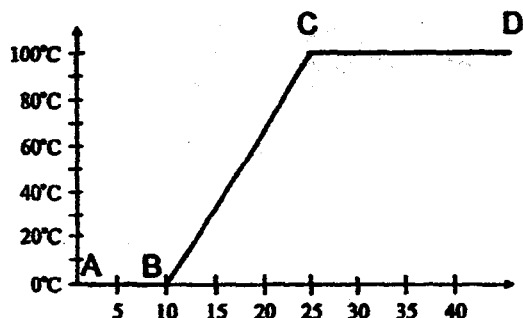
23. Study the flow chart below.



Which one of the following items match Objects S, T and U correctly?

	S	T	U
1)	eraser	book	water
2)	book	carbon dioxide	milk
3)	water	eraser	carbon dioxide
4)	carbon dioxide	milk	book

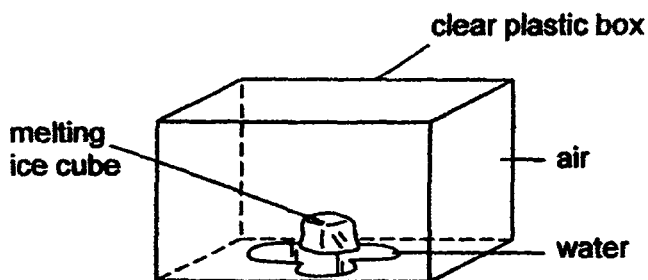
24. The following graph represents substance X being heated over a flame.



At which time interval was substance X gaining heat?

- 1) A to C only
- 2) A to D only
- 3) B to C only
- 4) C to D only

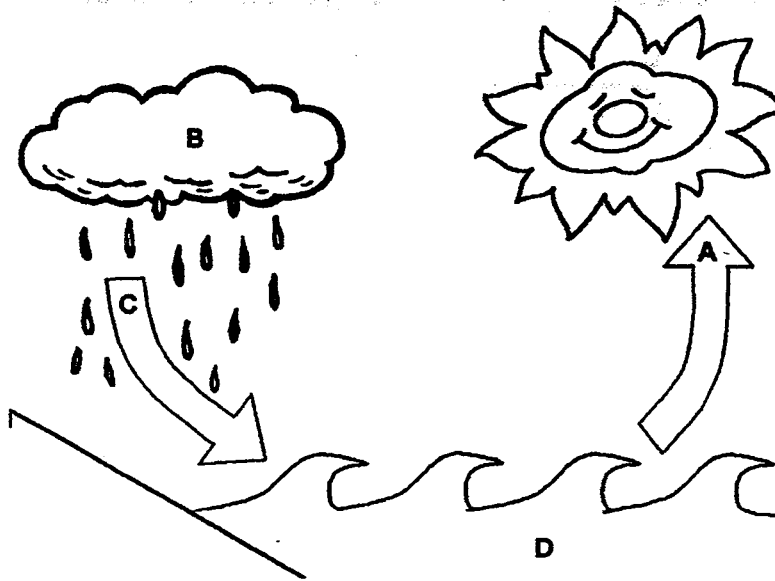
25. Gopal placed an ice cube in a clear plastic box as shown in the diagram below. The ice cube started to melt.



What will happen to the temperature of the air, melting ice cube and water in the box over 15 minutes?

	Temperature of air	Temperature of melting ice cube	Temperature of water
1)	Decreases	Remains the same	Increases
2)	Increases	Decreases	Remains the same
3)	Remains the same	Decreases	Increases
4)	Remains the same	Increases	Decreases

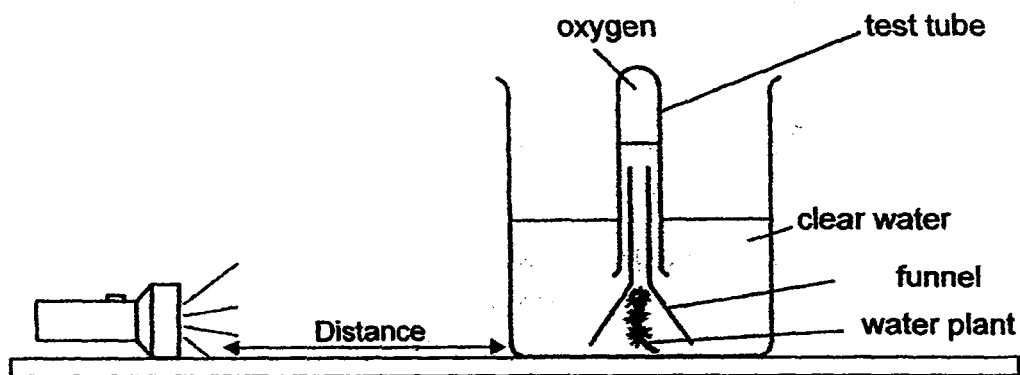
26. Study the diagram below carefully.



Which of the following shows the correct state of water in each stage of the water cycle?

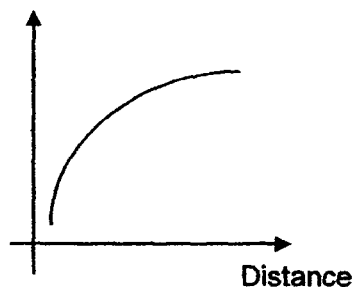
	A	B	C	D
1)	Gas	Gas	Liquid	Liquid
2)	Liquid	Liquid	Liquid	Liquid
3)	Liquid	Gas	Gas	Liquid
4)	Gas	Liquid	Liquid	Liquid

27. Jay wanted to find out if the distance of the light source from the plant has any effect on photosynthesis. He prepared the following setup for his experiment.

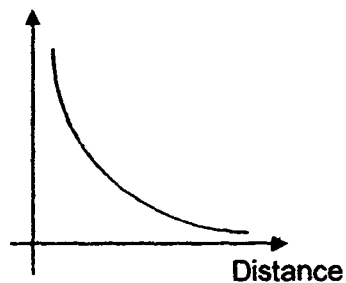


Which of the following graphs shows how the distance of the light source from the plant affects the rate of photosynthesis?

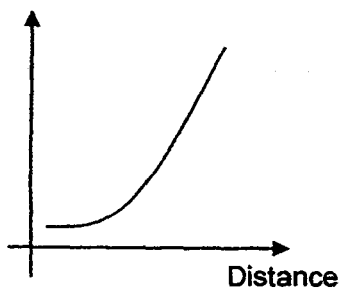
1) Rate of Photosynthesis



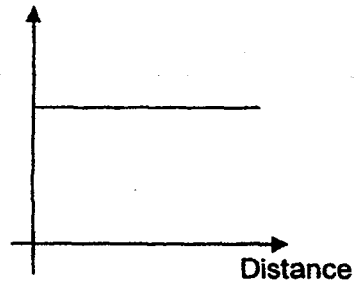
3) Rate of Photosynthesis



2) Rate of Photosynthesis



4) Rate of Photosynthesis



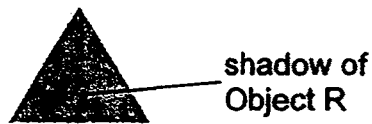
28. Olivia ordered a cup of hot coffee and it was served in a ceramic cup as shown in the diagram below. As Olivia needed to finish it in a hurry, she asked for her coffee to be served in a steel cup instead.



Which one of the following best explains why she asked for her coffee to be served in a steel cup?

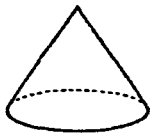
- 1) Steel is a better conductor of heat than ceramic.
- 2) Steel can conduct heat but ceramic cannot.
- 3) Steel reduces the amount of heat from escaping from the coffee.
- 4) Steel prevents the coffee from gaining heat from the surrounding air.

29. An object R casts a shadow as shown below.

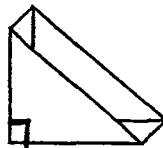


Which of the following opaque objects will be able to cast such a shadow without being rotated?

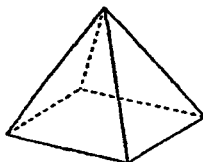
A:



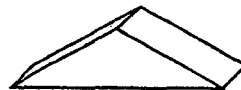
C:



B:

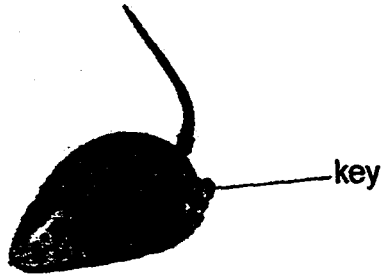


D:



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

30. Gopal had a wind-up toy mouse. He turned the key of the toy mouse to wind up the spring inside the toy. After three turns of the key, the spring became stuck and could not unwind and the toy mouse could not move.



What inference could Gopal make regarding this observation?

- 1) The spring had lost its energy.
- 2) The potential energy had been converted to sound energy.
- 3) The potential energy of the spring could not be converted to kinetic energy.
- 4) Gopal had destroyed the energy when he turned the key too hard.

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

FIRST SEMESTRAL ASSESSMENT 2016

NAME: _____ ()

DATE: _____

CLASS: PRIMARY 6

Parent's Signature:

SCIENCE

BOOKLET B

	Total Actual Marks	Total Possible Marks
Booklet A		60
Booklet B		40
Total		100

14 questions

40 marks

Total time for Booklets A & B: 1 h 45 min

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Class: Primary 6

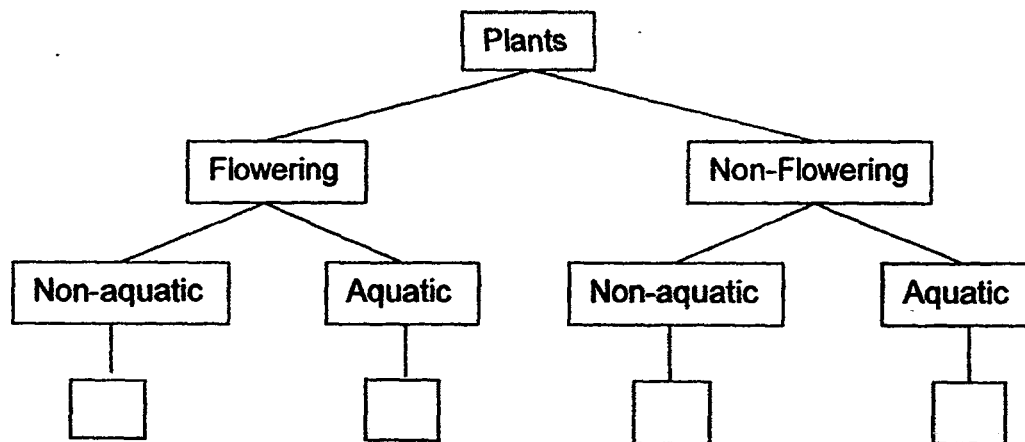
Part II (40 marks)

Answer all the following questions.

31. The following table shows the characteristics of 4 plants, A, B, C and D.

Characteristics	A	B	C	D
Bears fruits	✓		✓	
Grows on land		✓	✓	

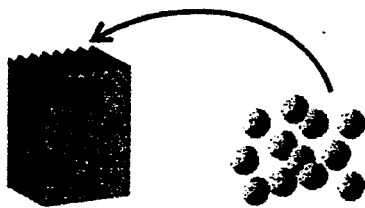
a) From the information above, classify the plants and put them in the boxes provided. (2m)



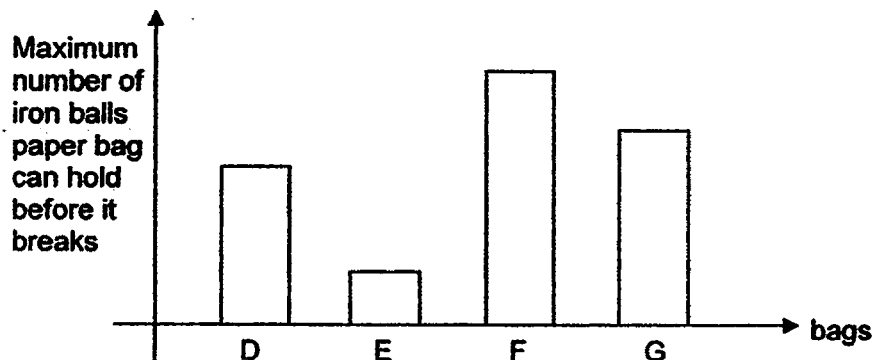
b) In which group, A, B, C or D does the bird's nest fern belong to? (1m)



32. James took 4 paper bags made of different materials and put iron balls into them until each paper bag broke.



James recorded the maximum number of balls that each bag could hold before it breaks and plotted a graph as shown below.

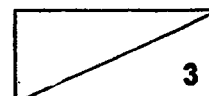


- a) Arrange the bags according to their strength from the strongest to the least strong. (1m)

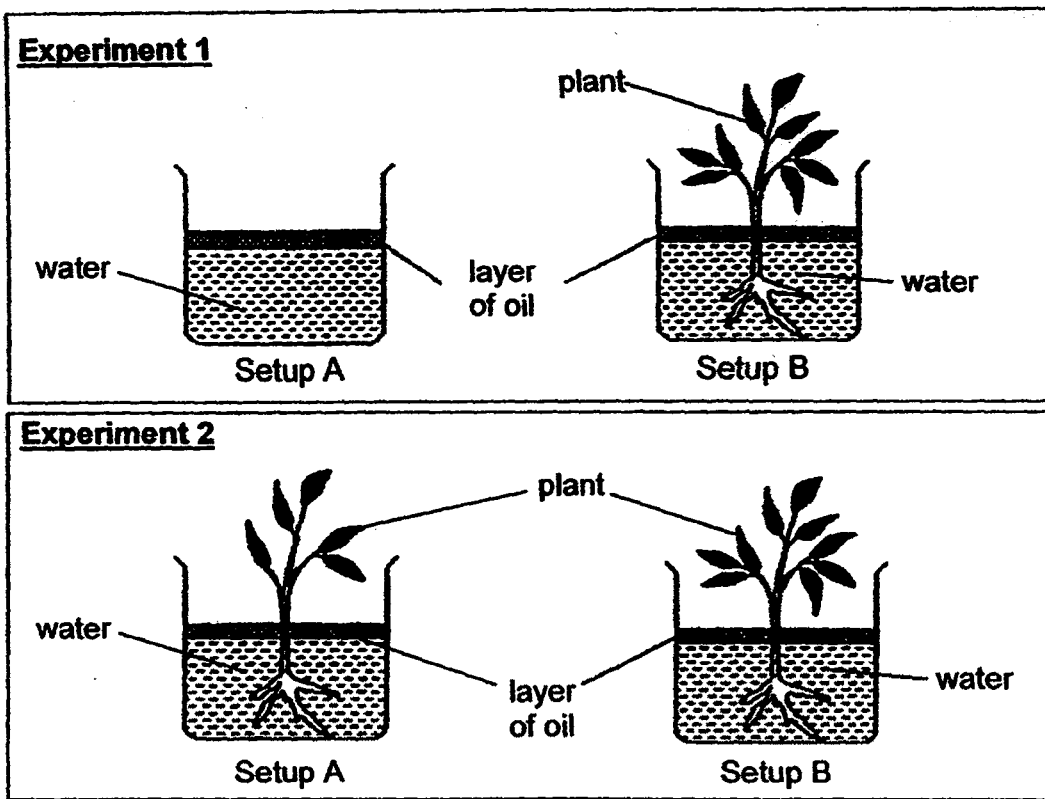
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- b) Which bag will most likely break when groceries and canned food are placed in it? (1m)

- c) James noticed that a paper bag lined with Material X allows the bag to hold cut fruits without any juice leaking out. What is the property of Material X that enables this to happen? (1m)



33. Joyce wanted to conduct two experiments to find out if plants take in water through their roots.



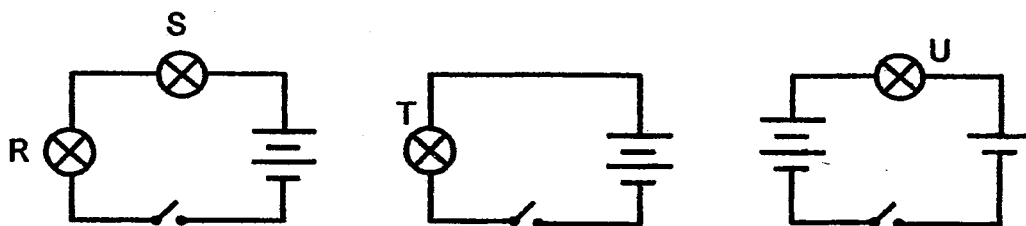
- a) Bruce, Joyce's brother, told her that she can achieve her aim by conducting Experiment 1. Why was Experiment 2 not suitable? (1m)

- b) If Joyce conducted Experiment 1, what should Joyce observe at the end of the experiment to confirm that plant has taken in the water? (1m)

- c) Explain your answer in part (b). (1m)

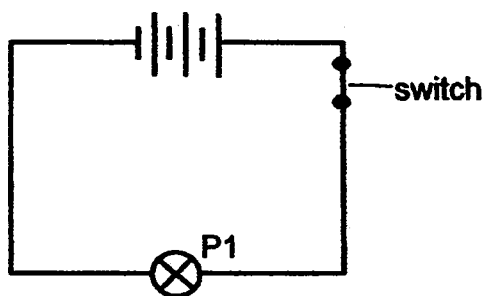


34. Colin set up 3 circuits with 4 bulbs R, S, T and U using similar electrical components as shown below.

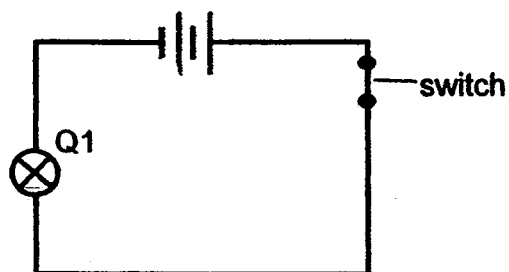


- a) Which bulb will be the brightest when the switches are closed? (1m)

- b) Colin set up an experiment as shown below. What could be the aim of his experiment? (1m)

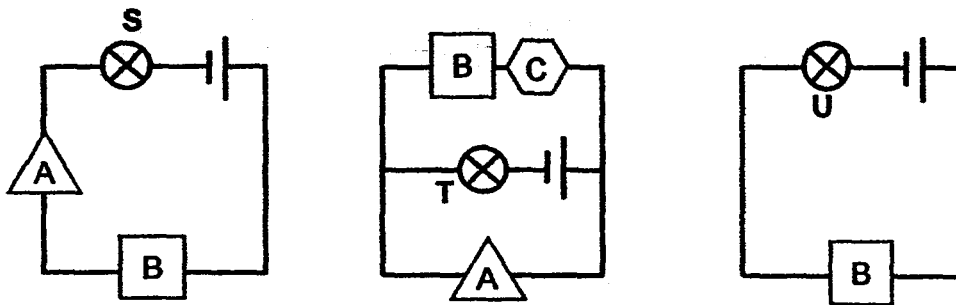


Setup P



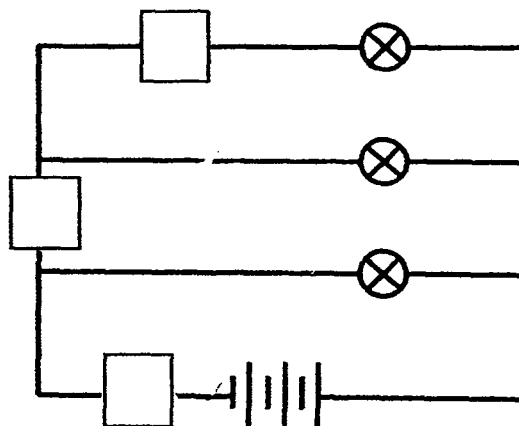
Setup Q

35. Kok Keong set up 3 circuits as shown below. Objects A, B and C are made of different materials and are connected to the circuits.

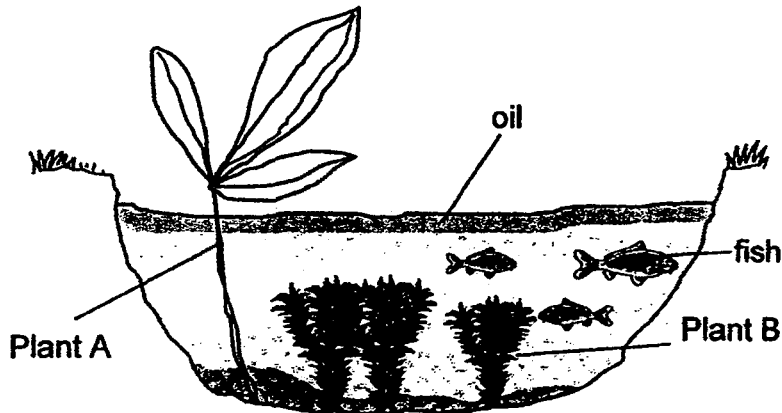


- a) If only bulbs T and U are lighted, which object/s is/are conductors of electricity? (1m)
-

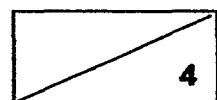
- b) Kok Keong repeated another experiment using the same Objects A, B and C. Write the letters A, B or C in the boxes provided in the circuit below to represent the objects that enable 2 bulbs to light up. (2m)



36. Mosquitoes have been breeding in the school pond over the past month. The Eco Club members noticed that the school caretaker had poured clear transparent oil into the pond to stop the mosquitoes from laying eggs in the pond. The Eco Club members told the caretaker that he should not pour the oil into the pond as it would affect the organisms in the pond.



- a) Explain why the level of dissolved oxygen in the pond dropped 3 hours later. (1m)
-
- b) At night, the dissolved oxygen level in the pond dropped even more, why is this so? (2m)
-
-
- c) Explain why is Plant A is not affected by the oil. (1m)
-



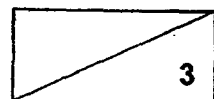
37. Below is a picture of a house lizard. It crawls around the house and feeds on small insects.



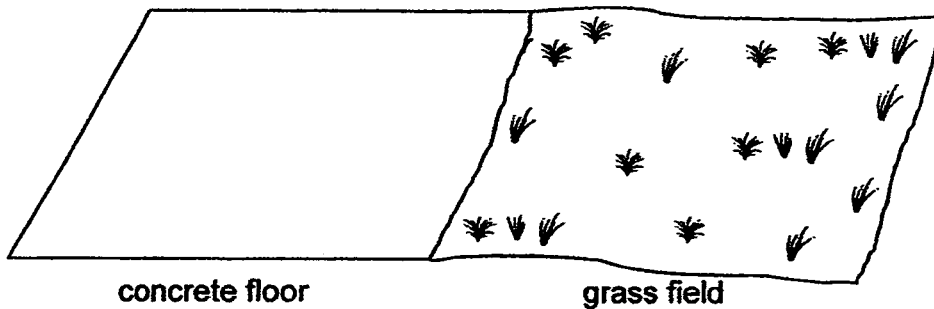
- a) Based on the structural adaptations of the house lizard as shown below, state how these adaptations help it to survive in its habitat.

Part a) has been completed for you.

	Adaptation	How it is useful
a)	Long, narrow and flat body	To hide from predators by squeezing into crevices or cracks.
b)	Long, sticky tongue	
c)	Sticky pads on the underside of its feet	
d)	Tail drops off and keeps moving for a while	

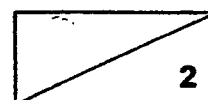


38. Bobby was playing soccer on the grass field near the park. He accidentally kicked the ball too hard and it landed on a concrete floor next to the field. He noticed that the ball rolled faster on the concrete floor as compared to the grass field.



- a) Explain why the same soccer ball moved faster on the concrete floor than on the grass field. (1m)

- b) When the ball was on the concrete floor, how can Bobby make the ball move faster? (1m)

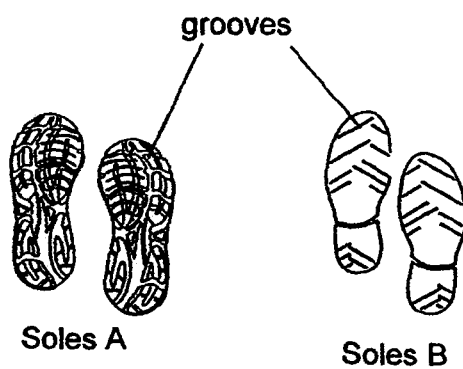


39. Alvin was climbing up a mountain. He used a rope to help him and also wore special shoes.



- a) What force/s was/were acting on Alvin as he climbed up and down the mountain? (1m)

- b) Leng Leng went out on a rainy day. She wore shoes with Soles A. Why is A better than B? (1m)





40. Study the information below.

Characteristics of Plant A

- It bears fruits.
- Its fruits have stiff hair.
- Its fruits are inedible and are hard and dry.

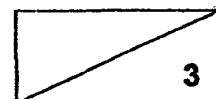
Characteristics of Plant B

- It bears fruits.
- Its fruits are brightly coloured.
- Its fruits are edible and are soft and juicy.

a) Based on the information given above, what is the most likely seed dispersal of Plant A and Plant B respectively? (1m)

Plant A: _____ Plant B: _____

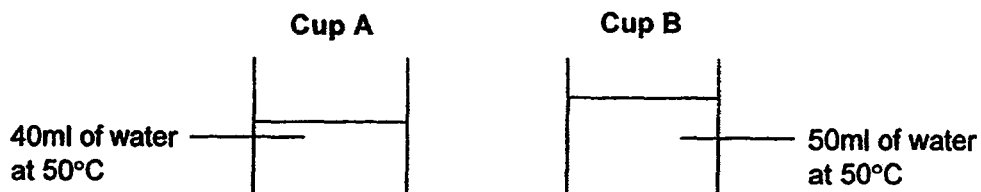
b) During a certain month, Plant B happened to have a higher rate of dispersal than Plant A. Explain why this could happen. (2m)



41. Gopal and Ameen wanted to find out how temperature affects the rate of evaporation of water. The duration of the experiment was kept the same. They conducted an experiment and recorded their findings in the table below.

Set-up	Volume of water (ml)	Exposed surface area of water (cm ²)	Temperature (°C)	Wind speed (km/h)
P	100	35	30	5
Q	120	50	40	20
R	100	35	30	20
S	120	50	80	20

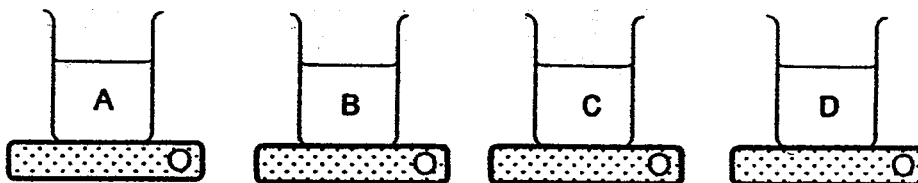
- a) Which two set-ups should they use for their experiment? (1m)
-
- b) If the boys conducted the experiment using set-ups P and R, what would be the aim of their experiment? (1m)
-
- c) Gopal then carried out another experiment as shown below. He used cups of the same size and placed them in the Science Room.



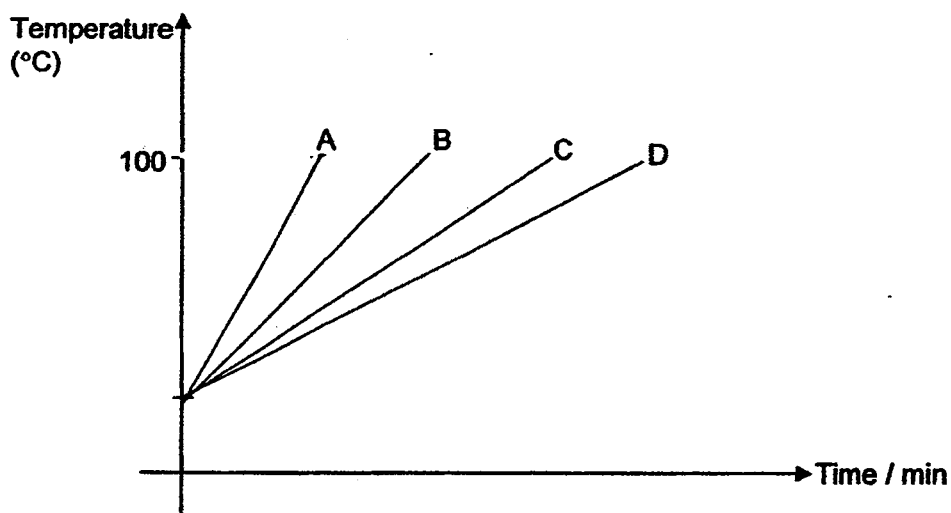
Will the water in Cup A evaporate faster, slower or at the same rate as Cup B? Explain your answer. (1m)



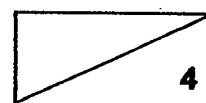
42. Irene prepared 4 containers made of different materials A, B, C and D and poured water of room temperature into them. She then heated the containers on stoves that provided the same amount of heat as shown below.



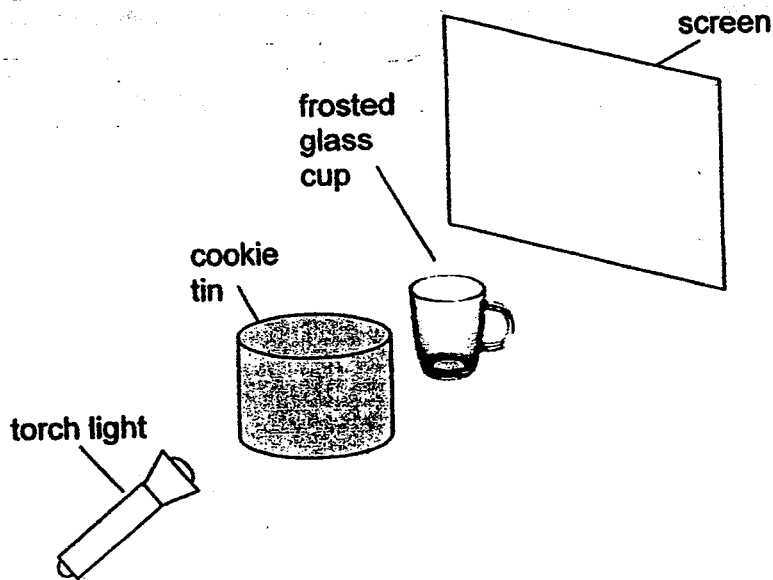
Irene then recorded the time taken for each container of water to boil and plotted the line graph as shown below.



- a) Which container made of material A, B, C or D was the first to boil? (1m)
-
- b) Which material is the best conductor of heat? (1m)
-
- c) Which material is the best for making a container to be used to transport ice? Explain your answer. (2m)
-
-

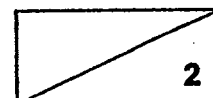


43. Christy set up an experiment as shown below.



a) Which object's shadow would Christy see on the screen? (1m)

b) Christy then removed the cookie tin from her previous experiment. If she wanted to make the shadow of the cup bigger, what should she do? (1m)



44. Jack made a rattle-snake toy using a thick bendable wire, rubber bands and a ring. He attached the ring to the ends of the wire using 2 rubber bands.

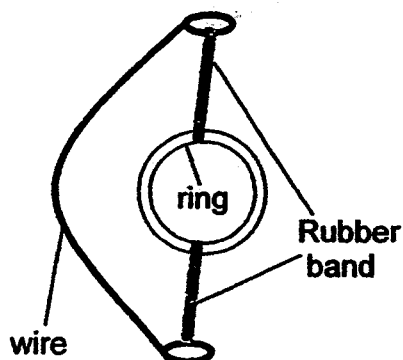


Diagram A:
Before the ring is turned

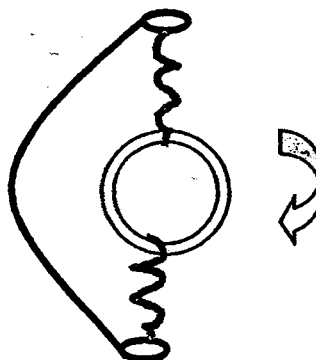
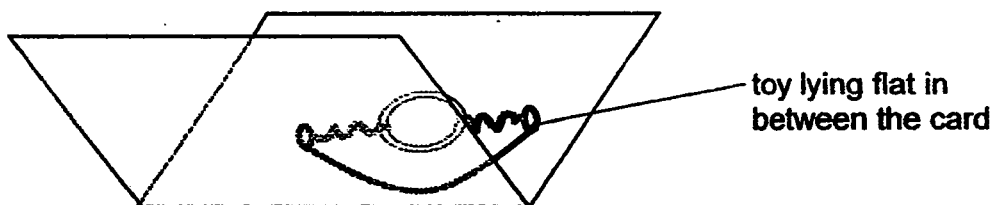
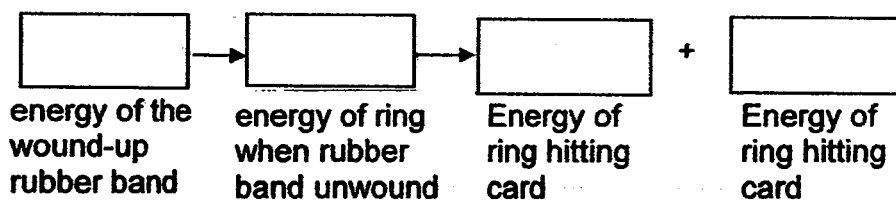


Diagram B:
After the ring was turned 5 times

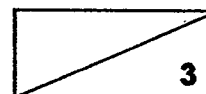
Jack turned the ring 5 times and the rubber band was wound up as shown in Diagram B. Jack carefully placed the toy in between a card and made sure it lay flat. When his friend, Calvin opened the card, the rubber band unwound and the ring hit the sides of the card and made a loud sound which resembles the sound of a rattle snake.



- a) Complete the main energy conversion for the toy before the card was opened to the time it unwound and hit the sides of the envelope. (2m)



- b) Explain why the sound made by the toy became louder when Jack turned the ring 10 times. (1m)

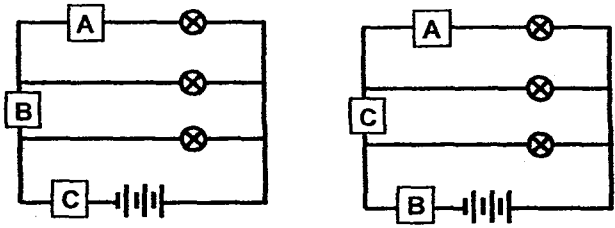


**SINGAPORE CHINESE GIRLS' SCHOOL
PRIMARY 6 SCIENCE SA1 2016**

Booklet A

1) 1	6) 1	11) 2	16) 3	21) 3	26) 4
2) 2	7) 1	12) 2	17) 2	22) 2	27) 3
3) 3	8) 4	13) 4	18) 3	23) 4	28) 1
4) 2	9) 4	14) 2	19) 2	24) 2	29) 1
5) 2	10) 3	15) 4	20) 1	25) 1	30) 3

Booklet B

Qn	Model Answer
31a	C, A, B, D
31b	B
32a	F, G, D, E
32b	E
32c	It is waterproof.
33a	There is no control setup in experiment 2.
33b	The amount of water in the beaker has decreased.
33c	The plant took in water through its roots and gave out through its leaves.
34a	T
34b	To find out if the number of batteries affects the brightness of the bulb.
35a	B and C
35b	
36a	The oil blocked oxygen at the surface from entering and dissolving in the pond water.
36b	At night, the plants do not carry out photosynthesis so they cannot produce oxygen. However, they will still carry out respiration and take in oxygen.
36c	Plant A has its leaves above water to carry out gaseous exchange.
37b	To catch its prey from a distance.
37c	To be able to climb on walls and ceilings to escape predators and also catch prey effectively.
37d	To distract the predator of the lizard so that it can escape.
38a	There is less friction between the ball and concrete floor than the grass field.

38b	He can kick the ball harder / pour lubricant on the floor.
39a	Gravity / Gravitational force and Friction / Frictional force
39b	Soles A is rougher / has more grooves which provides more friction.
40a	Plant A: <u>By animals</u> Plant B: <u>By animals</u>
40b	Plant B produced more fruits than Plant A during that month.
41a	Q and S
41b	To find out if the wind speed affects the rate of evaporation.
41c	Same. The water in Cup A and Cup B has the same temperature and the same exposed surface area.
42a	A
42b	A
42c	D. It is the poorest conductor of heat so it will conduct heat from the surrounding to the ice the slowest.
43a	Cookie tin
43b	She should move the torch nearer to the cup. / She should move the cup further away from the screen.
44a	Potential energy → Kinetic energy → Sound energy + Heat energy
44b	When the number of turns increase, there will be more potential energy to be converted to more kinetic energy. More kinetic energy will then be converted to more sound energy.