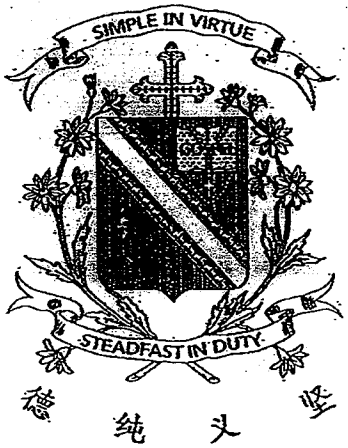
Name: _____( )

Class: Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 6
Semestral Assessment 1 – 2015
SCIENCE

BOOKLET A

14 May 2015

Total Time for Booklets A and B: 1 hour 45 minutes

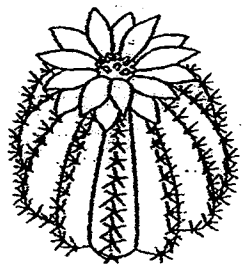
30 questions
60 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

This booklet consists of 21 printed pages.

Section A (30 x 2 marks = 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 provided.**

1. The diagram below shows two organisms.



cactus

fern

Which of the following statements about the organisms are true?

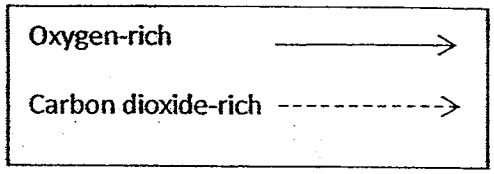
A Both make food.
B Both reproduce by spores.
C The fern has leaves but the cactus does not.
D The cactus produces fruits but the fern does not.

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

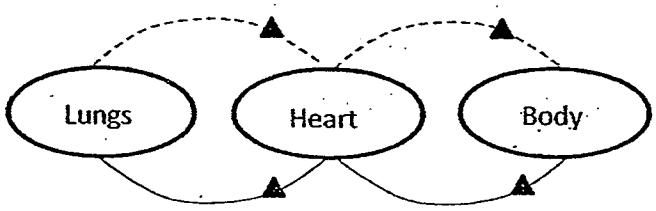
2. Which of the following **incorrectly** shows the difference between inhaled and exhaled air?

	Inhaled air	Exhaled air
(1)	Of lower temperature	Of higher temperature
(2)	Contains less water vapour	Contains more water vapour
(3)	Contains less carbon dioxide	Contains more oxygen
(4)	Contains more oxygen	Contains less oxygen

3. Which one of the following diagrams shows the correct representation of the human circulatory system?



(1)



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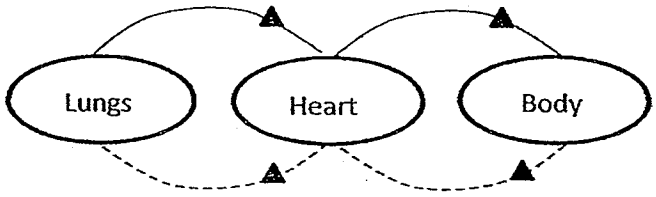

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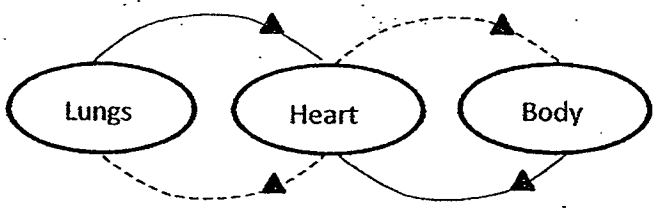

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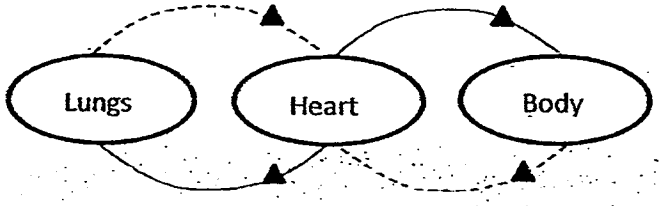
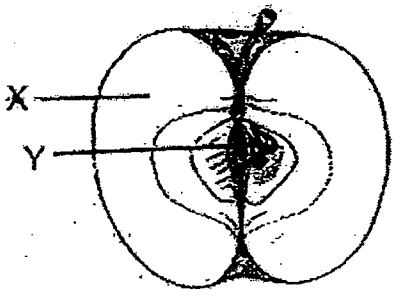
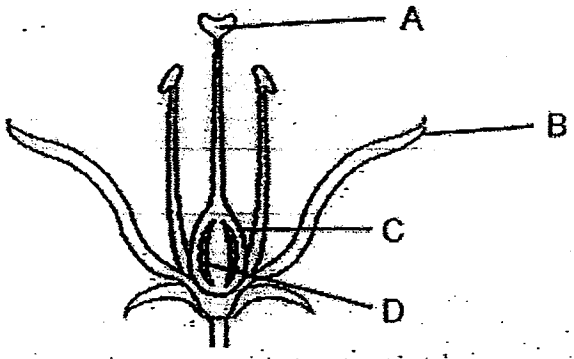


4. The picture below shows the cross-section of a fruit.



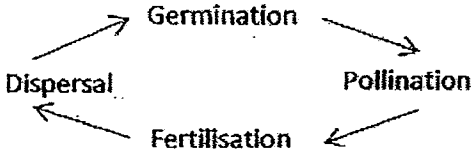


Which one of the following correctly matches the parts of the flower to part X and part Y of the fruit?

	X	Y
(1)	A	B
(2)	A	D
(3)	B	C
(4)	C	D

5. Which one of the following diagrams below correctly shows the processes that occur in the life cycle of a plant?

(1)



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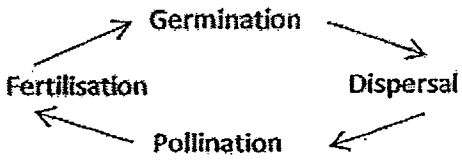

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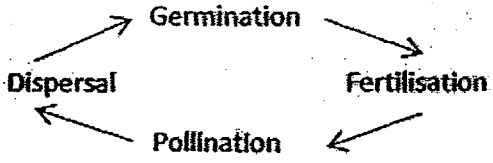

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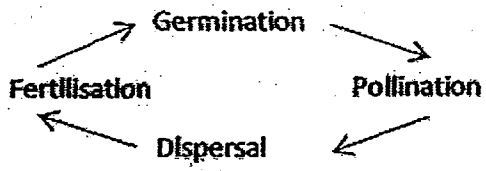
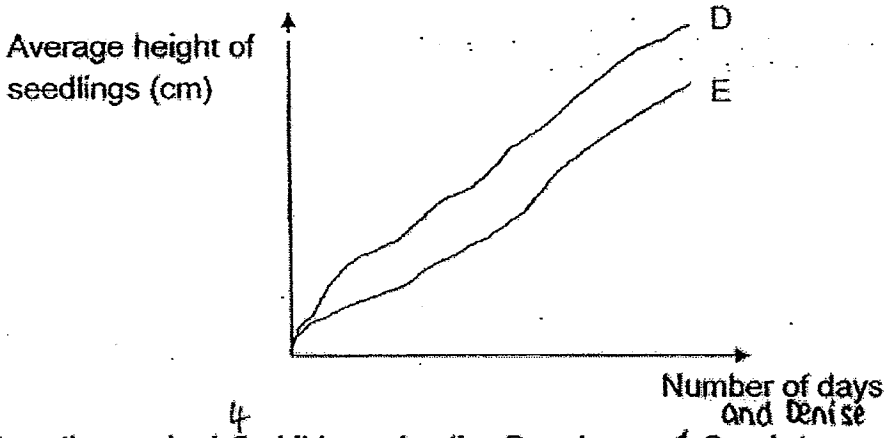


6. Mr Lee planted some seeds in 2 different pots of similar sizes. He then left the 2 pots by the window and watered them with the same amount of water every day. The table below shows the number of seeds he planted in each of the pots.

Pot	W	X
Number of seeds	2	30

The seeds germinated and he measured the average height of the seedling daily for 2 weeks. The graph below shows his results.



Mr Lee then asked 4 children, Austin, Brayden and Carol and Denise to predict which line showed the average height of the seedlings in Pot W or X and explain their prediction.

Austin: Line D shows the average height of the seedlings in Pot X because the seedlings have to compete for sunlight for photosynthesis. Hence they have to grow taller than the others.

Brayden: Line E shows the average height of the seedlings in Pot X because of overcrowding. Hence the seedlings are unhealthy and shorter.

Carol: Line E shows the average height of the seedlings in Pot W because they are strong and healthy. Hence their stems are shorter and thicker.

Denise: Line D shows the average height of the seedlings in Pot W because there is no overcrowding. Hence they are healthy and taller.

Which of the predictions and explanations made by the children is/are correct?

(1) Austin only
(2) Brayden only
(3) Austin and Carol only
(4) Brayden and Denise only

7. In sexual reproduction, the nucleus of a male reproductive cell will fuse with the nucleus of a female reproductive cell for fertilisation to take place. Which one of the following increases the chances of fertilisation taking place?

(1) The female lays many eggs.
(2) One egg is fertilised by one sperm only.
(3) The testis produces sperms while the ovary produces eggs.
(4) The fertilised egg develops in the womb of the female body.

8. In a naturally balanced eco-system, the number of food producers is more than the number of food consumers. Four children gave the comments below to explain why this is so.

Wilma: Not all of the energy in the plants is passed on to the animals.

Xavier: Plants are the only organisms that can make use of Sun's energy to make food.

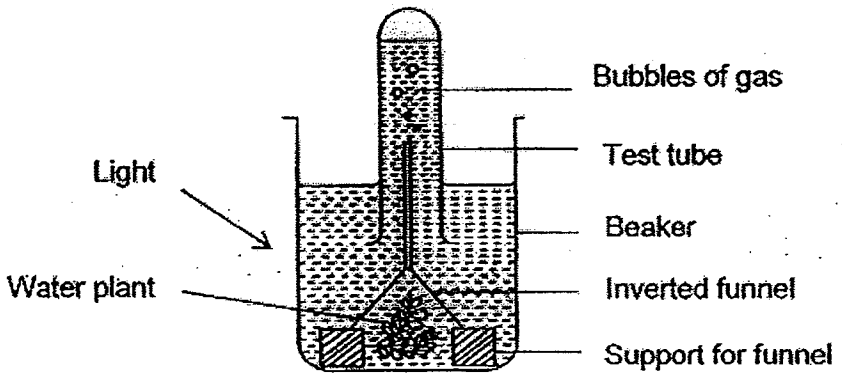
Yu Leng: Energy cannot be created, it is being transferred from the producers directly or indirectly to all the food consumers.

Zac: There are many animals that feed on plants.

Whose explanations best explain the statement above?

(1) Yu Leng only
(2) Wilma and Zac only
(3) Xavier and Zac only
(4) Wilma, Xavier and Yu Leng only

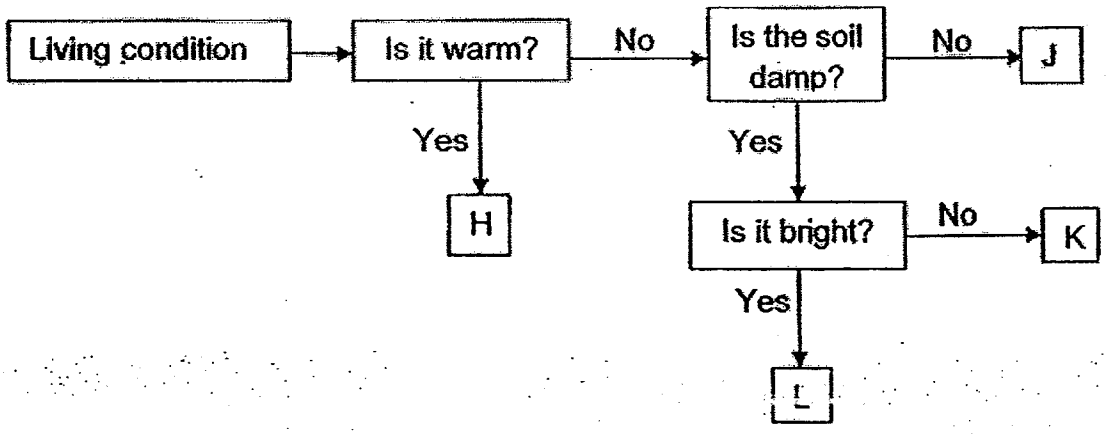
9. Sharifah put some water plants under an inverted funnel. She filled the inverted funnel with water and covered the inverted end of the funnel with a test tube. Sharifah recorded the amount of gas given out when light was shone on the water plants for 30 mins. She then removed the light source and recorded the amount of gas given out for 30 mins.



Which one of the following statements best describes the aim of Sharifah's experiment? She wanted to find out if _____.

(1) food and oxygen are needed for respiration.
(2) water is needed for photosynthesis to take place.
(3) carbon dioxide is given out during photosynthesis.
(4) plants only photosynthesize in the presence of light.

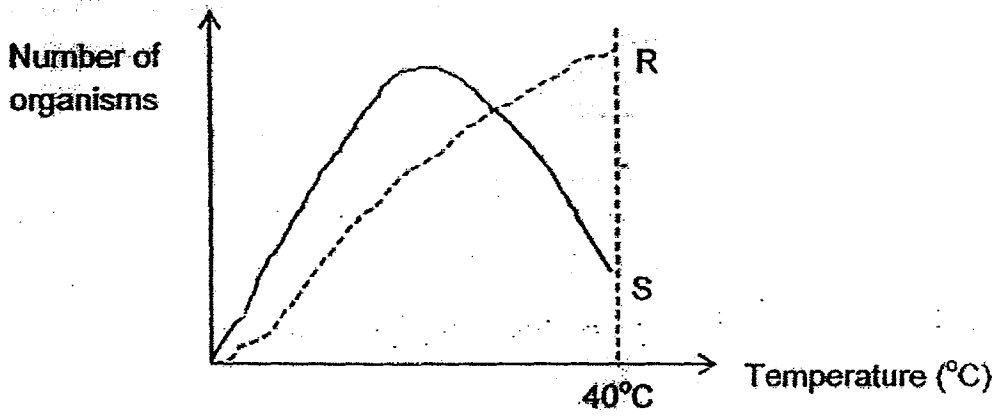
10. The flowchart below shows the living conditions of different habitats, H, J, K and L.



Organism X prefers cold, dark and damp living conditions.
Which habitats, H, J, K or L would organism X be found?

(1) H
(2) J
(3) K
(4) L

11. In a particular community, the population of 2 different organisms, R and S, is affected by the rise in Earth's temperature. The graph below shows how their population sizes are affected by temperature up to 40°C.

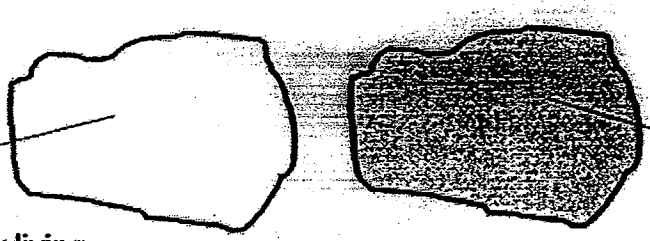


Based on the graph above, which of these statements can you infer?

A The population of organism S increases with temperature.
B Organism S cannot survive at very high temperatures.
C The population of organism R will always increase with temperature.
D Both organism R and organism S cannot survive at 0°C.

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

12. A group of hikers lost their directions while trekking in a forested area. They had run out of water for hours and badly needed water to survive. Finally they came across two ponds of water, and had to decide which of the two ponds was safer to drink from.



Pond P
Clear water
Absence of any living organism

Pond Q
Slightly brownish water
Presence of living organisms

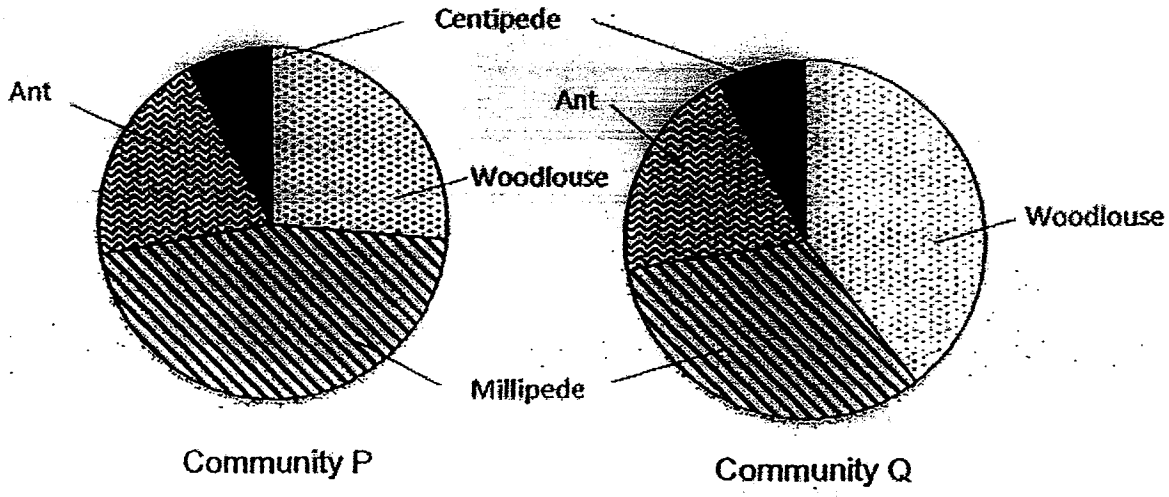
The hikers made the statements below:

Eva	We should drink from Pond P because the water is clear and clean.
Ben	We should not drink from Pond Q because the slightly brownish water looks dirty.
Claire	We should drink from Pond Q because there are living organisms in it which shows that it is fit for drinking.

Who do you agree with?

(1) Eva only
(2) Ben only
(3) Claire only
(4) Ben and Eva only

13. The charts below show the population size of some organisms in 2 different rotting log communities, Community P and Community Q.



Based on the two charts above, which of the following statement(s) is/ are true?

A The number of ants in both communities is the same.
B There are more millipedes in Community P than Community Q.
C There are fewer centipedes than millipedes, woodlouse and ants in both communities.

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

14. Stacy made a terrarium for her Science project. She put some Organism F and Organism G, as well as some plants into her terrarium. She counted and recorded the number of Organism F and Organism G in the terrarium regularly. She noticed that the number of Organism G increased while that of Organism F decreased after a few weeks. There were no dead organisms in the terrarium.

What could Stacy conclude from the changes in the population of Organism F and Organism G?

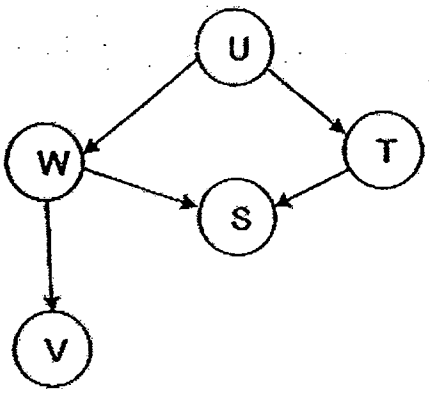
(1) Organism G is the prey of Organism F.
(2) Organism G is the predator of Organism F.
(3) Organism G relies only on the plants for food.
(4) The population of Organism F decreased due to lack of food.

15. There are five organisms, S, T, U, V and W, in a food web.

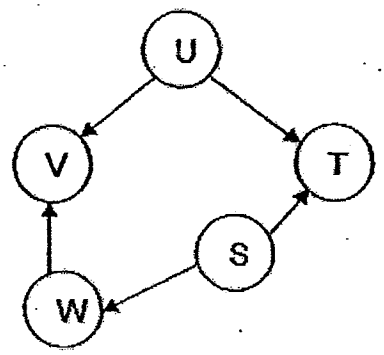
S and V are predators of W
U is the food producer
T is the prey of S
T and W are herbivores
V is a carnivore

Which one of the following food webs represents correctly the relationship among the five organisms?

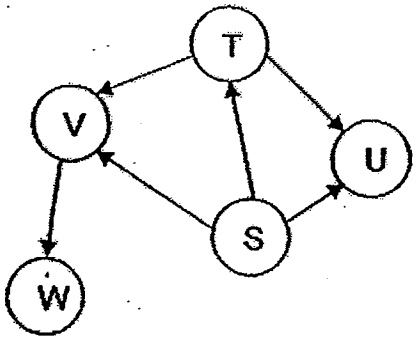
(1)



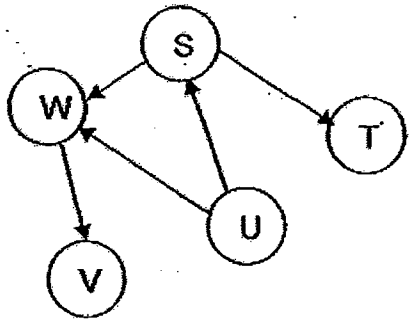
(2)



(3)



(4)



16. Which of the following statements about decomposition is/are not true?

A Decomposers prefer to live in dark and moist places.
B Termites and maggots are examples of decomposers.
C Decomposition results in the release of carbon dioxide.
D Earthworms help to speed up the rate of decomposition.

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

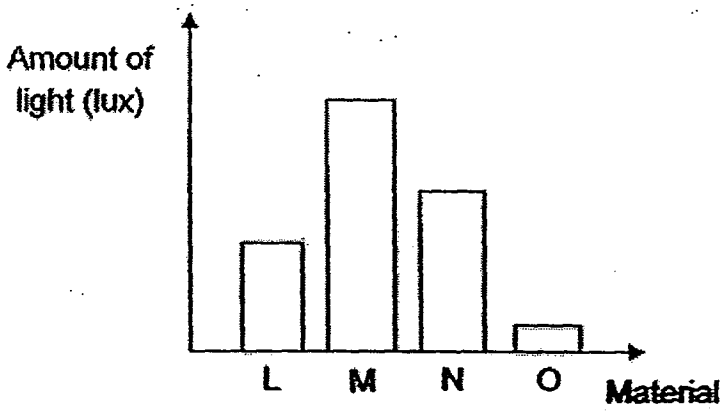
17. The table below shows the properties of four materials, D, E, F and G.

	Material			
Property	**D**	**E**	**F**	**G**
Hard	Yes	No	Yes	No
Flexible	No	Yes	No	Yes
Waterproof	Yes	Yes	Yes	No
Float on water	Yes	Yes	No	No

Materials, D, E, F and G, were then used to make some objects. Which one of the following shows the correct use of the materials for each of the objects?

	book cover	key	t-shirt	classroom door
(1)	G	E	D	F
(2)	E	F	G	D
(3)	G	F	E	D
(4)	E	D	F	G

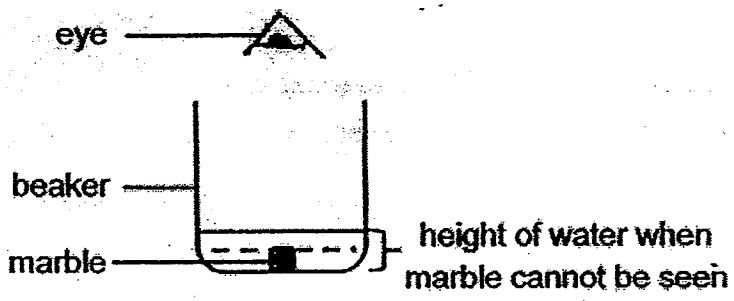
18. The graph below shows the amount of light that can pass through four different materials, L, M, N and O.



Which one of the following materials would cast the darkest shadow?

(1) L
(2) M
(3) N
(4) O

19. Meiling placed a marble at the bottom of a beaker as shown in the diagram below. She then poured water from pond A into the beaker until she is unable to see the marble.



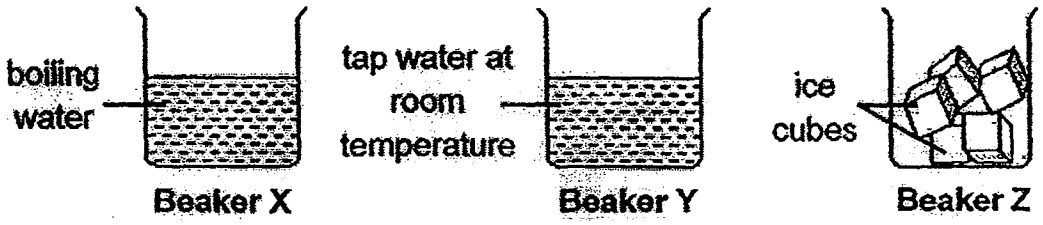
She measured the height of the water in the beaker and recorded it in a table. Meiling repeated the same experiment using water samples from ponds, B, C and D. Her results are shown in the table below.

Pond	A	B	C	D
Height of water in beaker (cm)	4.4	10	7.5	15

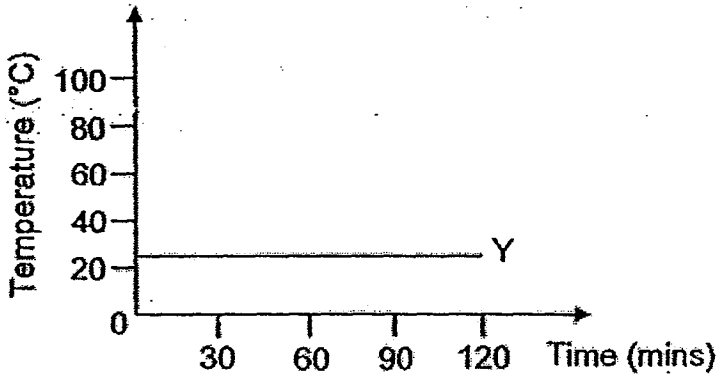
Based on her results above, which water source had the clearest water?

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

20. The following 3 set-ups were left for 2 hours in a room with a temperature of 26°C.

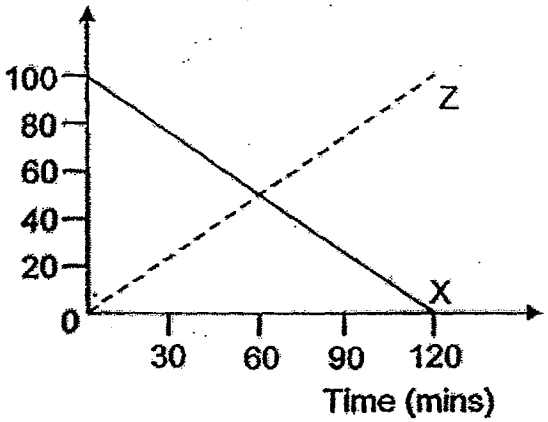


The graph below shows the change in temperature of the tap water in beaker Y.

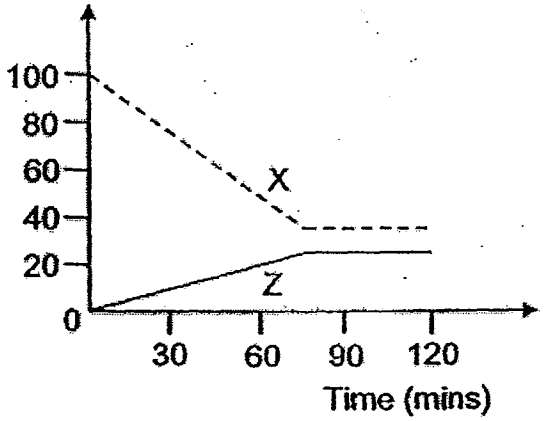


Which one of the following graphs below shows the correct graphs for the substances in beakers, X and Z?

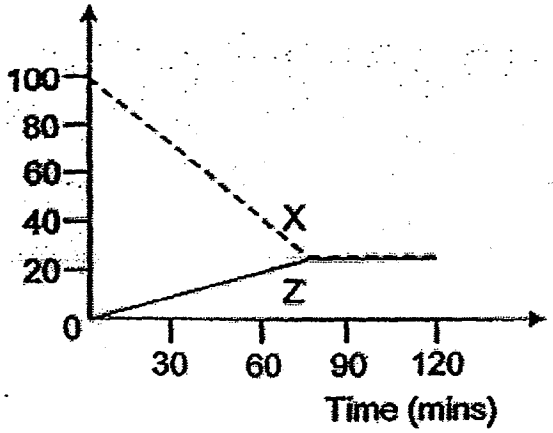
(1) Temperature (°C)



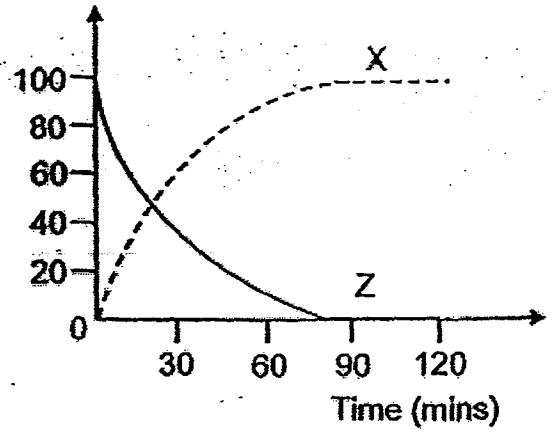
(2) Temperature (°C)



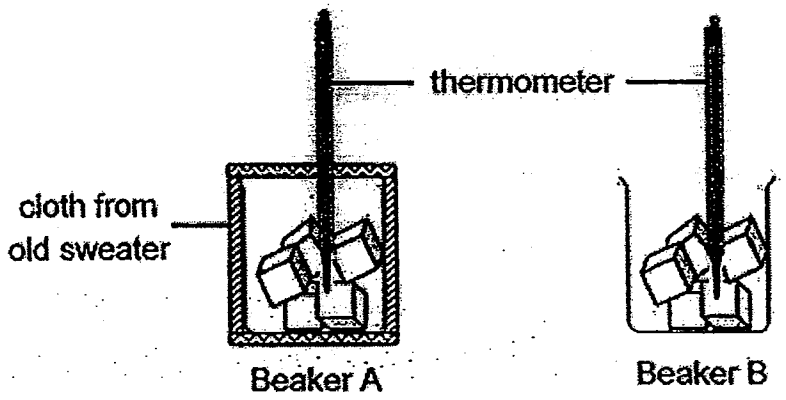
(3) Temperature (°C)



(4) Temperature (°C)



21. Kasim set up the following experiment using two identical beakers containing the same amount of ice as shown below. He wrapped beaker A with a thick layer of cloth that he had cut out from his old sweater and left both beakers on a table.



After five minutes, which one of the two beakers, A or B, would have a lower temperature and why?

	Beaker	Explanation
(1)	A	The layer of cloth traps air which is a poor conductor of heat. The ice thus gains heat slower and melts slower.
(2)	B	Beaker B does not have a layer of cloth to warm it up unlike beaker A. Hence the ice will melt slower.
(3)	A	The layer of cloth does not allow the ice to lose heat to the surrounding air and hence the ice melts slower.
(4)	B	The absence of the layer of cloth causes the ice to lose its coldness more slowly and hence the ice melts slower.

22. Chloe was caught in the rain before she entered a air-conditioned shopping mall. She felt cold and was shivering. Which one of the following is the best explanation for why she felt cold?

(1) More wind from the air-conditioner blew on Chloe.
(2) More coolness in the air travelled to Chloe's body.
(3) Water droplets on Chloe's body evaporated faster.
(4) Chloe lost heat when more water droplets condensed on her body.

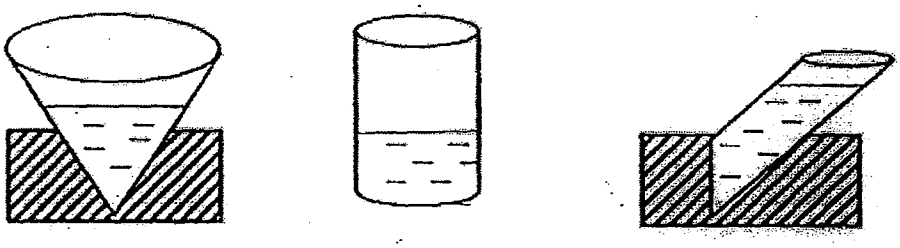
23. Study the melting point and boiling point of substances, P, Q and R below.

Substances	P	Q	R
Melting point	54°C	13°C	2°C
Boiling point	90°C	20°C	59°C

Which one of the following shows the states of P, Q and R correctly at 28°C?

	P	Q	R
(1)	Solid	Liquid	Gas
(2)	Gas	Liquid	Liquid
(3)	Liquid	Gas	Solid
(4)	Solid	Gas	Liquid

24. The diagram below shows 3 containers of different shapes. 800 ml of water was poured into each of the containers and they were left on the table in a room.

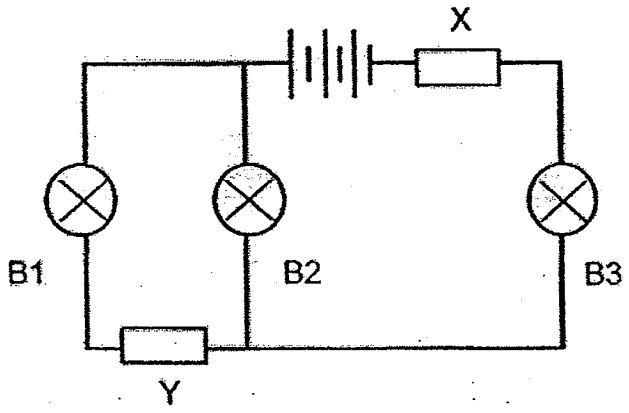


A B C

After three days, the water in each of the containers was measured to find out how much water remained in them. Which one of the following shows correctly the comparison of the amount of water left in the containers after 3 days?

	Least amount of water →		Most amount of water
(1)	A	B	C
(2)	B	A	C
(3)	C	A	B
(4)	C	B	A

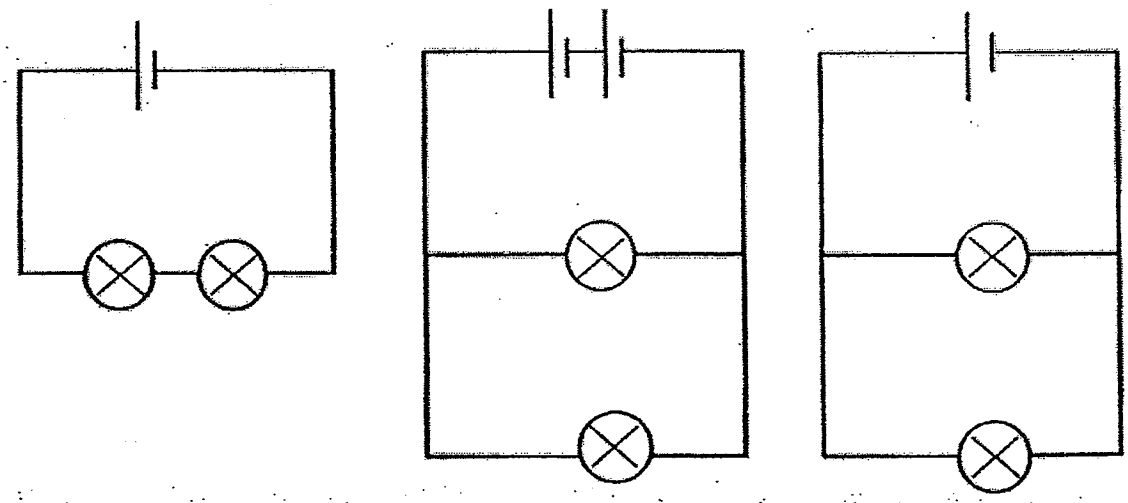
25. Study the circuit diagram below. X and Y are both electrical conductors and all three bulbs can light up.



Which one of the following shows correctly the bulb(s) that light up when either X or Y is replaced by an electrical insulator?

	Electrical insulator placed at	Bulbs that light up
(1)	X	None
(2)	X	B1 and B2
(3)	Y	B3
(4)	Y	B1, B2 and B3

26. Study the circuits in the diagram shown below.

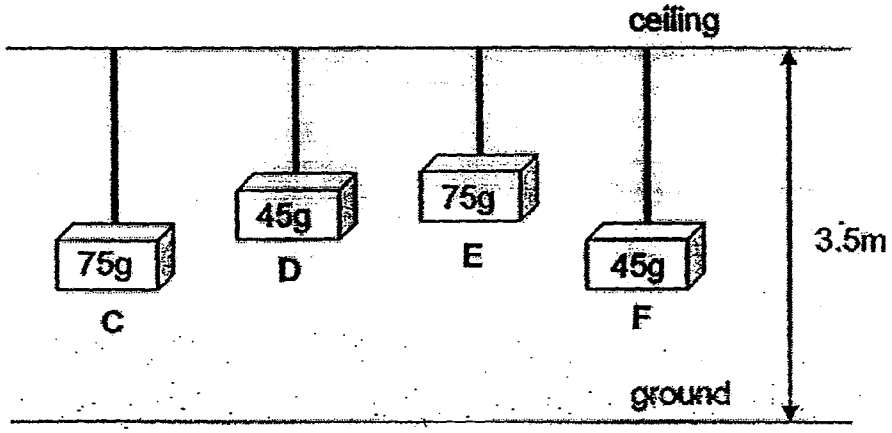


Circuit S Circuit T Circuit U

Arrange the circuits from the brightest bulbs to the dimmest bulbs.

	Brightest bulb	→	Dimmest bulb
(1)	T	U	S
(2)	T	S	U
(3)	S	U	T
(4)	U	T	S

27. The diagram below shows four objects hanging from the ceiling which is 3.5 m away from the ground.

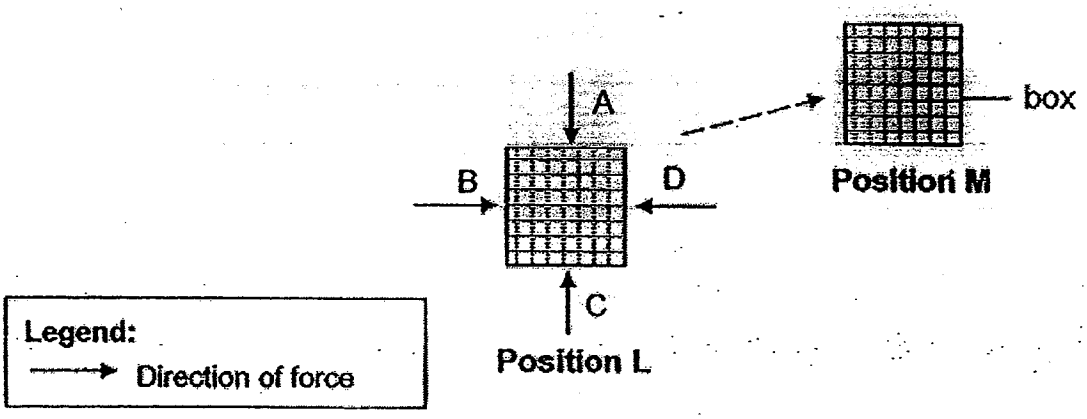


Which of the following statements are **not** true?

A Object C has less gravitational potential energy than object E.
B Object F has more gravitational potential energy than object D.
C Objects C and F have the same amount of gravitational potential energy.
D When the objects hit the ground, all the gravitational potential energy of the objects will be converted to kinetic energy only.

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

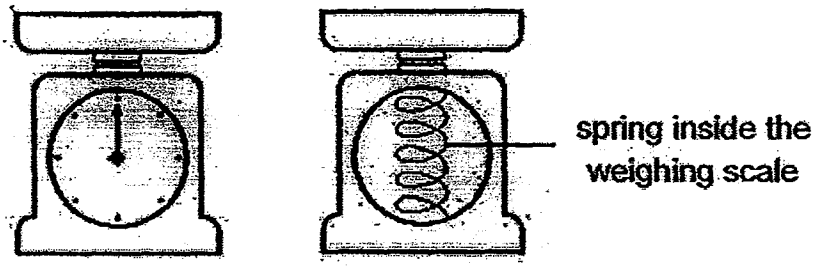
28. Four boys, A, B, C and D, exerted a force on the box at the same time from the positions shown in the diagram below. The box moved from position L to position M.



Which one of the following shows the likely amount of force that was exerted by each of the boys on the wooden box?

	amount of force exerted on the wooden box (N) by			
	A	B	C	D
(1)	11	7	6	9
(2)	6	11	6	11
(3)	6	9	11	7
(4)	7	6	9	11

29. Aeryn used a kitchen scale to measure 100 g of salt for an experiment. The diagrams below show the kitchen scale she used.

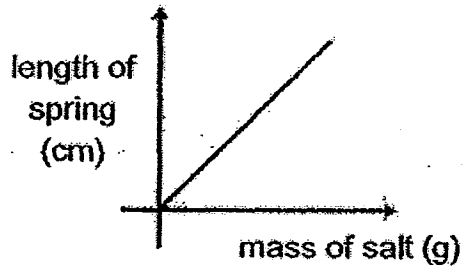


diagrams showing exterior and interior of weighing scale

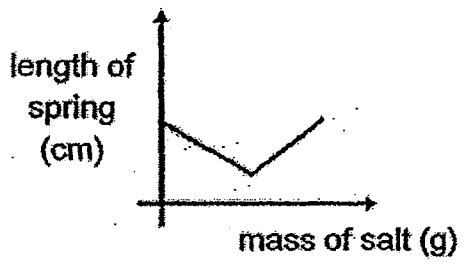
She added salt to the kitchen scale one teaspoon at a time until the pointer indicated 100 g. She then transferred the salt carefully, one teaspoon at a time into a measuring cylinder.

Which one of the following graphs shows how the length of spring changes with the mass of the salt during the entire measurement process?

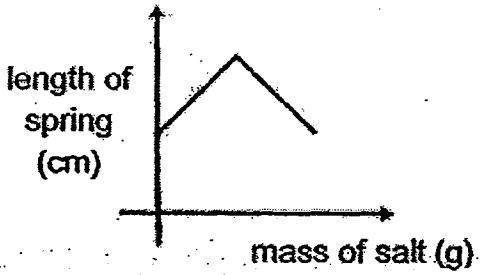
(1)



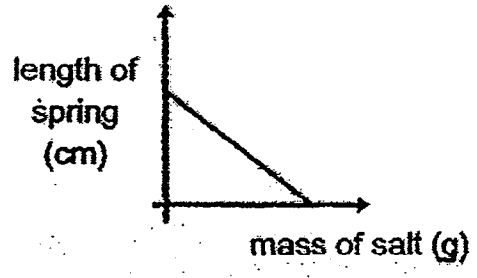
(2)



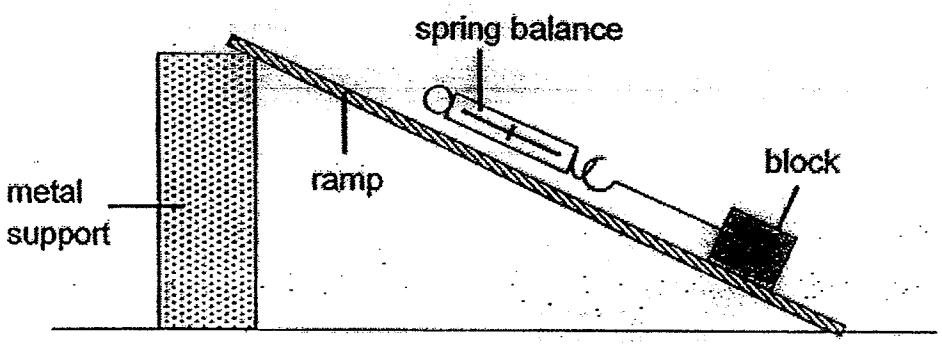
(3)



(4)



30. Janvier set up an experiment as shown below. Using a spring balance, he pulled a block up the ramp made of material H. He then recorded the amount of force used and repeated the experiment using three other ramps made of materials, I, J and K.



Which of the following variables should he keep constant to ensure a fair test?

A Texture of the ramp
B Type of spring balance
C Height of the metal support
D Amount of force used to pull the block

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

Name : _____ ( )

Class : Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

Primary 6
Semestral Assessment 1
SCIENCE

BOOKLET B

14 May 2015

Booklet A	60
Booklet B	40
Total	100

Total Time for Booklets A and B: 1 hour 45 minutes

14 questions
40 marks

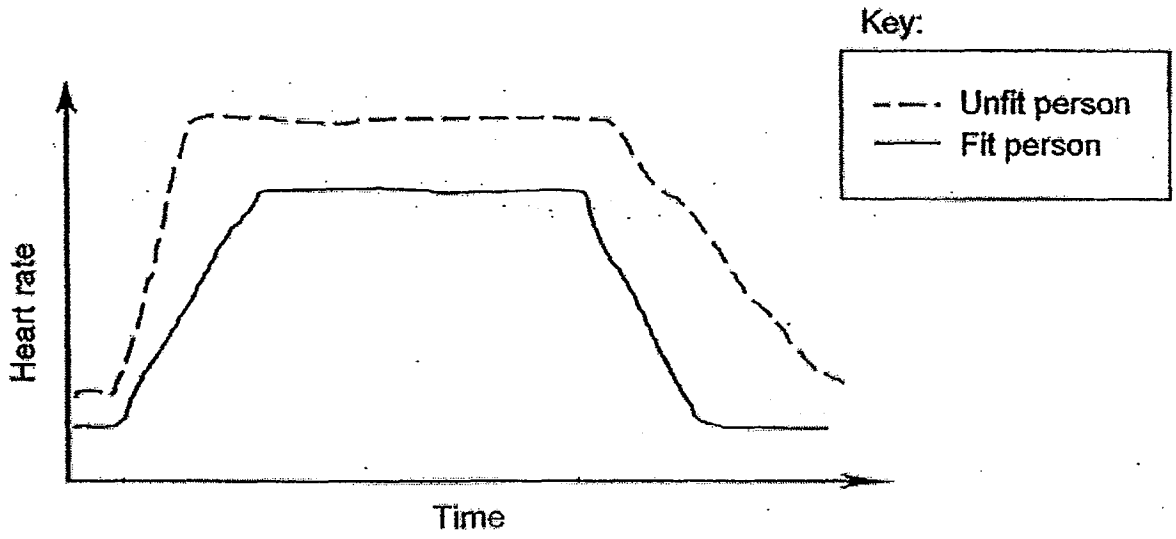
Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

This paper consists of 14 printed pages.

Section B (40 marks)
For questions 31 to 44, write your answers in this booklet.

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

31. The graph below shows the heart rate of 2 persons from the time they start to exercise to the time they stop exercising.



(a) Based on the graph above, state one difference between the heart rate of a fit person and an unfit person? [1]

_____

_____

(b) The graph also shows that our heart rate increases when we exercise. Why does our heart rate increase when we exercise? [1]

_____

_____

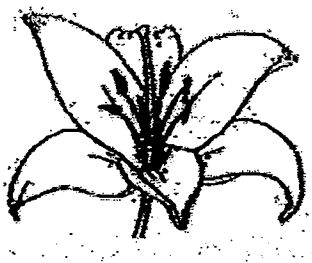
32. Lynn wanted to find out how the colour of petals affects the chances of pollination. She made 10 red and 10 white artificial flowers of the same size and shape. After spraying each flower with the same amount of perfume which attracts bees, she placed all the flowers at the same spot in the garden where bees will visit.

	Sprayed with perfume	Same shape	Same size	Same location
10 Red flowers	√	√	√	√
10 White flowers	√	√	√	√

(a) What observation should Lynn record at the end of her experiment? [1]

(b) Lynn's teacher told her that she had to allocate enough time before she could make her observations for the experiment. Explain the reason for this. [1]

(c) Ruby planted some plants which produced red insect-pollinated flowers as shown in the diagram below. Each time these flowers bloomed, she would cut away the petals.

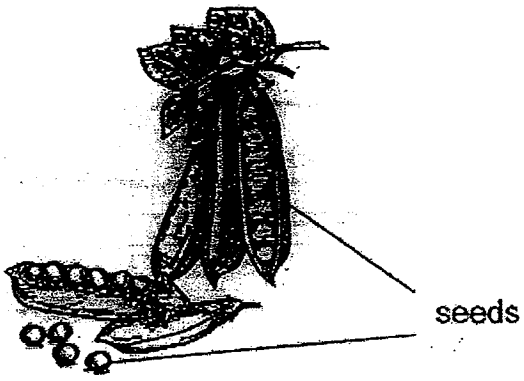


petals are intact

petals removed

How would cutting away the petals affect the number of fruits produced by the plant over time? [1]

33. Study the diagram below which shows fruits with seeds in a pod-like structure.

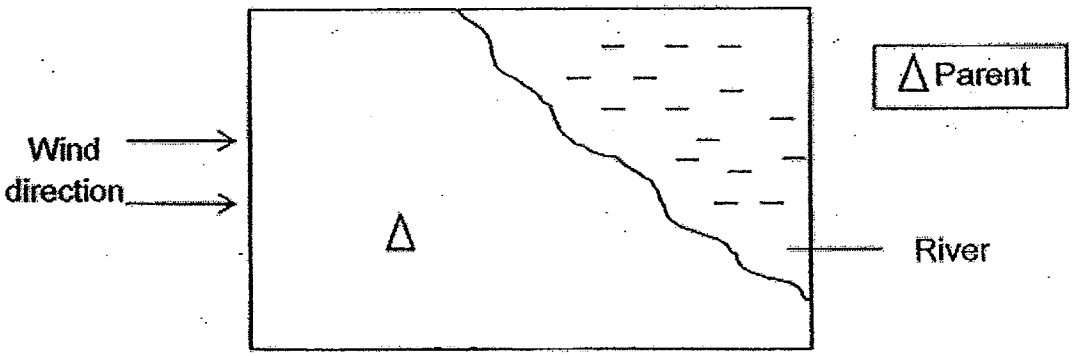


(a) How do you think the seeds of the fruit are dispersed? Give a reason to support your answer. [1]

_____

_____

(b) In the space given below, mark with 5 crosses "X" to show where the seeds of the above plant will most likely land after dispersal. [1]

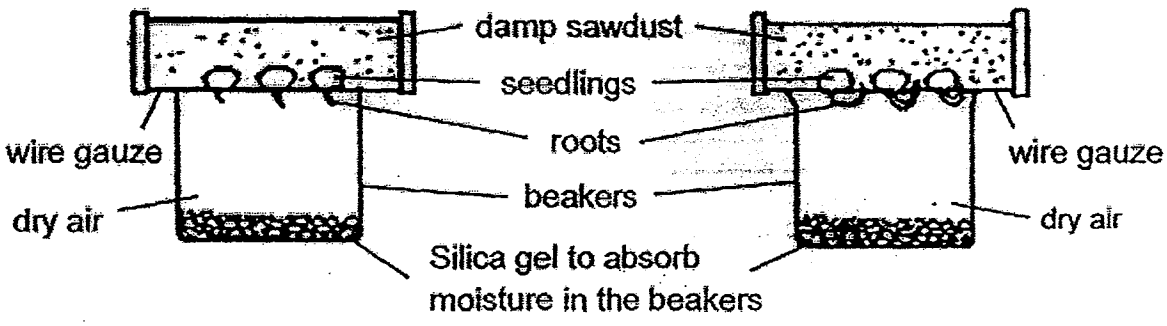


(c) Why do plants disperse their seeds? [1]

_____

_____

34. Rina prepared a set-up as shown below to find out if water is needed for seedlings to grow. She predicted that water is needed for seedlings to grow.



(a) Based on the result shown above, what observation would help Rina to confirm her prediction. [1]

_____

(b) Rina's brother said that she should have put the set-up by the window where there was light. Do you agree with Rina's brother? Give a reason to explain your answer. [1]

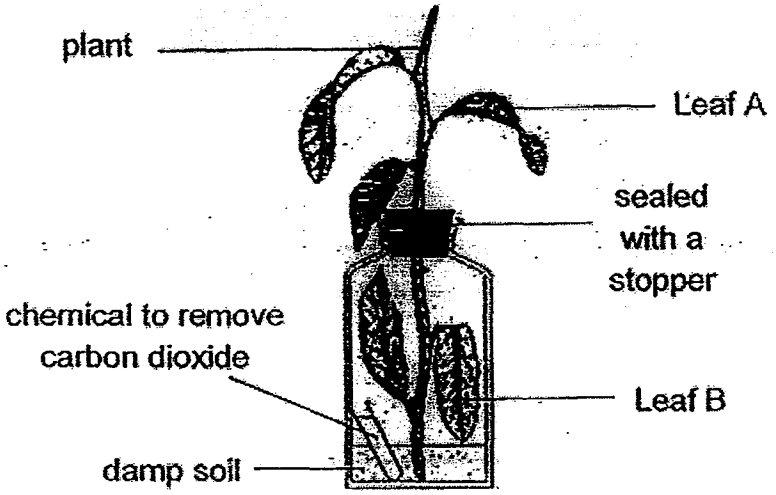
_____

_____

35. Human and flowering plants go through sexual reproduction. The table below shows the comparison between the two systems. Fill in the blanks with the correct word(s). [2]

	Human Reproductive System	Plant Reproductive System
Produces male sex cells	Testis	**(a)**
(b)	Ovary	Ovary
Male sex cell	Sperm	**(c)**
Female sex cell	**(d)**	Ovule

36. Sri conducted an experiment below to find out if carbon dioxide is needed for photosynthesis. She inserted part of a plant into a sealed bottle. The other half of the plant was out of the bottle. A chemical in the test tube removed carbon dioxide from the air in the sealed bottle. She then left the set-up by the window for a few hours.

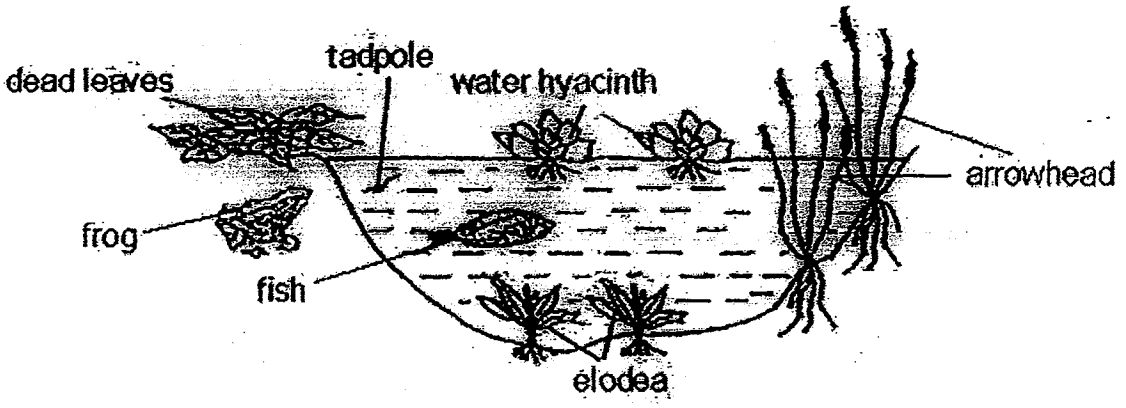


(a) After a few hours, Sri removed the bottle. She plucked Leaf A and Leaf B from the plant and prepared both leaves for the starch test. Iodine solution turns from yellowish-brown to dark blue in the presence of starch. State the colour change (if any) to the iodine solution when it is added to the leaves in the boxes below. [2]

	Colour of the iodine solution
Leaf A	
Leaf B	

(b) What could Sri have done to ensure the reliability of her experimental results? [1]

37. The diagram below shows a pond community.

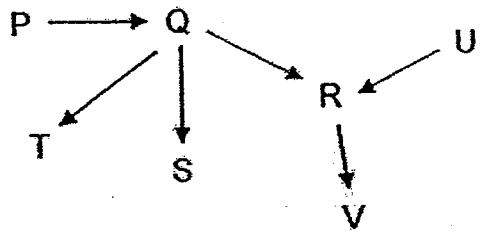


(a) Explain how the population of the elodea plant would be affected if the population of the water hyacinth suddenly increased? [1]

(b) When a drought caused the water in the pond to dry up and all the pond organisms to die, what could the frogs do to survive? [1]

(c) Based on the diagram above, Amanda said that there are 6 populations of organisms. Do you agree with her? Explain your answer. [1]

38. The food web below is found in community K.



(a) Based on the food web above, state the relationship between organism V and organism R. [1]

V: _____ R: _____

(b) Cheryl thinks that organism P is the prey of organism Q. Do you agree with her? Explain why. [1]

_____

_____

(c) Community K is found in a country where the period of daylight is shorter from January to May. Explain how this affects the population of organism Q during the period from January to May. [1]

_____

_____

_____

(d) Organism W was introduced into community K in March. Organism W feeds on organism S. Explain how this is likely to affect the population of organism U in March. [1]

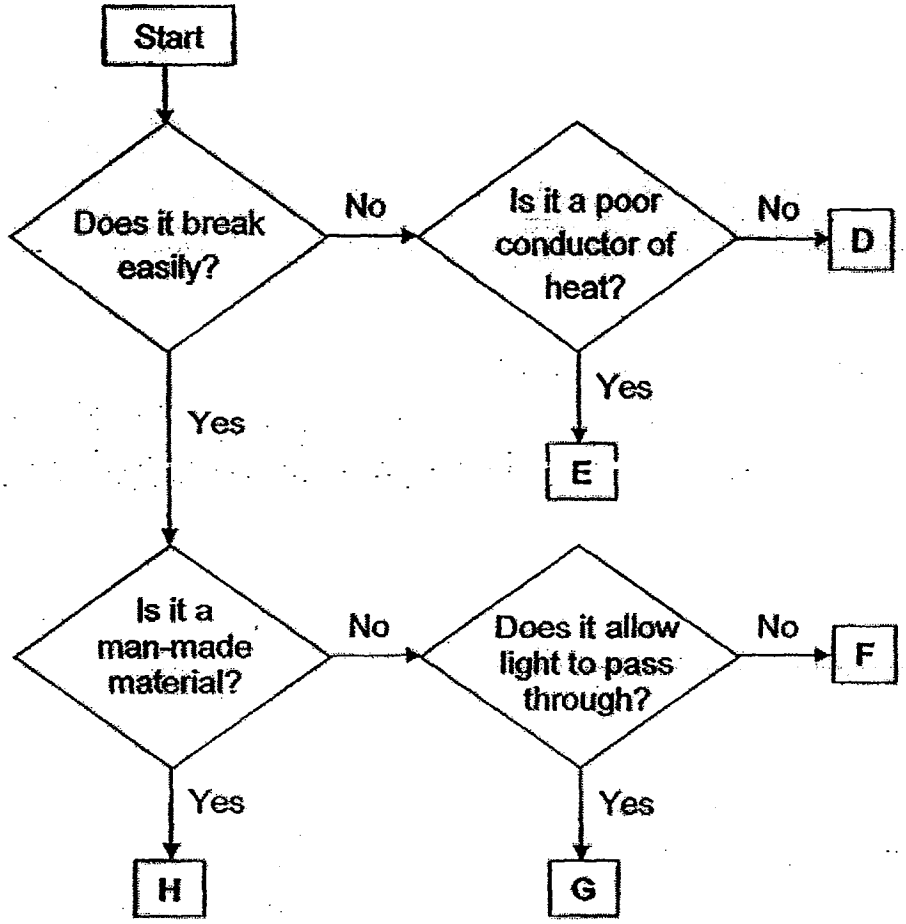
_____

_____

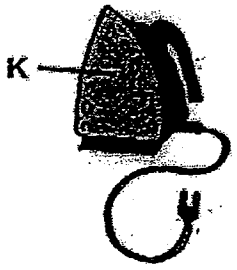
_____

_____

39. The flowchart below shows the properties of five materials, D, E, F, G and H.

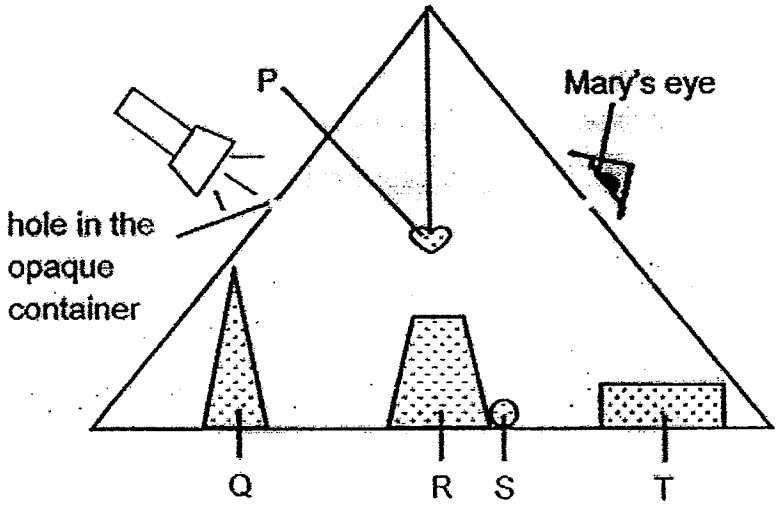


(a) Which one of the above materials is most suitable for making part K of the iron shown below? Explain why. [1]



(b) Based on the flowchart above, which of the five materials could most likely be ceramic? Give a reason for your answer. [1]

40. The diagram below shows a torch shining at an opaque conical container in a dark room. The container contains some objects, P, Q, R, S, and T. Mary then looked through a hole in the container.

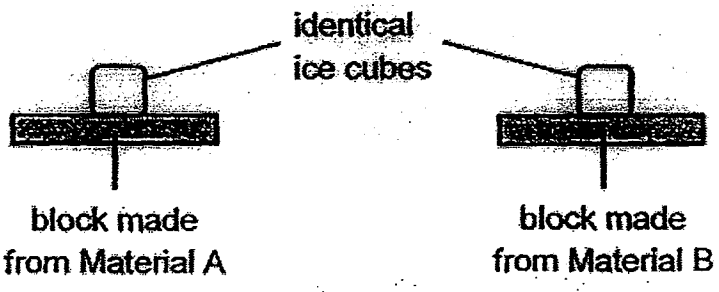


(a) State whether the objects can be seen by Mary by placing a tick (✓) in the appropriate boxes for each object in the table below. [2]

Object	Can be seen	Cannot be seen
P		
Q		
R		
S		
T		

(b) Explain your answer for object S in part (a). [1]

41. Peter was given two similar blocks made from different materials, A and B. He noted that block A felt much cooler than block B at room temperature. He then conducted the following experiment using two identical ice cubes.



He recorded the time taken for the ice cubes to melt completely.

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

(b) On which block, A or B, would the ice melt faster? Explain your choice. [2]

42. Emmanuel likes to soak in a tub of hot water bath at home.

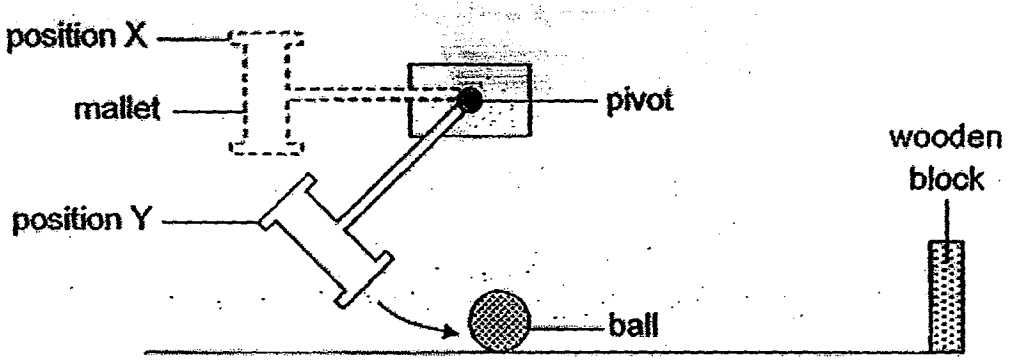
(a) Before soaking, Emmanuel always notices that above the water surface, there is a layer of mist. Explain how the layer of mist is formed above the water surface in the tub of hot water. [2]

(b) After soaking in the hot bath, Emmanuel usually wipes his body with a damp towel soaked in tap water. He then wipes himself dry with a dry towel before putting on his clothes. He feels that wiping his body with a damp towel helps to cool him down faster. Explain why?

[1]

(c) 'Sponging' is usually done on a person running a high fever, to bring down his/her body temperature. It is done by continuously wiping the body of this person with a damp towel soaked in tap water. However, a dry towel is **not** used after sponging to dry the body. Instead, the water is left to dry by itself. Suggest why letting the water dry by itself helps to bring down the body temperature faster. [1]

43. The diagram below shows a mallet pivoted at one end. A pivot allows the mallet to swing freely. Ali released the mallet from position X and it hit the ball, causing it to roll towards the wooden block. He recorded the time taken for the ball to hit the wooden block. He then repeated the experiment by releasing the mallet from position Y.

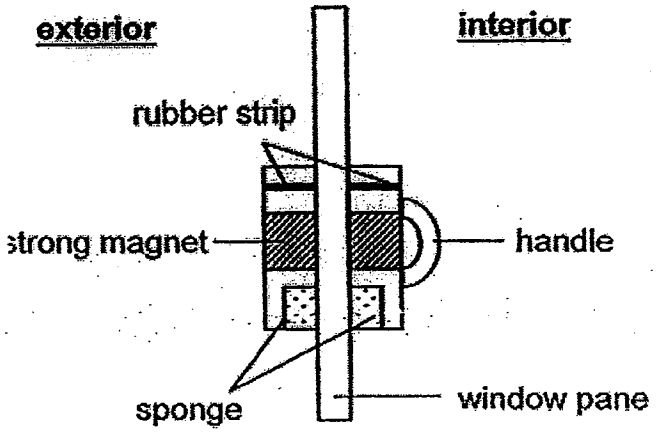


(a) Which position of the mallet, X or Y, would cause the ball to move faster? Explain your answer. [2]

(b) If the mallet was replaced with a lighter one, how would it affect the speed of the ball? Explain your answer. [1]

3

44. Magnetic window cleaners are useful devices for cleaning the exterior of windows. The device needs to be dipped in water and have excess water squeezed out from the sponges before attaching it to the window. The diagram below shows how the device looks like when attached on a window pane.



(a) State the forces that are acting on the device when it is in use for cleaning the window. [1]

_____

(b) Based on the information given above, explain why the device failed to work when excess water was not drained from the sponges before attaching the device to the window. [2]

_____

_____

_____

_____

_____

Answer Ke

EXAM PAPER 2015

SCHOOL : CHIJ

SUBJECT : P6 SCIENCE

TERM : SA1

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

31)a)The heart rate of a fit person is lower than the heart rate of an unfit person.

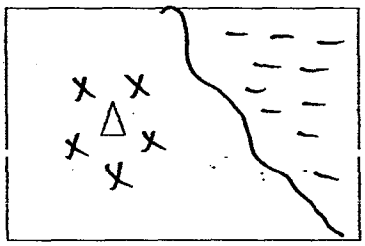
b)When we exercise more energy is needed. The heart needs to deliver more oxygen and digested fond for respiration to produce more energy.

32)a)Lynn should record the number of bees that visit the red and white flowers separately.

b)Time is needed for the bees to be attracted to the flowers.

c)When the petals are cut away less bees will be attracted to the flower so the number of flowers pollinated decrease, hence the number flowers that can fertilise to become fruits will be lesser, so the number of fruits produced by the plant over time will decrease.

33)a)The seeds are dispersed by splitting. The seeds are in a pod-like structure which will split open. The seeds will than be dispersed by the explosive action.

b) 

c)To prevent overcrowding from happening so that the young plant and the adult pant will not compete for nutrients, water, sunlight. This allows both the young and adult plant to grow healthily.

34)a)The roots grow towards the damp sawdust.

b)No. Germination requires air, warmth and water not light. The seedling have seed leaves to provide them with food and the seedling do not have leaves that will receive sunlight to photosynthesise, so the set-up need not be placed by the window where there was light.

35)a)Anther b)Produces female sex cells

c)Pollen grain d)Egg

36)a)A : Dark blue B : yellowish-brown

b)Repeat the experiment two times.

37)a)The population of the elodea plant will decrease. When the population of water hyacinth suddenly increase, it will cover the surface of the pond, preventing sunlight from reaching the elodea which is right at the bottom of the pond. The elodea will than not be able to photosynthesise, and without food, it will die causing its population to decrease suddenly.

37)b)The frogs could move to another pond community and lay eggs there.

c)No. There are 4 population-frog, water hyacinth, elodea and arrowhead. The fish is not counted as based on the diagram there is only 1 fish. A population is a group of organisms living in the same place at a specific time, hence fish is not considered a population in this case. Dead leaves are also not considered a population as they are dad.

38)a)V : Predator R : Prey

b)No. P is the food producer, a plant. Q is a herbivore which feeds on P. However, P is not considered a prey as preys must be able to escape from its predator but P cannot do so.

c)When the period of daylight is shorter, P, the plant, will photosynthesise lesser, causing P's population to decrease. Q feeds on P with lesser P, Q has lesser food, causing population of Q to decrease.

d)Organism U's population will decrease. W feeds on S so S's population will decrease. S feeds on Q, with fewer S, Q's population will decrease. R feeds on Q, with Q, R's population will decrease.R feeds on U, with more R, U will have more predators, so population will decrease.

39)a)D. K is the part that irons the clothes. Heat is needed to iron clothes, so K must be made of a good conductor of heat and must not easily. D does not break easily and is a good conductor of heat so D is most suitable.

b)H. Ceramic breaks easily is a man-made material. H breaks easily and is a man-made material, so H is most likely ceramic.

40)a)

Object	Can be seen	Cannot be seen
P	√	
Q		√
R	√	
S		√
T		√

b)S will be blocked by R so the torch's light will not be able to shine on S for the light to be reflected into Mary's eye.

41)a)To find out which material is the better conductor of heat.

b)A. A felt cooler than B at room temperature which means that A conducted heat away from Peter's hand faster than B, which means A is a better conductor of heat. A will then be able to conduct heat to the ice cube faster than B, so the ice cube on A will melt faster.

42)a)The hot water will gain heat and evaporate into warm water vapour which will lose heat and condense to form water droplets when in contact with the cooler air in the atmosphere.

b)The damp towel is colder than the hot water so when he wipes himself with the damp towel, the damp towel will conduct heat away from his body, cooling him down faster.

c)By letting the water dry by itself, the water will be able to gain more heat from the body and evaporate into water vapour while evaporation the heat from the body is reduced so it helps to bring down the body temperature faster.

43)a)X. At position X, compared to Y, the mallet has more gravitational potential energy that will be converted into more kinetic energy for the ball to move faster compared to when the mallet is released at Y.

b)The speed of the ball will be slower. With a lighter mallet,the amount of gravitational potential energy the mallet has would be lesser so less gravitational potential energy will be converted into lesser kinetic energy, causing the sped of the ball to be slower.

44)a)Frictional force, gravitational force, magnetic of attraction.

b)The excess water will then drip on the window pane, reducing the amount of friction between the window pane and the device, causing the device to be unable to clear the exterior of the window, so the device will must specify.

Water acts as a lubricant. Friction between the device and the glass is reduced, so it cannot grip/attract to the glass.