PRIMARY 6 SEMESTRAL ASSESSMENT-2 2014

Name : _____

Class : Primary 6

Parent's Signature : _____

Date: 24 July 2014

Time: 8.00 a.m. to 9.15 a.m.

Duration : 1h 15min

Marks : _____ / 50

SCIENCE

BOOKLET A

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Booklet A (25 x 2 marks)

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS) provided.

1. Which of the following is an immediate environmental damage when there is deforestation by burning?

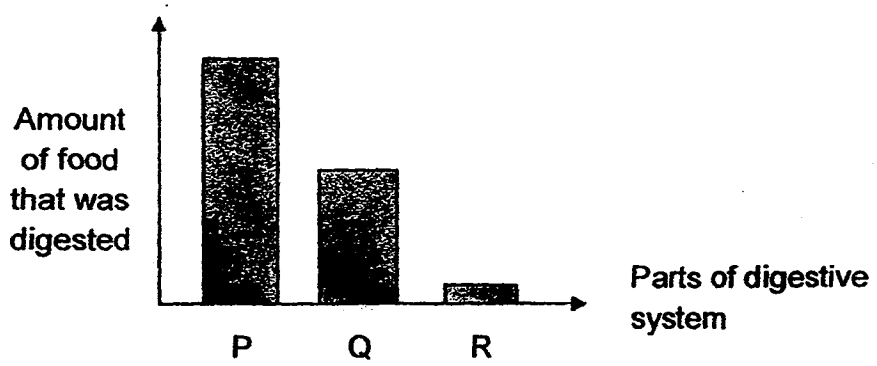
(1) Soil erosion

(2) Air pollution

(3) Global warming

(4) Depletion of ozone layer

2. The graph below shows the amount of food from a plate of chicken rice that was digested at different parts of the digestive system.



Based on the graph above, which of the following correctly matches the part of the digestive system to the amount of food that was digested?

	P	Q	R
(1)	stomach	mouth	gullet
(2)	stomach	small intestine	large intestine
(3)	small intestine	stomach	mouth
(4)	small intestine	stomach	large intestine

3. Which of the following is the main reason for reforestation?

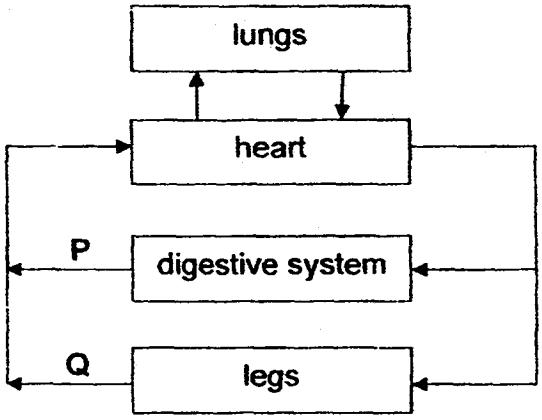
(1) To provide a home for wildlife.

(2) To provide food for more people on Earth.

(3) To have a constant supply of freshwater on Earth.

(4) To cut down on usage of man-made materials that is non-biodegradable.

4. The diagram below shows the model of the circulatory system of a human being.



Which of the following statements about P and Q is definitely correct?

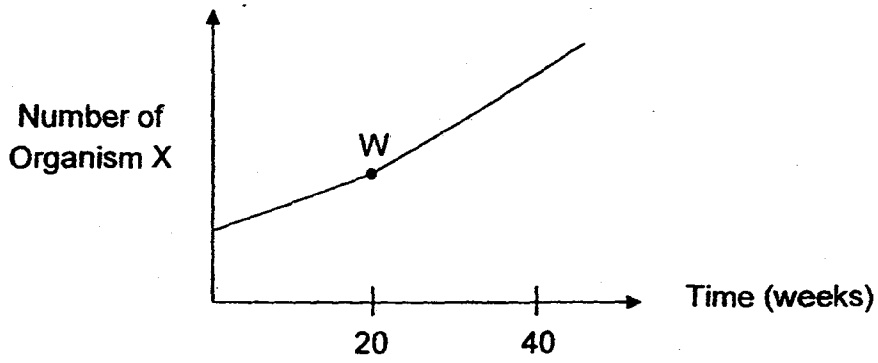
(1) Blood in P has more oxygen than blood in Q.

(2) Blood in P has more digested food than blood in Q.

(3) Blood in P and blood in Q only contain carbon dioxide.

(4) Blood in P contains digested food while blood in Q contains undigested food.

5. The graph below shows the number of Organism X in a pond over a period of time. Some Organism Y were added into the pond at Point W.



Which of the following can be concluded from the graph?

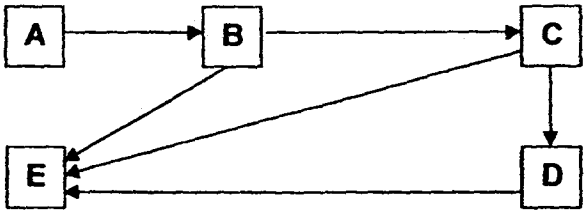
(1) Organism Y is a food producer.

(2) Organism X feeds on Organism Y.

(3) Organism Y is a predator of Organism X.

(4) Organism X is both a prey and a predator.

6. Study the food web below carefully.



Which of the following is definitely true of the food web given above?

(1) There are 3 food chains in the food web.

(2) There are 4 populations in the community.

(3) Organism E has the largest population size.

(4) A decrease in the population size of Organism D will also result in a decrease in the population size of Organism C.

7. Which of the following similarities about the plant transport system and human circulatory system is definitely correct?

(1) Both carry blood to all parts of the organism.

(2) Both carry digested food to all parts of the organism.

(3) Both carry materials to all parts of the organism for respiration to occur.

(4) Both carry water to all parts of the organism for photosynthesis to occur.

8. Which of the following is an example of a genetically-engineered organism?

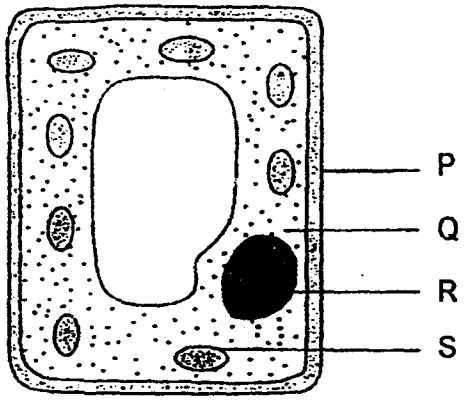
(1) A new species of plant created by cross-pollination.

(2) A new species of plant that bears pest-resistant fruits.

(3) A species of plant that naturally bears large and sweet fruits.

(4) A species of plant that naturally possesses medicinal properties.

9. The diagram below shows a plant cell with the parts labelled, P, Q, R and S.



Which two parts of the plant cell are also found in animal cells?

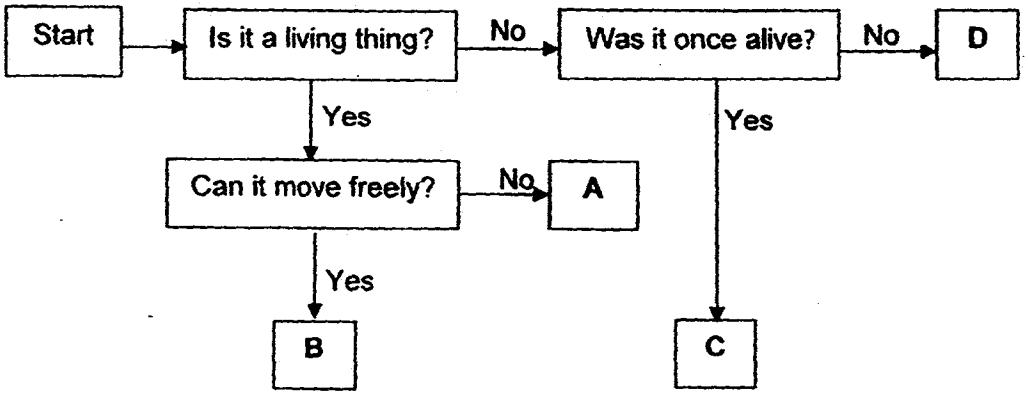
(1) P and Q

(2) P and S

(3) Q and R

(4) R and S

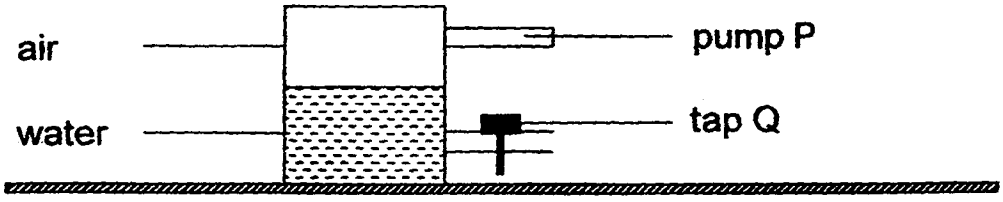
10. Study the flow chart and answer the question below.



Which of the following things are grouped correctly?

	A	B	C	D
(1)	earthworm	hydrilla	sand	leather
(2)	mould	lion	stone	glasses
(3)	mushroom	parrot	paper	key
(4)	grass	bear	diamond	wool

11. An experiment was set up using a sealed metal container which holds $50cm^3$ of water and $30cm^3$ of air as shown below. $20cm^3$ of water was removed from the container through a tap Q and $40cm^3$ of air was then pumped in using pump P.



What would be the final volume of the air in the container?

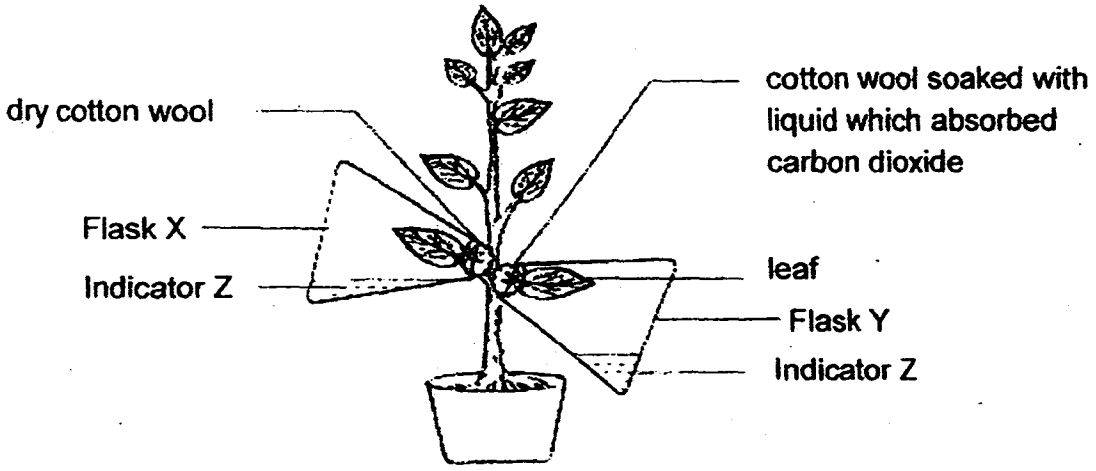
(1) $30cm^3$

(2) $40cm^3$

(3) $50cm^3$

(4) $70cm^3$

12. Ray set up an experiment by enclosing two leaves from the same plant with a clear flask each. A cotton wool soaked with a chemical to remove the carbon dioxide in the flask was placed at the opening of flask Y as shown below.



There was an equal amount of indicator in each flask and Ray noticed that the colour of Indicator Z was purple at the beginning of the experiment in both flasks. The plant was left under the sun for three hours. After that, he noticed that the colour of Indicator Z in both flasks changed.

The scale below showed how the colour of Indicator Z changed according to the amount of oxygen present in each flask.

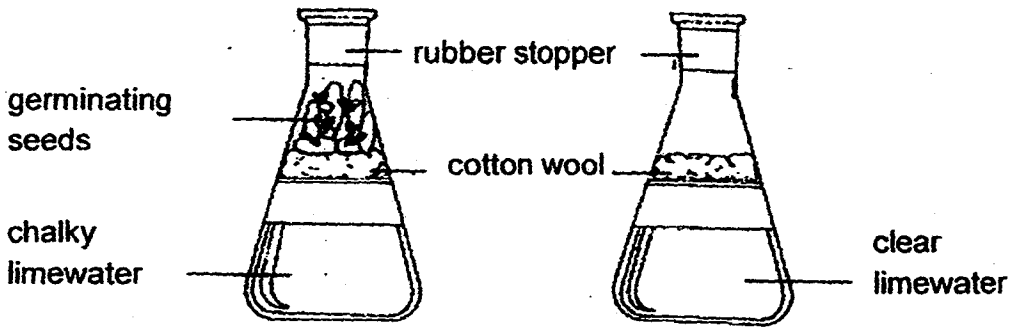
Increasing amount of oxygen →

Yellow	Purple	Red

What was the colour of Indicator Z in Flask X and Flask Y after two hours?

	Flask X	**Flask Y**
(1)	Red	Yellow
(2)	Yellow	Red
(3)	Red	Red
(4)	Yellow	Yellow

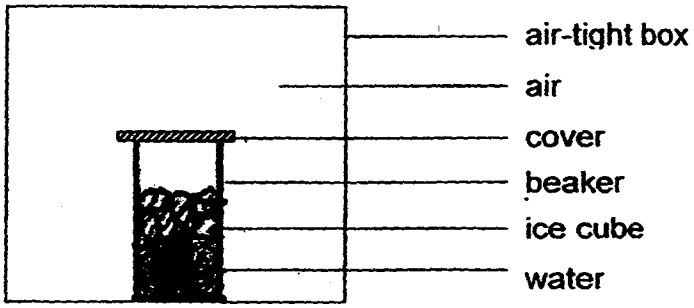
13. Joyce placed two set-ups, A and B, in a dark place for a day. The limewater in both set-ups was clear at the start of the experiment. The diagram below shows the results of the experiment after a day.



What can she conclude from the results of her experiment?

(1) Oxygen is given out during germination.
(2) Limewater turns chalky during germination.
(3) Limewater remains clear during germination.
(4) Carbon dioxide is given out during germination.

14. A beaker of water with ice cubes is placed in an air-tight box as shown in the diagram below.



What happens to the air in the box after 2 minutes?

(1) It becomes cooler and contains less water vapour.
(2) It becomes cooler and contains more water vapour.
(3) It becomes warmer and contains less water vapour.
(4) It becomes warmer and contains more water vapour.

15. Hong Jun carried out an experiment on four different materials, W, X, Y and Z. He compared the hardness of the four materials by using the sharp ends of a glass rod and plastic rod to scratch each of these materials. The table below shows the results of his test.

Rod used to scratch material	**Scratch marks observed on material?**			
	W	**X**	**Y**	**Z**
Glass	Yes	No	Yes	Yes
Plastic	No	No	Yes	No

Which of the following statements about materials, W, X, Y and Z, is/are correct?

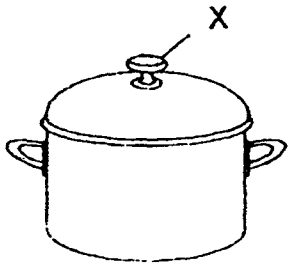
(1) X and Z are harder than glass.

(2) W and Y are harder than glass.

(3) Y and Z are harder than plastic.

(4) W and X are harder than plastic.

16. The diagram below shows a cooking pot.



Which material, plastic or metal, is better for making the part labelled 'X'?

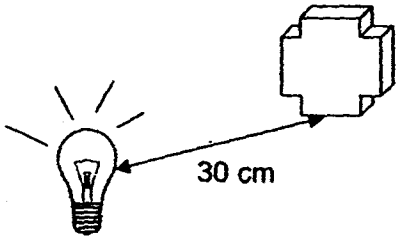
(1) Metal is better because it is harder than plastic.

(2) Plastic is better because it is cheaper than metal.

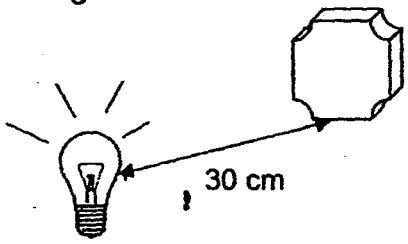
(3) Metal is better because it is a good conductor of heat.

(4) Plastic is better because it is a poor conductor of heat.

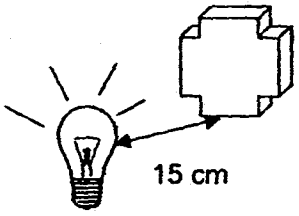
17. Wei Jie had 2 identical wooden blocks which he placed each of them at a distance of 15 cm and 30 cm away from the light source as shown below.



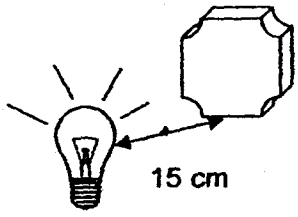
Set-up A



Set-up B



Set-up C



Set-up D

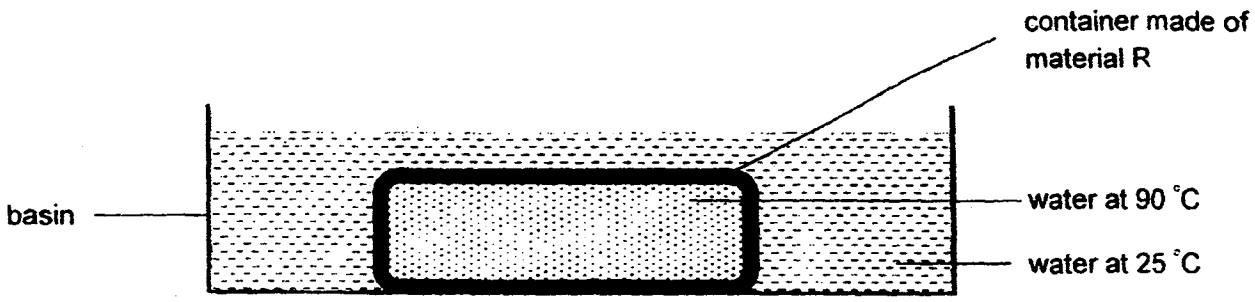
He then observed the shadows formed by the wooden blocks and recorded the following shadows in his journal.

			
W	**X**	**Y**	**Z**

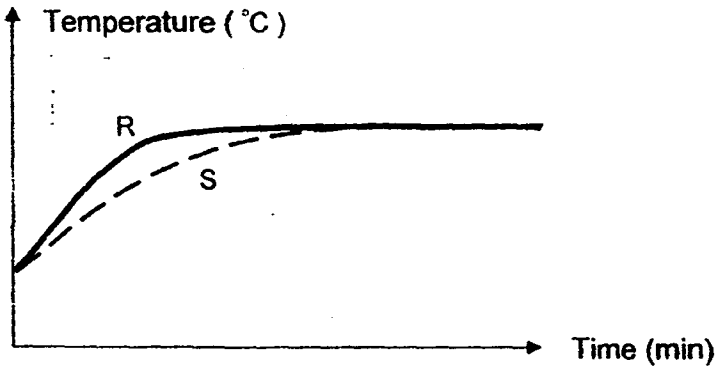
Which of the following matches the shadows W, X, Y and Z to the correct set-up?

	Set-up A	**Set-up B**	**Set-up C**	**Set-up D**
(1)	X	W	Z	Y
(2)	X	Y	Z	W
(3)	Z	W	X	Y
(4)	Z	Y	X	W

18. Azean conducted an experiment using the set-up below.



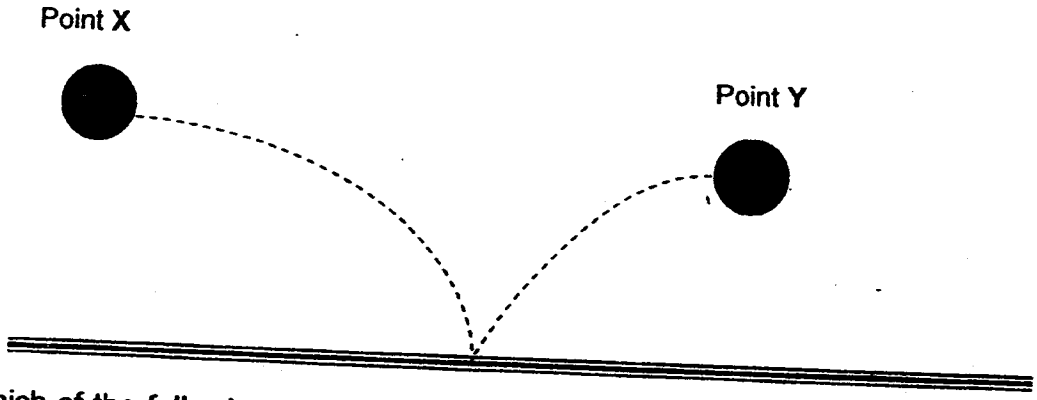
She measured the temperature of the water outside the container made of material R over a period of time. She repeated the experiment using a container made of material S. Her results are shown in the graph below.



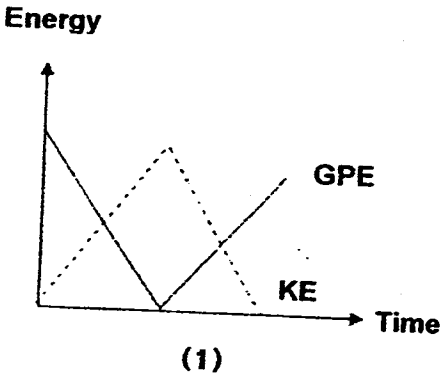
Azean wanted to bring hot curry chicken and cold barley drink for a class party. She wanted to keep the food hot and the drink cold. Which material would be more suitable for each of the respective container?

	Material for container carrying	
	Hot curry chicken	**Cold barley drink**
(1)	S	S
(2)	S	R
(3)	R	S
(4)	R	R

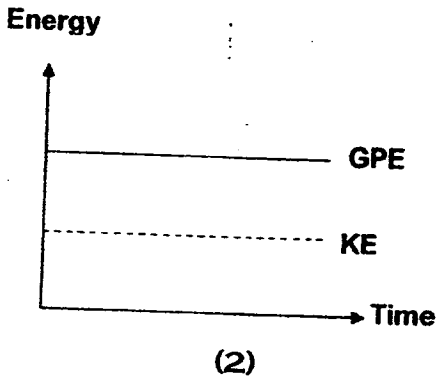
19. The diagram below shows the pathway of a ball from point X to point Y.



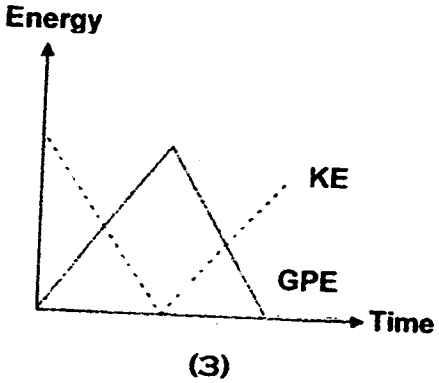
Which of the following graphs correctly shows the amount of kinetic energy (**KE**) and gravitational potential energy (**GPE**) of the ball from point X to point Y?



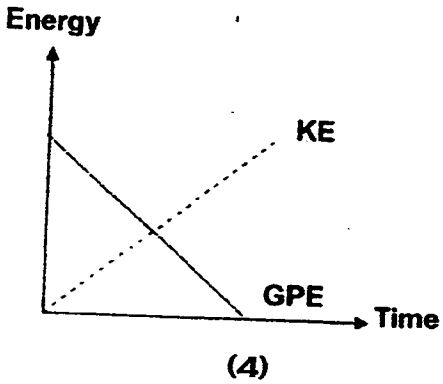
(1)



(2)

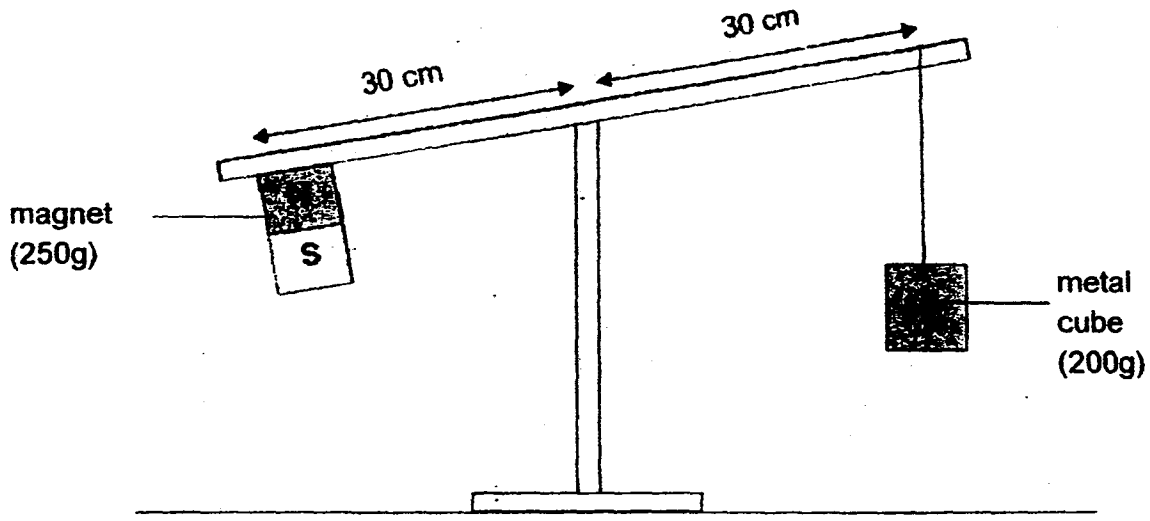


(3)

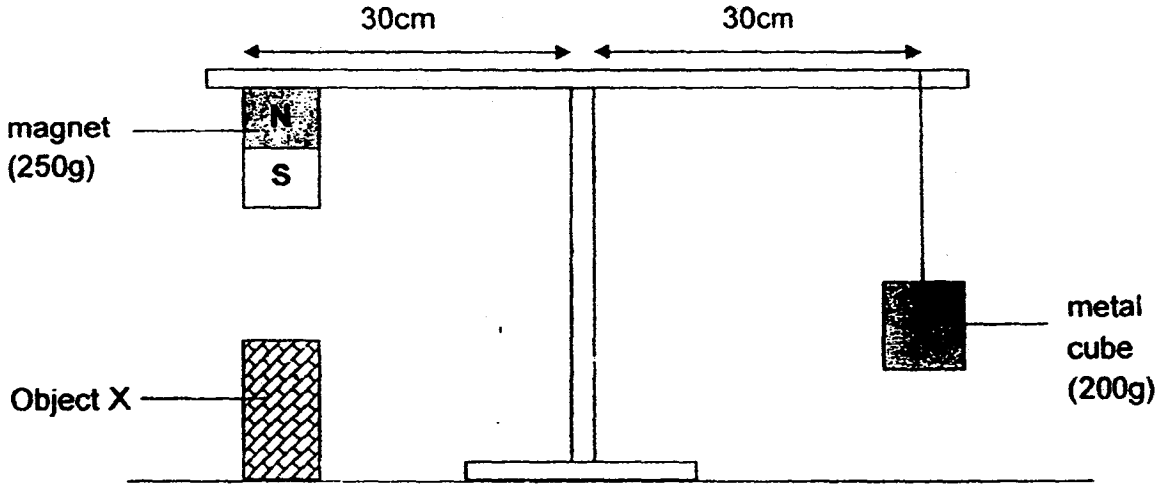


(4)

20. Study the diagram below carefully. The magnet cannot be removed and the lever is tilted downwards at the magnet.



The diagram below shows what happens to the lever when Object X is added to the set-up.



Based on the set-up above, which of the following conclusions about Object X is definitely true?

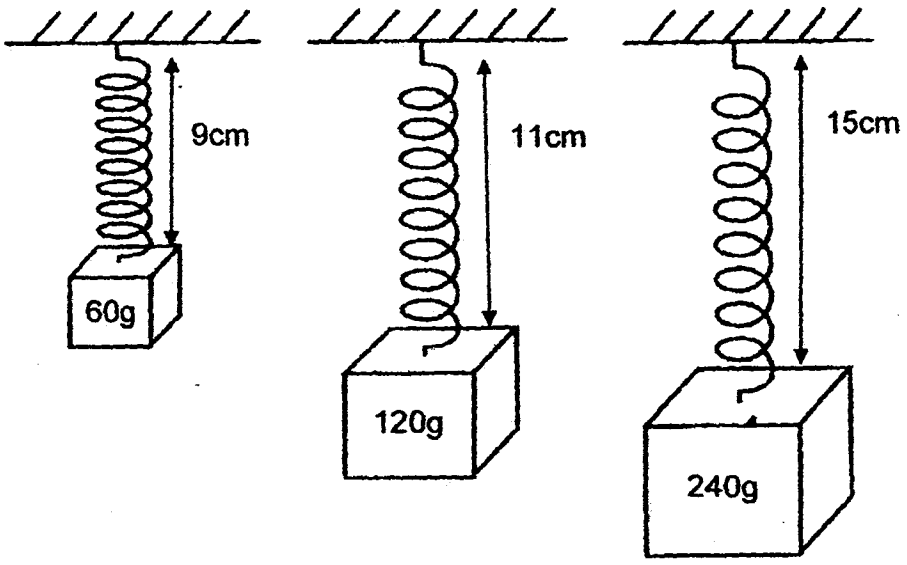
(1) Object X is a magnet.

(2) Object X is a magnetic object.

(3) Object X is made of aluminium.

(4) Object is made of a non-magnetic material.

21. Charles conducted an experiment using a spring and 3 weights as shown below.



What is the extension of the spring when a 360g weight is hung on the spring?

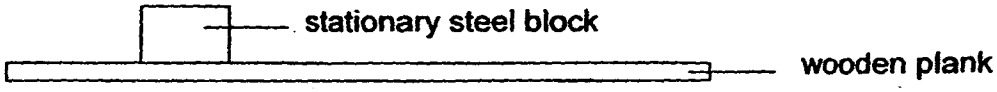
(1) 12cm

(2) 19cm

(3) 36cm

(4) 54cm

22. A steel block was placed horizontally on a flat wooden plank as shown in the diagram below.



Which of the following statements is correct?

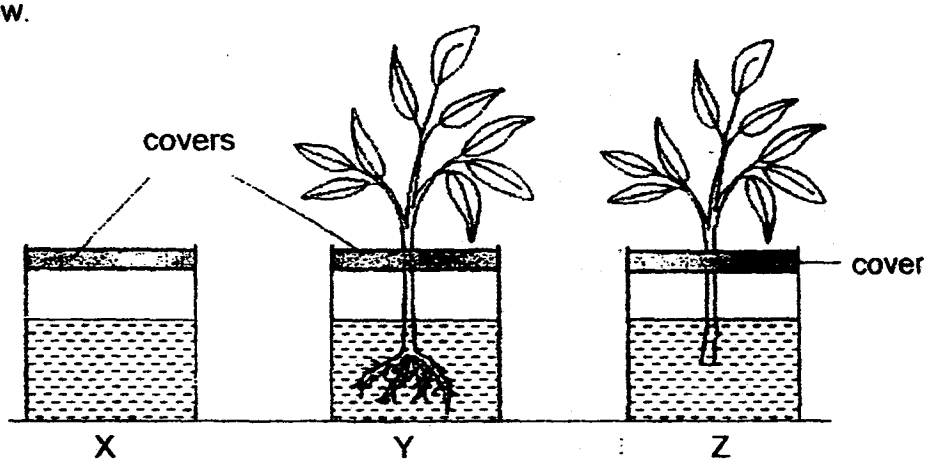
(1) The gravitational force acting on the wooden plank was zero.

(2) There was frictional force between the steel block and the wooden plank.

(3) There was magetic force between the steel block and the wooden plank.

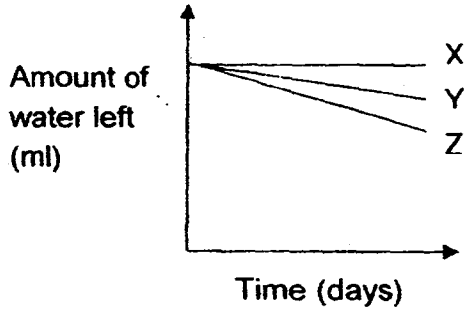
(4) The amount of gravitational force acting on the steel block and the wooden plank was the same.

23. Bryan conducted an experiment to find out if the presence of roots affects the transport of water in plants. He filled identical containers, X, Y and Z with the same amount of water. He put a plant in Y and a similar plant with its roots cut off in Z. Each container was sealed as shown in the diagrams below.

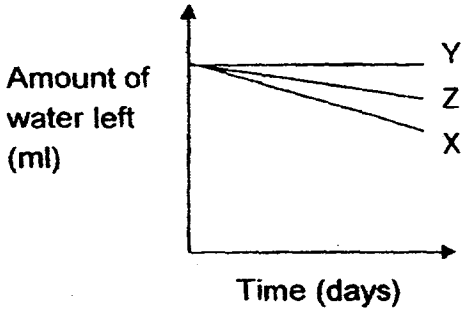


Which of the following results would he expect to observe ?

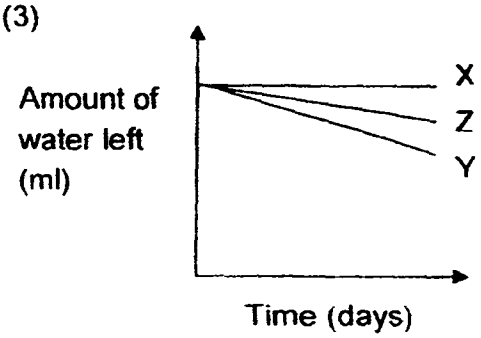
(1)



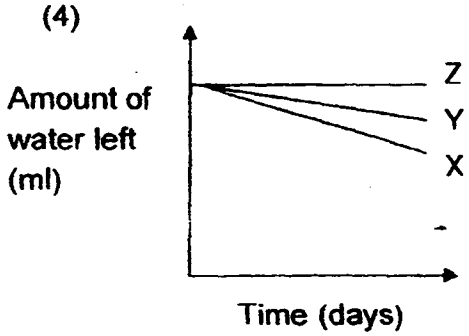
(2)



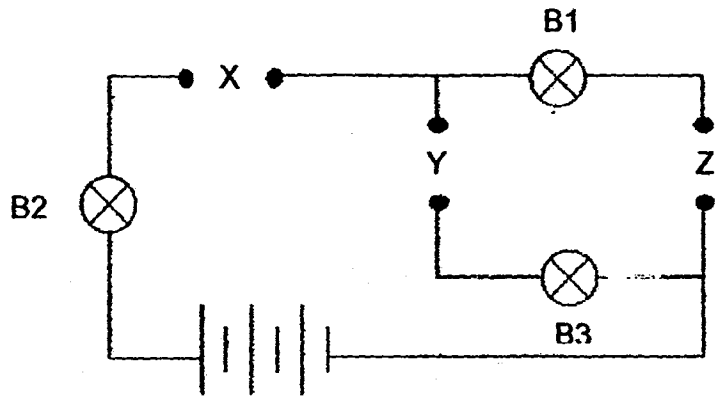
(3)



(4)



24. Seow Yun has three rods, P, Q and R, made of unknown materials. She places them in different positions, X, Y and Z, in the circuit below.



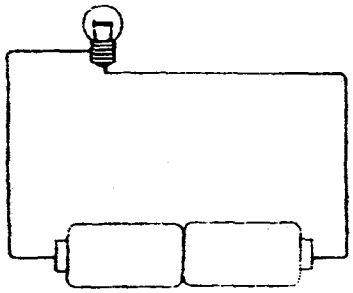
The results of the experiment are recorded in the table below. When any of the bulbs, B1, B2 or B3, lights up during the experiment, a tick (√) is placed in the box.

Positions where rods are placed			**Bulb**		
X	**Y**	**Z**	**B1**	**B2**	**B3**
P	Q	R	√	√	
Q	R	P			
R	P	Q		√	√

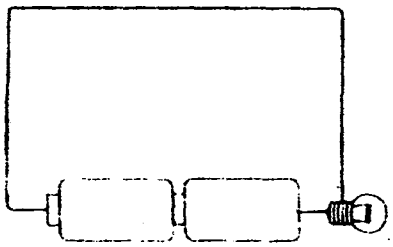
Which of the conclusions can she make?

	Conductor of electricity	**Insulator of electricity**
(1)	R	P and Q
(2)	P and Q	R
(3)	P and R	Q
(4)	Q and R	P

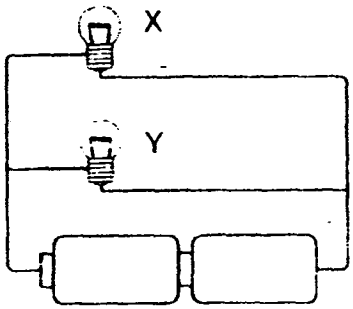
25. The diagrams below show four circuits. P Q. R and S. All the bulbs are similar and the batteries are of equal voltage.



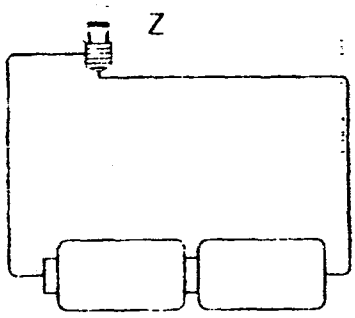
P



Q



R



S

Which of the following is true about the circuits?

(1) Bulb Z in Circuit S is dimmer than bulb X in Circuit R

(2) Bulb Z in Circuit S is brighter than bulb Y in Circuit R

(3) The bulbs in Circuits Q. R and S are of equal brightness.

(4) The bulb in Circuit Q has the same brightness as the bulb in Circuit P

End of Booklet A

PRIMARY 6 SEMESTRAL ASSESSMENT-2 2014

Name _____

Class : Primary 6

Parent's Signature : _____

Date: 24 July 2014

Time: 8.00 a.m. to 9.15 a.m.

Duration : 1h 15min

Marks: _____ / 30

SCIENCE

BOOKLET B

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

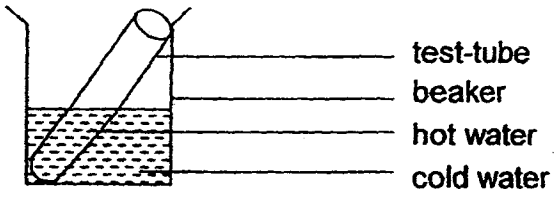
Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Booklet B (30 marks)

For questions 26 to 35, write your answers clearly in the spaces provided.

26. A test-tube of hot water was placed in a beaker of cold water as shown below.



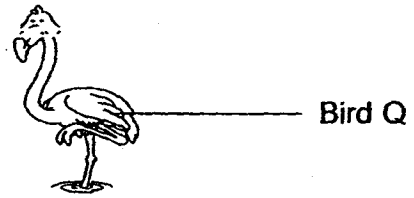
It was observed that the temperature of the water in the test-tube decreased while the temperature of the water in the beaker increased after ten minutes.

(a) Give a reason for this observation. [1]

_____

_____

Bird Q spends a lot of time wading in cold water to look for food.



(b) Bird Q is often seen standing on one leg and at times, it switches the leg that is in contact with the cold water. Suggest a reason for such a behaviour. [1]

_____

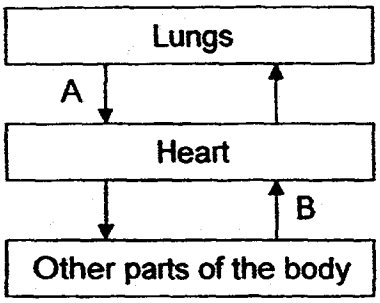
_____

(c) Bird Q is also often seen placing the other leg into its feathers. Explain how this behaviour reduces heat loss from the body. [1]

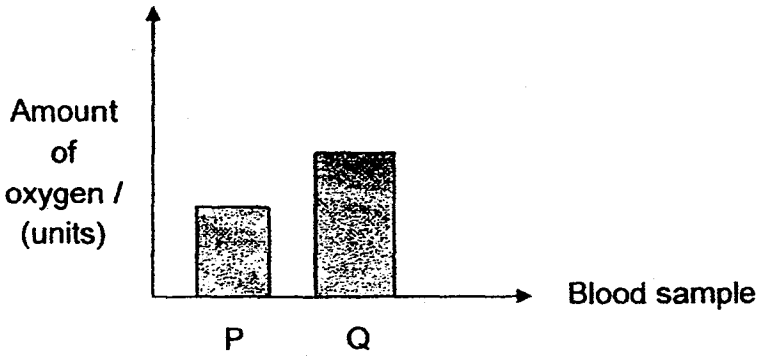
_____

_____

27. The diagram below shows how blood is circulated in our body.



2 blood samples were taken at the same time from 2 different blood vessels in the body. The graph below shows the amount of oxygen present in the 2 blood samples.



(a) Match the blood samples, P and Q, to the parts that they were taken from in the circulatory system. [1]

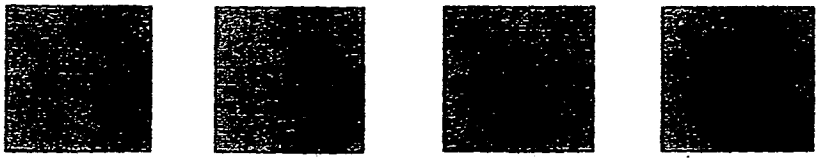
	Path of blood flow	Blood sample
(i)	A	
(ii)	B	

(b) Explain your answer for (a). [2]

_____

_____

28. Joy wanted to find out how the amount of water in a fabric affects how well the fabric burns. She put different amount of water on 4 identical pieces of fabric, A, B, C and D, each measuring 5cm by 5cm.



A B C D

She set fire to the 4 pieces of fabric in a closed room at the same time and took note of the time taken for each fabric to burn completely and recorded her results in the table below.

Fabric	Number of drops of water added	Time taken for the fabric to burn completely (seconds)
A	0	16
B	5	26
C	10	30
D	15	40

(a) State the relationship between the amount of water put on each piece of fabric and the time taken for each fabric to burn completely. [1]

_____

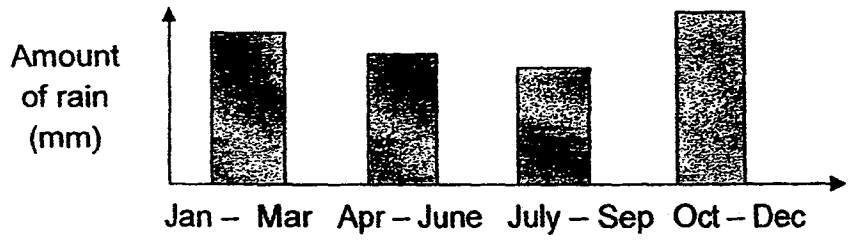
_____

(b) How does carrying out the experiment in a closed room ensure that the experiment is a fair test? [1]

_____

_____

(c) Wildfires can easily occur when heat, oxygen and fuels are present. The graph below shows the amount of rainfall in Country X over a year.

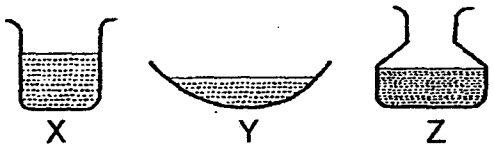


Based on the graph shown above, which period would Country X most likely experience the most number of wildfires? Explain your answer. [1]

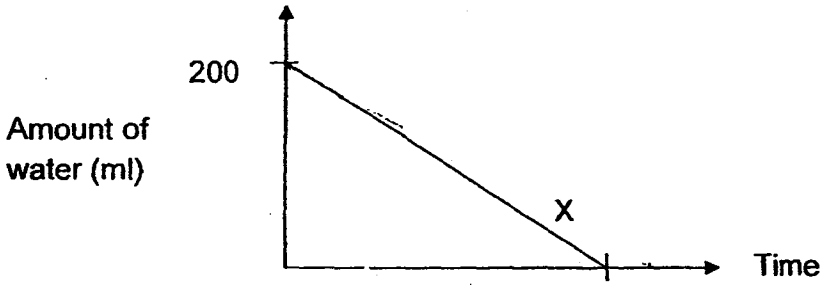
_____

_____

29. John poured 200 ml of water of the same temperature into each of the three plastic containers, X, Y and Z, as shown in the diagram below.



He measured the time taken for the water in each container to evaporate completely. The graph below shows the results for the container X.



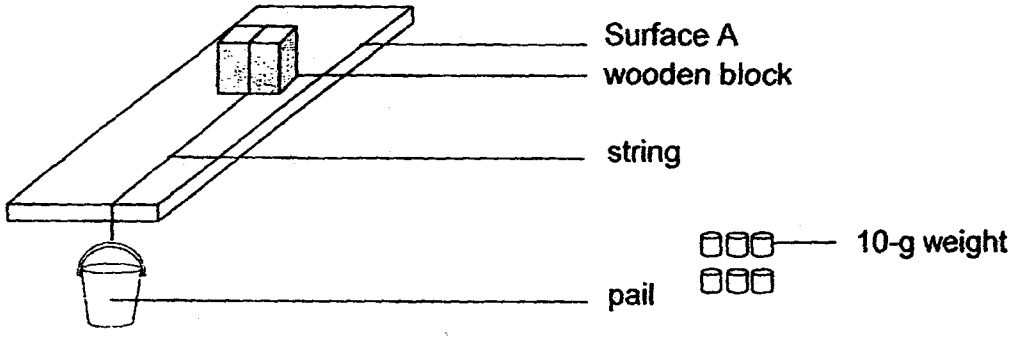
(a) Draw and label the results for the containers, Y and Z, in the graph above. [1]

(b) What should he do to make the results of the experiment more reliable? [1]

_____

_____

30. Sue set up an experiment as shown below. She added 10-g weights into the pail, one at a time, until the wooden block started to slide down the surface.



She then repeated the experiment with 3 other surfaces made of different materials, B, C and D.

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

_____

_____

(b) Name the force that causes the wooden blocks to slide down the surface. [1]

_____

The table below shows the results of the experiment.

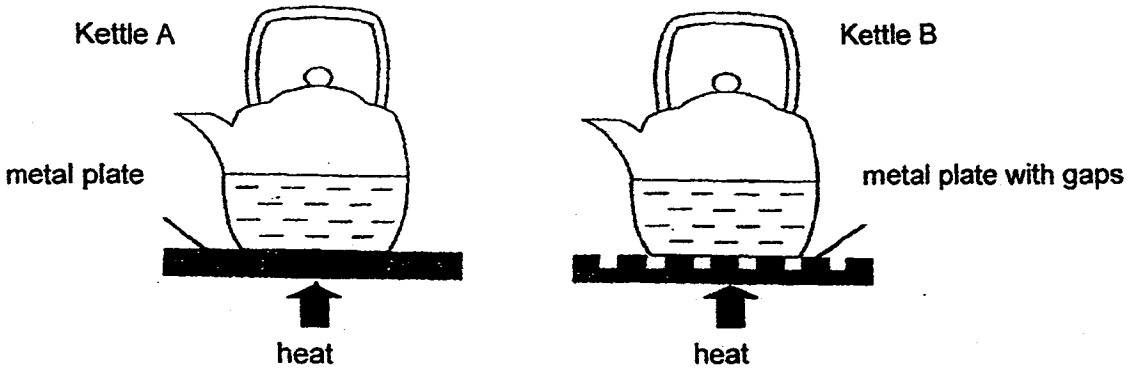
Surface	Number of weights
A	5
B	16
C	8
D	11

(c) Which surface, A, B, C or D, is most suitable for making a skating ring? Explain your answer. [2]

_____

_____

31. In an experiment, John placed two identical kettles, A and B, on two metal plates made of the same material. The kettles contained the same amount of water at room temperature. The plates were heated from below.

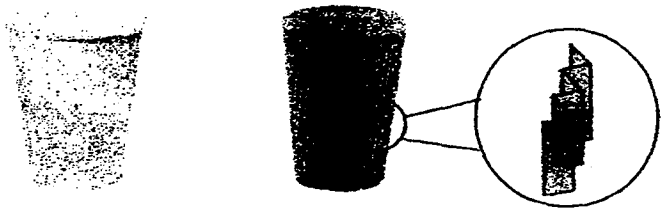


(a) The water in which kettle, A or B, will boil first? Explain your answer. [1]

_____

_____

John started a cafe and he wanted to use paper cup B instead of paper cup A for take-away orders of hot coffee or tea.



Cup A (smooth surface)

Cup B (corrugated surface, enlarged in the expanded circle)

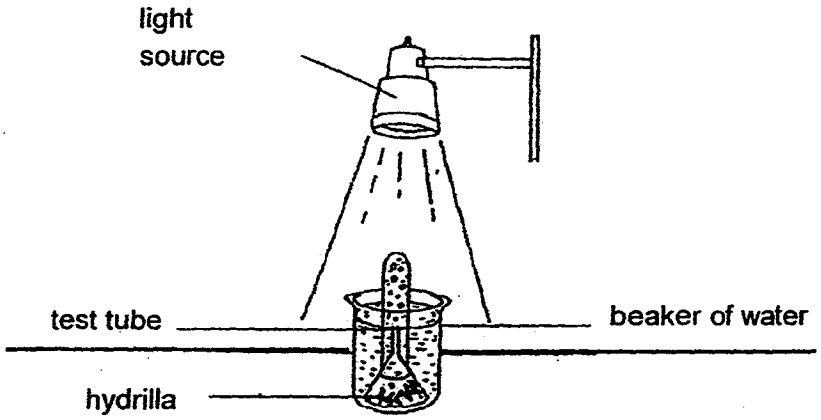
(b) Do you agree with John's decision? Explain why. [2]

_____

_____

_____

32. Teng Teng set up an experiment with some hydrilla as shown in the diagram below.



(a) What do the bubbles contain? [1]

_____

(b) What will be observed when a brighter light source is used? [1]

_____

_____

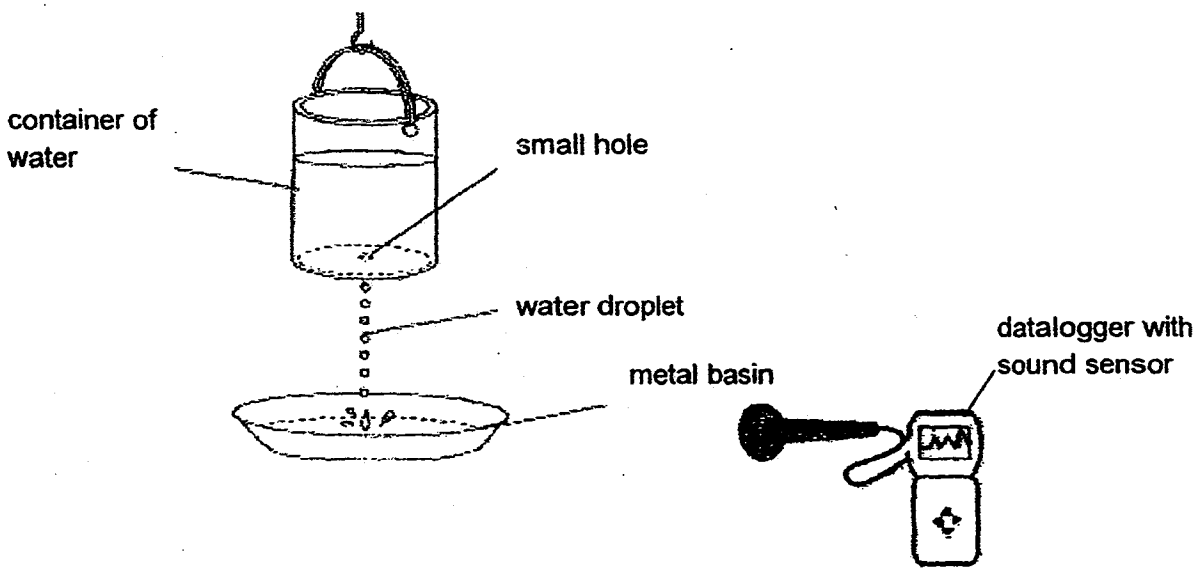
(c) Explain your answer in (b). [1]

_____

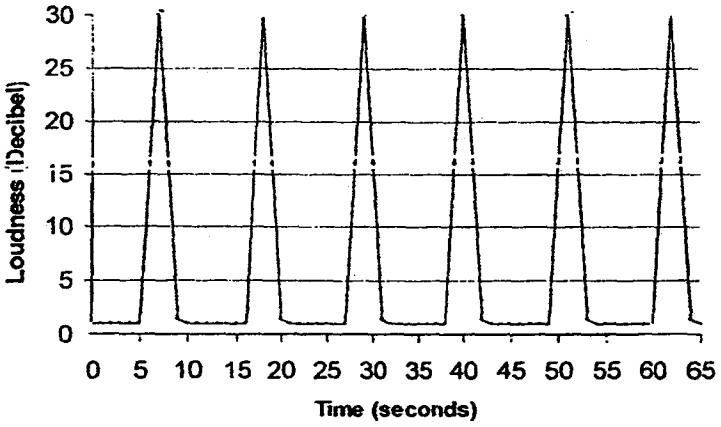
_____

_____

33. A container of water was hung above a large, flat metal basin. A very small hole was made at the bottom of the container for the water to drip out. A sound was produced as each water droplet struck the metal basin.



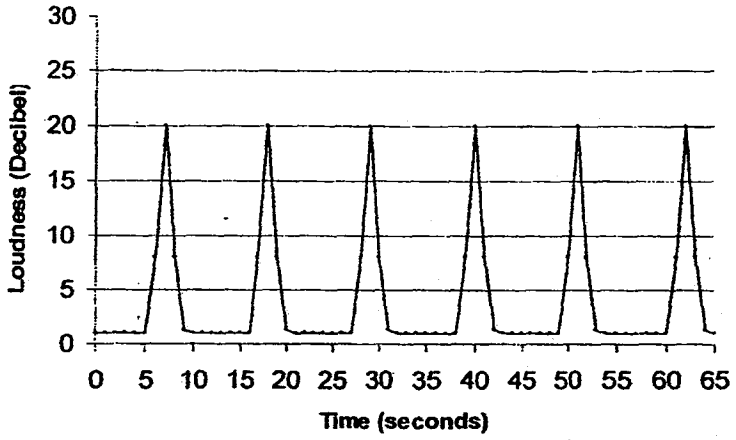
Jermaine used a datalogger with a sound sensor placed near the metal basin and the following graph was displayed on the datalogger screen.



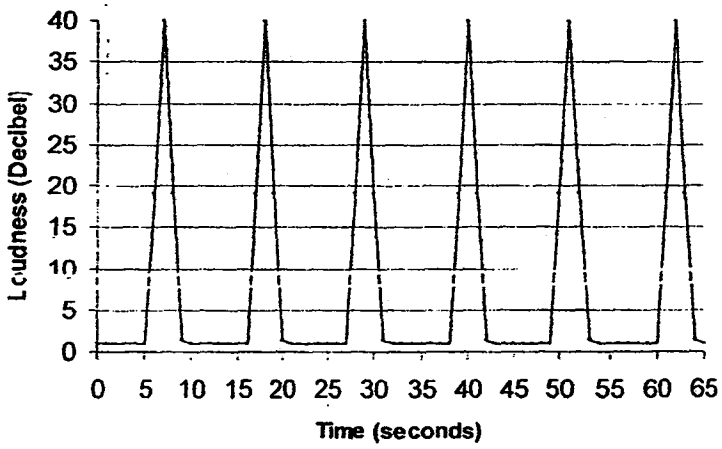
(a) How many drops of water hit the metal plate in one minute? [1]

(b) Explain how the sound is formed in terms of energy conversion. [1]

Jermaine lowered the container of water such that the distance between the container and metal plate is halved.



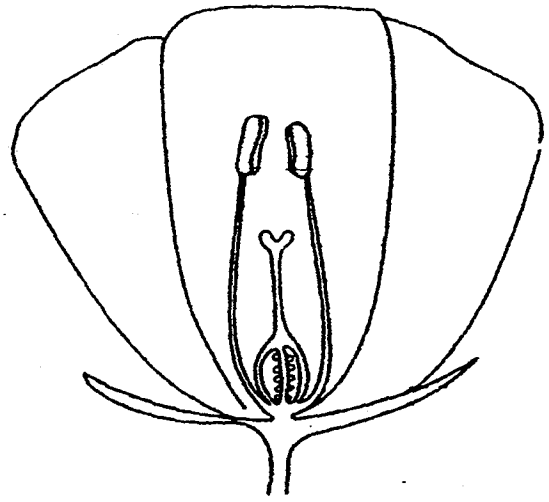
Graph A



Graph B

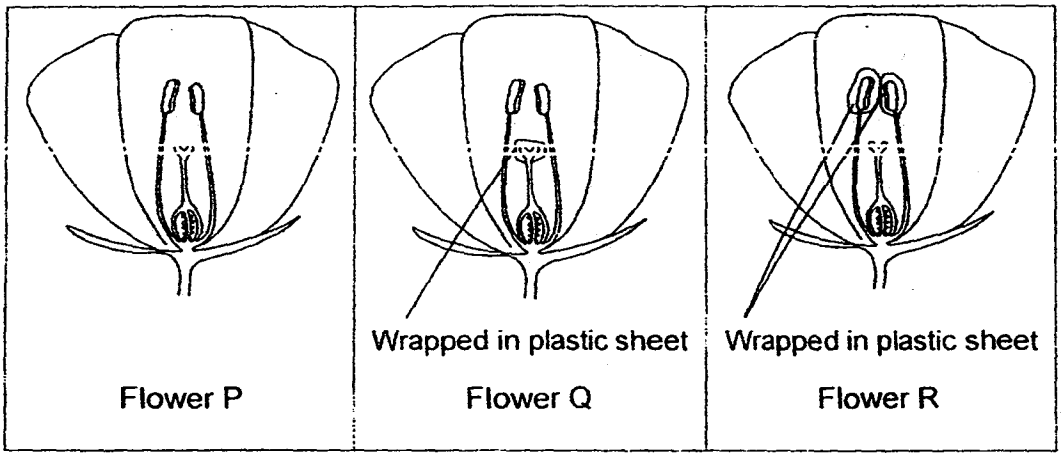
(c) Which graph, A or B, do you think he will see on his datalogger screen? Explain your answer. [1]

34. The diagram below shows the cross section of a flower.



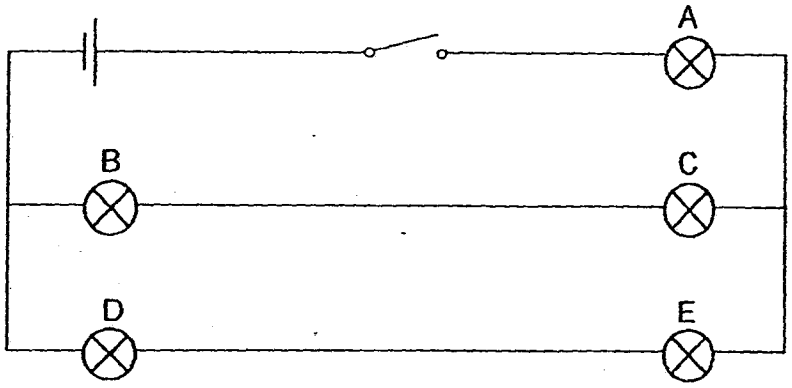
(a) Label the male reproductive part in the above flower with an 'X'. [1]

The diagram below shows three flowers, P, Q and R, from the same plant. Some part(s) of the flower in Q and R are wrapped with plastic sheets.



(b) Which one of the flowers, P, Q or R, will **not** be able to develop into a fruit? Explain your answer. [2]

35. The diagram below shows an electrical circuit with 5 identical bulbs, A, B, C, D and E.



(a) State one disadvantage in the usage of this electrical circuit. [1]

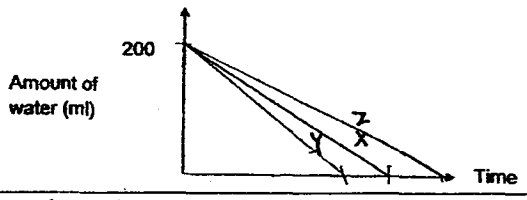
(b) Draw an "X" in the circuit diagram above to mark the position where a switch should be installed to control bulbs D and E only. [1]

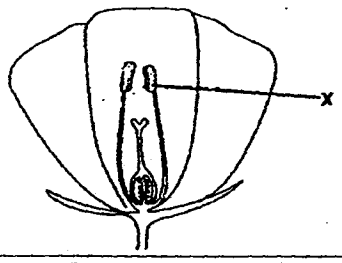
(c) Using the same electrical components as above, draw a circuit diagram such that all the bulbs, A, B, C, D and E light up as brightly as possible in the box provided. [1]

End of Booklet B

EXAM PAPER 2014
LEVEL : PRIMARY 6
SCHOOL : TAO NAN
SUBJECT : SCIENCE
TERM : SA 2

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

Q26	(a)	The cold water with lower temperature will gain heat from the hot water in the beaker with higher temperature,
	(b)	Putting a leg into cold water reduces body heat thus the legs must alternate so as to lose less body heat.
	(c)	The feather of Bird Q trap air, which is a poor conductor of heat, to keep it warm.
Q27	(a)	(i) Q (ii) P
	(b)	Blood A just received oxygen from the lungs, hence it will be rich in oxygen than blood at B. Oxygen has been used by other parts of the body for respiration before the blood flows to B, hence blood in B should be lower in oxygen.
Q28	(a)	The more number of drops of water put on each piece of fabric. The longer the time taken for each fabric to burn completely.
	(b)	To ensure that wind is not present to affect the results of the experiment.
	(c)	July to September. There is the least rain and most hear for wildfires to occur.
Q29	(a)	
	(b)	Conduct the experiment at least 3 more times.
Q30	(a)	To find out which material has the most friction.
	(b)	Gravitational Force
	(c)	Surface A. It requires the least number of weight for the wooden block to start sliding down, hence it must have the least friction between the surface and the wooden block.

Q31	(a)	Kettle A. There is larger surface area of contact so there is more heat gain by kettle A.
	(b)	Yes. The corrugated surface cup provided less surface area of contact between the finger/hand and the cup, hence, there is less heat gain by the fingers. The customer would be able to hold the cup more comfortably for longer period of time without being burnt or feeling hot.
Q32	(a)	oxygen
	(b)	More bubbles will be observed from the plant.
	(c)	When there is more light present, the plant can photosynthesis more to take in more carbon dioxide to produce more oxygen.
Q33	(a)	5 drops
	(b)	Gravitational potential energy (of the water in the container) is converted to kinetic energy (of the falling water droplets) which is converted to sound energy when the water droplet hits the ground.
	(c)	Graph A. Since the distance between the container and metal plate is halved, less gravitational potential energy converts to less kinetic energy which will converts less sound energy.
Q34	(a)	
	(b)	Flower Q. The stigma is wrapped in plastic sheet and pollen grains cannot be dusted onto it to pollinate it. Without pollination, fertilization does not take place thus the flower will not become a fruit.
Q35	(a)	If bulb A fuses, the other bulbs will not light up.
	(b)