NAN HUA PRIMARY SCHOOL

SEMESTRAL ASSESSMENT 1 – 2012

PRIMARY 6

SCIENCE

BOOKLET A

30 Multiple Choice Questions (60 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

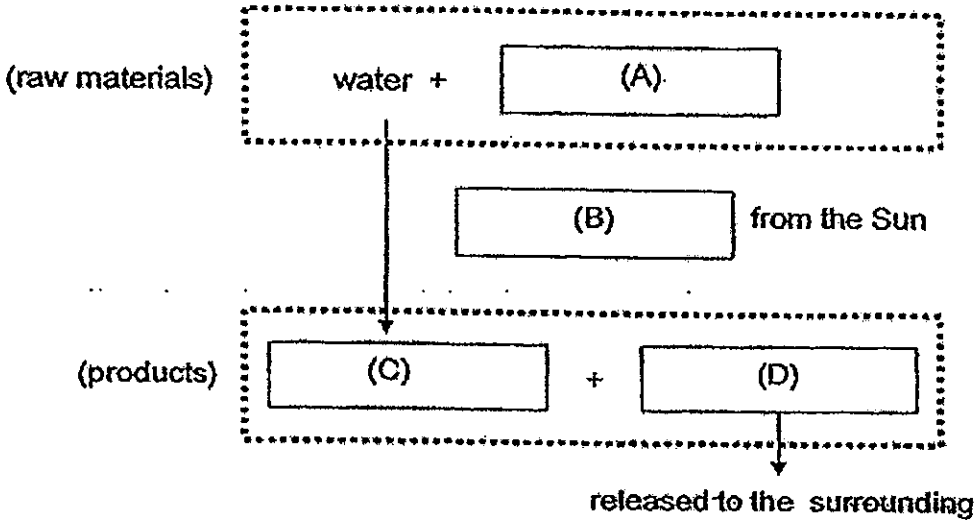
Booklet A		/ 60
Booklet B		/ 40
Total		/100

Name: _____ ( ) **Class: P 6** _____

Date : 11 May 2012 **Parent's Signature:** _____

Section A: (30 x 2marks = 60marks)
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.

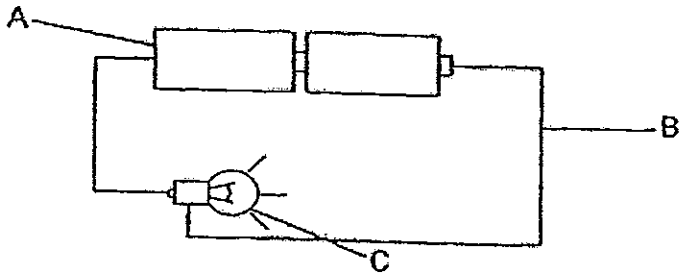
1. The diagram below shows the process of photosynthesis.



Which of the following best represents letters A to D?

	A	B	C	D
(1)	oxygen	heat	starch	carbon dioxide
(2)	oxygen	light	sugar	carbon dioxide
(3)	carbon dioxide	light	sugar	oxygen
(4)	carbon dioxide	light	starch	oxygen

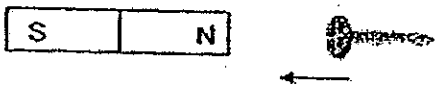
2. An experiment was set up as shown below and the bulb lighted up.



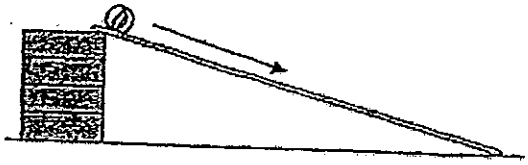
Which one of the following correctly shows the different forms of energy in the set-up above?

	A	B	C
(1)	electrical energy	heat energy	light energy
(2)	chemical potential energy	electrical energy	light energy
(3)	chemical potential energy	heat energy	kinetic energy
(4)	electrical energy	chemical potential energy	heat energy

3. Which of the following diagrams can be used to show that forces can act at a distance?

A 

B 

C 

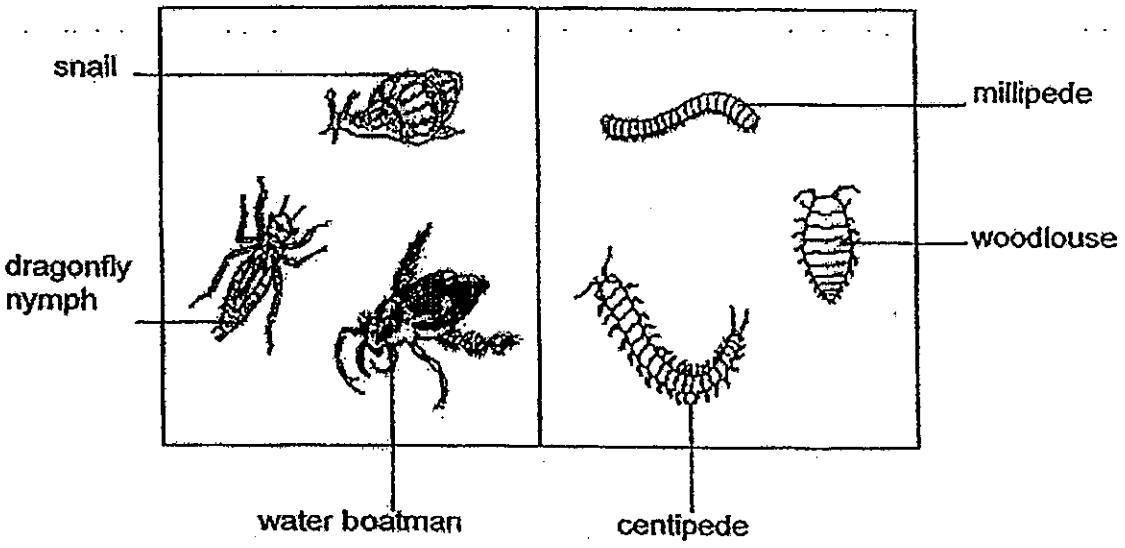
(1) A only
(2) C only
(3) B and C only
(4) A, B and C

4. Which of the following is/are <u>not</u> an organism?

A ant
B book
C bacteria

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

5. The animals are classified into two groups.

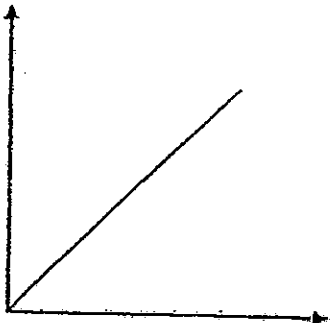


How are the animals grouped?

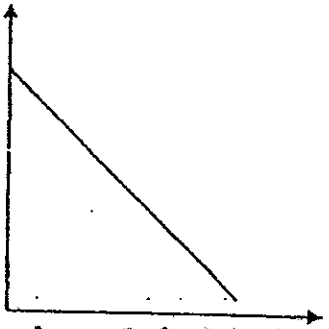
(1) The animals are grouped based on their habitats.
(2) The animals are grouped based on their body coverings.
(3) The animals are grouped based on the type of food they eat.
(4) The animals are grouped based on the presence or absence of backbone.

6. Which one of the following graphs correctly shows the interaction between two physical factors in an environment?

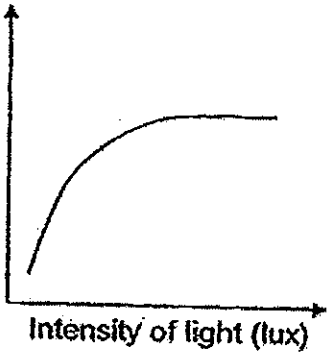
(1) Temperature of pond water (^{0}C)



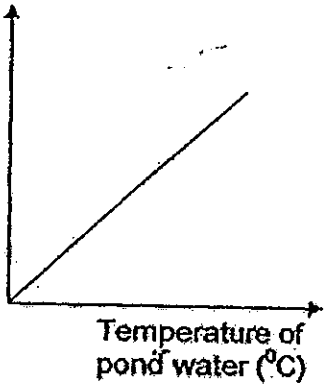
(2) Amount of water in the soil (ml)



(3) Amount of water in the soil (ml)



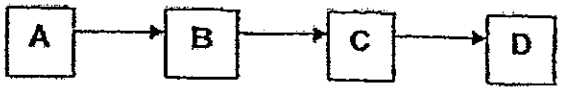
(4) Intensity of light falling on pond water (lux)



7. Plankton are microscopic creatures living in the oceans. They are important to many animals living in the oceans. Animals like some fishes and whales rely on them _____.

(1) for food
(2) for shelter
(3) for protection
(4) to keep warm

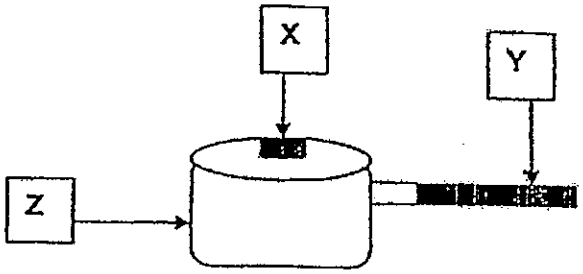
8. Study the food chain below.



Which of the organism(s) above is/are a predator as well as a prey?

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

9. Study the diagram of a sauce pan below carefully.



Which one of the following matches the thermal conductivity property of the materials used for making X, Y and Z correctly?

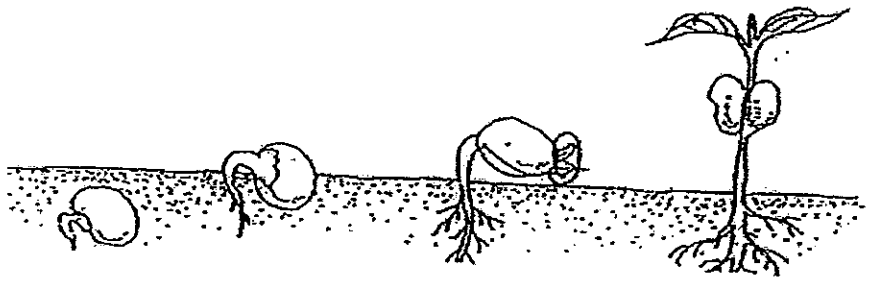
	X	Y	Z
(1)	Bad conductor of heat	Bad conductor of heat	Good conductor of heat
(2)	Bad conductor of heat	Good conductor of heat	Bad conductor of heat
(3)	Good conductor of heat	Bad conductor of heat	Good conductor of heat
(4)	Bad conductor of heat	Good conductor of heat	Good conductor of heat

10 Which of the following is/are **not** example(s) of matter?

A Air
B Light
C Water
D Candle

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

11. The diagram below shows the stages in the growth of a green bean seedling.

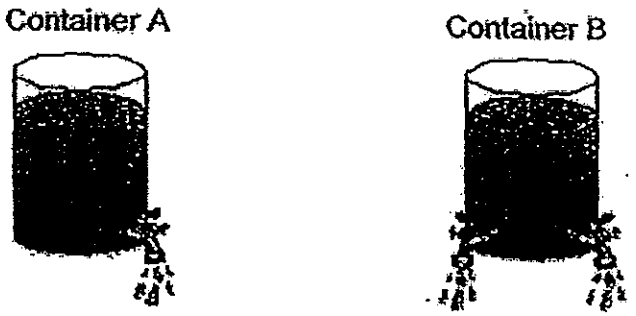


Stage A Stage B Stage C Stage D

Which one of the following correctly shows the presence of starch at any part of the plant at each stage of its development?

	Presence of starch			
	Stage A	**Stage B**	**Stage C**	**Stage D**
(1)	No	No	No	Yes
(2)	No	No	Yes	Yes
(3)	No	Yes	Yes	Yes
(4)	Yes	Yes	Yes	Yes

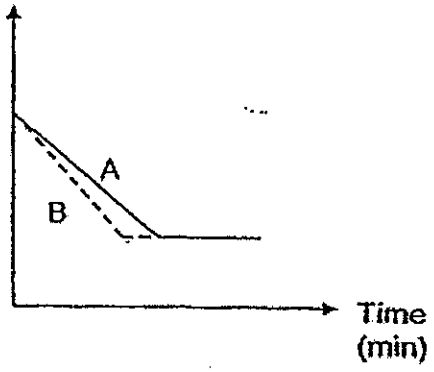
12. The diagrams below show two water containers fitted with similar taps. The containers are filled with the same amount of water.



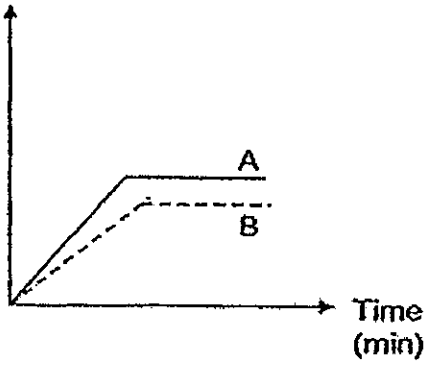
The taps were turned on at the same time for the same number of rounds.

Which graph correctly shows the change in the amount of gravitational potential energy of the water in each of the container?

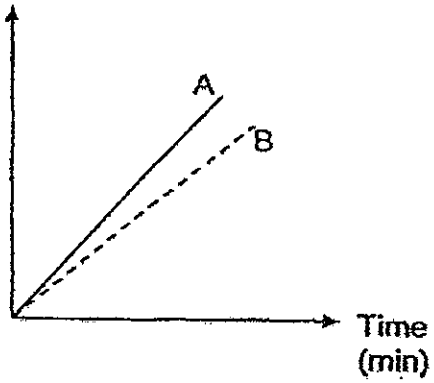
(1) Gravitational potential energy (Joules)



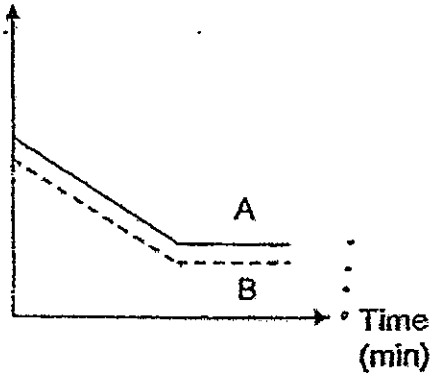
(2) Gravitational potential energy (Joules)



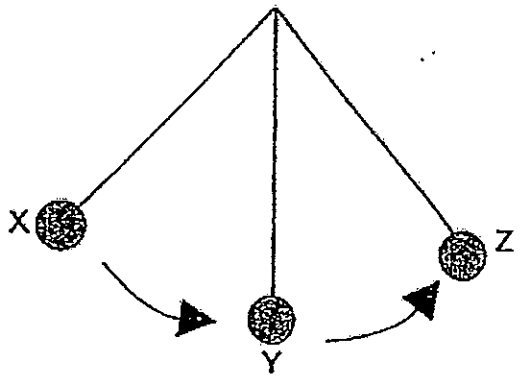
(3) Gravitational potential energy (Joules)



(4) Gravitational potential energy (Joules)



13. The diagram shows a pendulum.

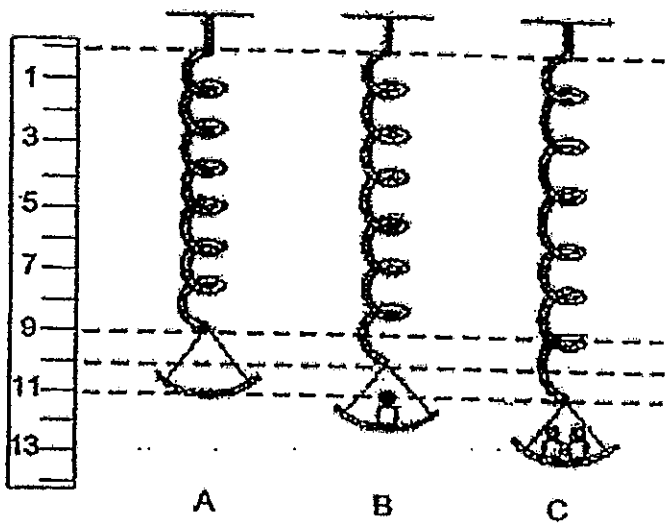


Which of the following statements are true of the pendulum in motion?

A At Point Y, the ball has the highest amount of kinetic energy.
B At Point Y, the ball will have least amount of gravitational potential energy.
C At Point Z, the ball does not have kinetic energy just before it drops towards Y.
D At Point Z, the ball has the same amount of gravitational potential energy as Point X.

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

14. An experiment was conducted to find out the effect of weight on the length of a spring.



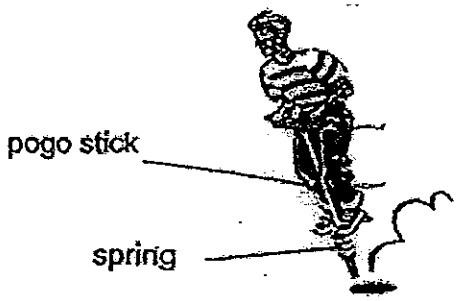
Picture A shows a spring without any weight on the pan. Picture B shows the same spring with a weight on the pan. Picture C shows two weights of the same mass being put on the same pan.

Based on the experiment above, which of the following statements is/are correct?

A Doubling the mass will double the length of the spring.
B Four weights are needed to have the spring extend by 5 cm.
C The length of the spring increases proportionately with increasing weight.

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

15. A boy is riding on his pogo stick as shown below.

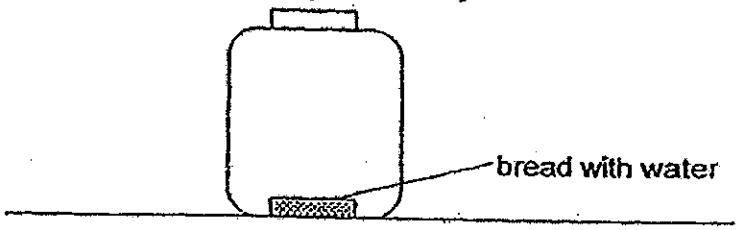


Which of the following forces enable the boy to move over a distance?

A Magnetic force
B Frictional force
C Gravitational force
D Elastic spring force

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

16. Jane left a piece of bread in an airtight jar. A few drops of water were added to the bread. The bread was left in the jar for 5 days.



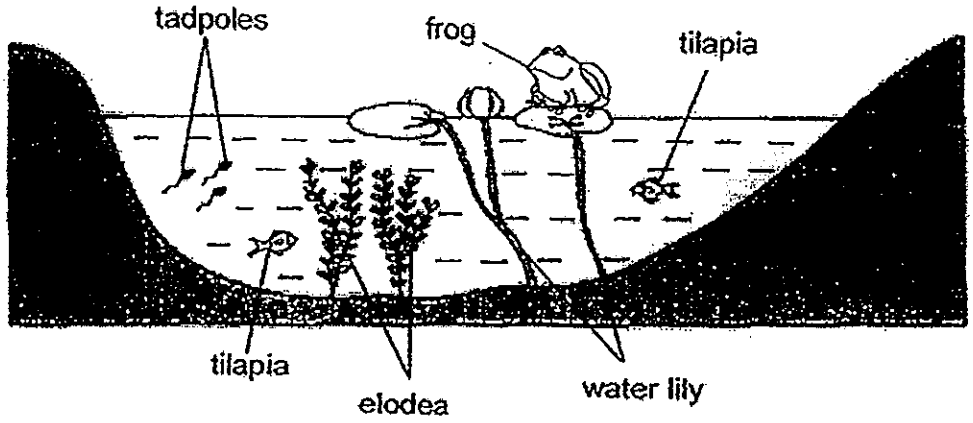
Information on the bread were presented in a table below after five days.

Number of days	Number of populations in the jar
1	0
3	0
5	1

What is the type of organism in the jar on the fifth day?

(1) moss
(2) maggots
(3) houseflies
(4) bread mould

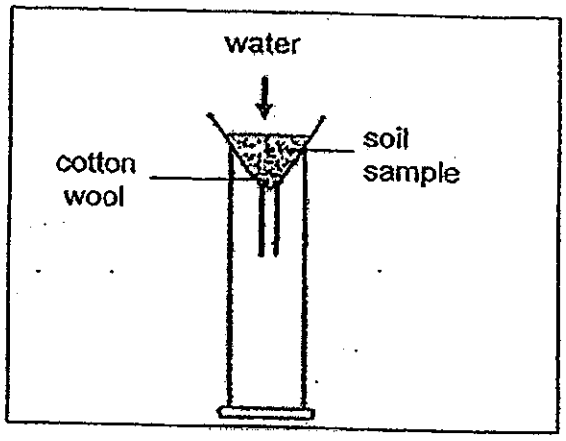
17. The diagram below shows a habitat with some living things.



Which one of the following statements is correct?

(1) There is one community with five populations.
(2) There is one community with four populations.
(3) There are five communities with ten populations.
(4) There are two communities with five populations.

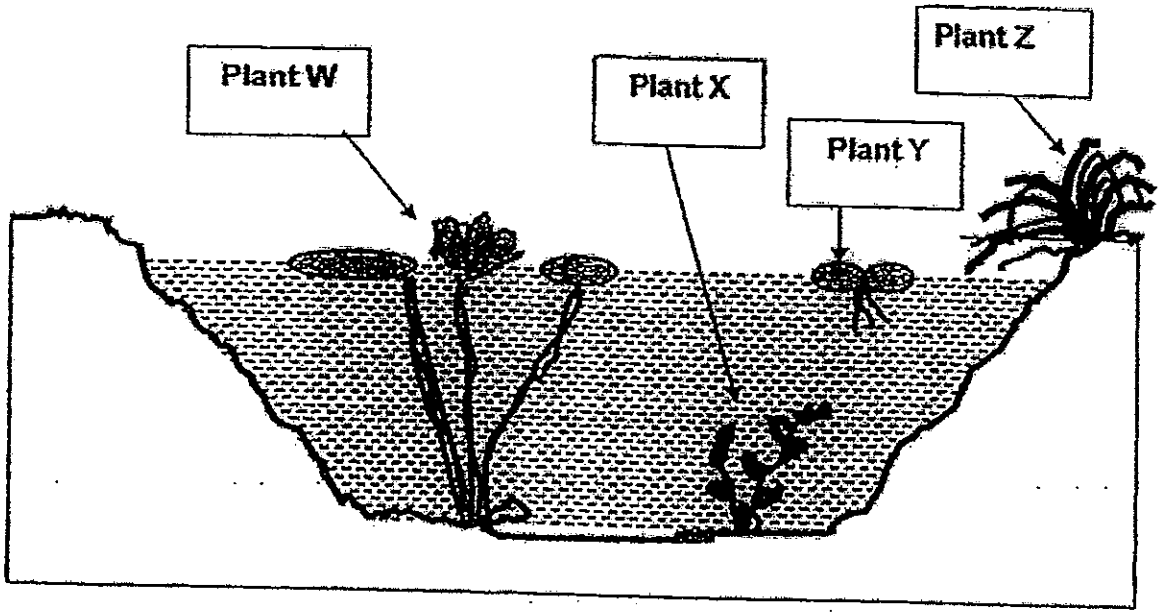
18. The soil sample from a habitat was collected and put into a funnel. 50 ml of water was poured into the soil sample. After one hour, it was observed that there was no water collected in the measuring cylinder.



Which of the following habitats is the soil most likely collected from?

(1) Beach
(2) Desert
(3) Garden
(4) Mangrove swamp

19. Study the picture of a pond below carefully.



What changes can be observed in the pond when there is an increase in the population of Plant W in the pond?

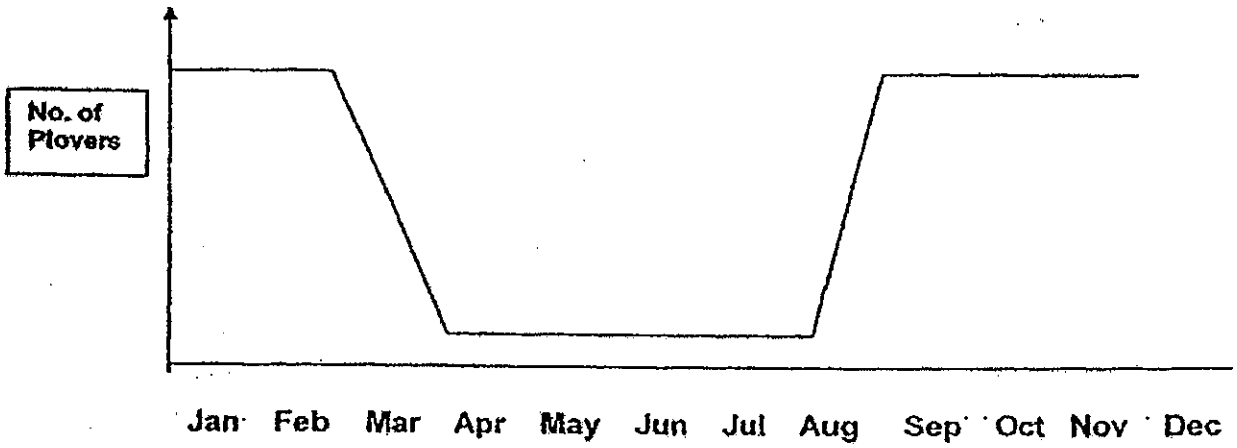
A The population of Plant X will decrease.
B The population of Plant Y will increase.
C The population of Plant Z will decrease.

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

20. Plovers are a type of wading migratory birds that live in Northern Russia. The table below shows the average monthly temperature in Northern Russia.

January	-6.5
February	-6.7
March	-1
April	6.7
May	13.2
June	17.0
July	19.2
August	17.0
September	11.3
October	5.6
November	-1.2
December	-5.2

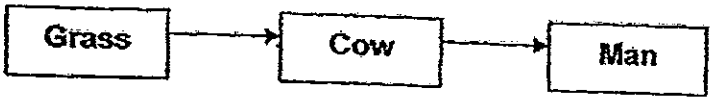
They are commonly spotted in Sungei Buloh during certain months of the year. Jerry recorded the number of Plovers that are found in Sungei Buloh over a period of 12 months and plotted the graph below.



What is the likely reason for the increased number of Plovers spotted?

(1) The birds reproduced rapidly.
(2) Most of the predators of the birds died of a disease.
(3) The birds arrived at Sungei Buloh to escape from the cold winter.
(4) There was an increase in the amount of food for the birds at Sungei Buloh.

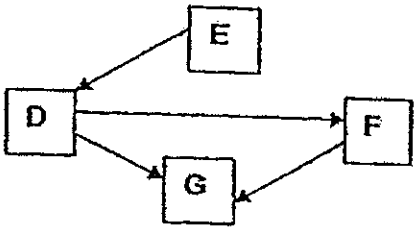
21. Study the food chain below carefully.



What is the primary source of energy for the above food chain?

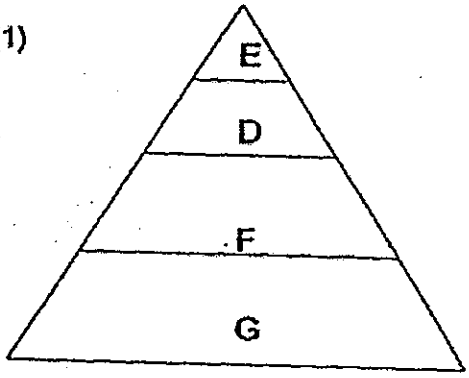
(1) Sun
(2) Water
(3) Chlorophyll
(4) Carbon dioxide

22. Study the food web below carefully.

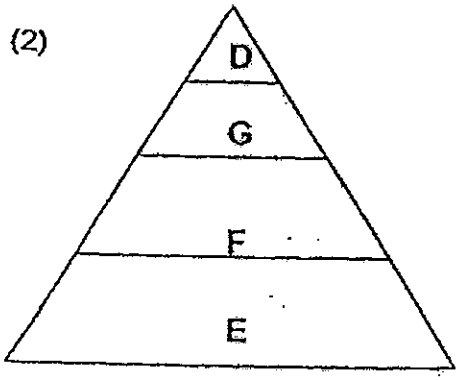


Which one of the following diagrams correctly shows the pyramid of population size of D, E, F and G?

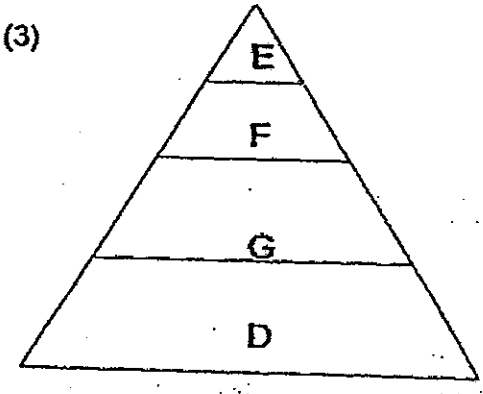
(1)



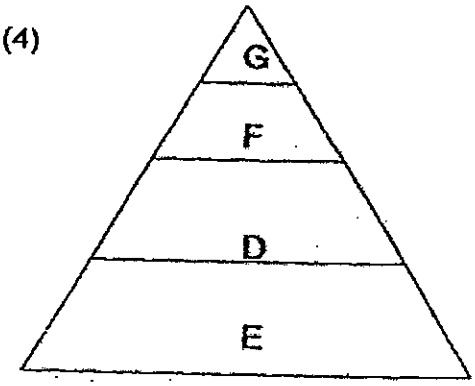
(2)



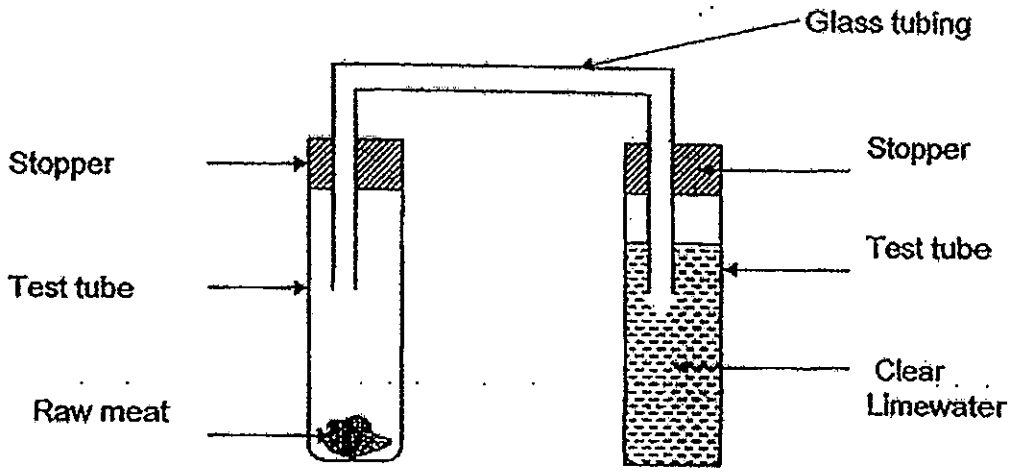
(3)



(4)



23. Bi Wen set up the experiment below and left it in the Science lab for four days:

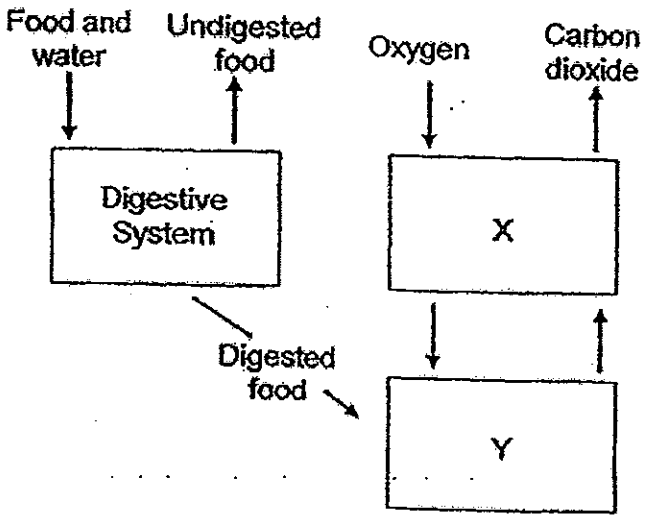


Four days later, Bi Wen went to check on her experiment. What changes is she most likely going to observe?

A The limewater has turned chalky.
B The raw meat has mould growing on it.
C There is less limewater in the test tube.
D Some parts of the raw meat have turned into a liquid.

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

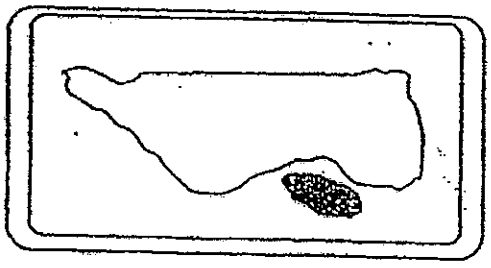
24. The diagram below shows the different systems in a human.



Which are the systems represented by X and Y?

	X	Y
(1)	Skeletal System	Respiratory System
(2)	Respiratory System	Skeletal System
(3)	Circulatory System	Respiratory System
(4)	Respiratory System	Circulatory System

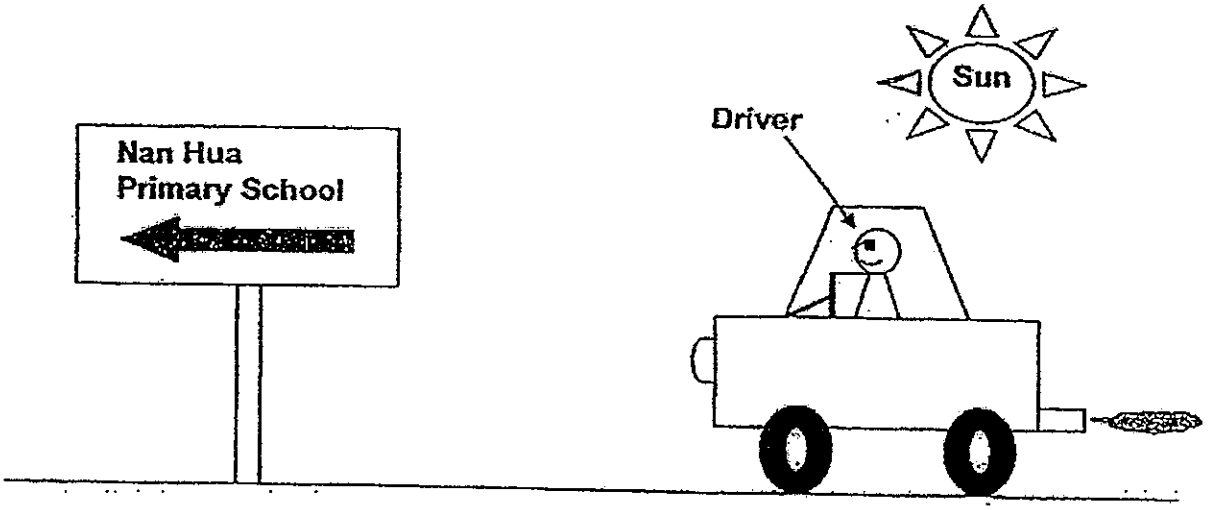
25. Kitty observed a cell under a microscope.



Which one of the following cells could Kitty be observing?

(1) Yeast cell
(2) Root cell from a potato
(3) Cheek cell from her friend
(4) Leaf cell from a Bird's Nest Fern

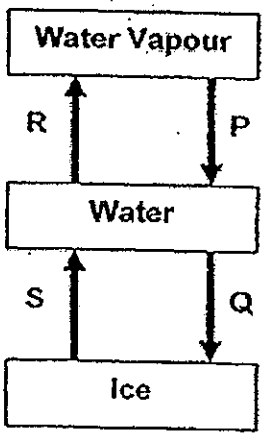
26. Study the diagram below carefully.



The driver in the diagram is able to see the sign because _____

(1) light given out by the sign is reflected from the driver's eyes to the Sun
(2) light given out by the Sun is reflected from the driver's eyes to the sign
(3) light given out by the driver's eyes is reflected from the Sun to the sign
(4) light given out by the Sun is reflected from the sign to the driver's eyes

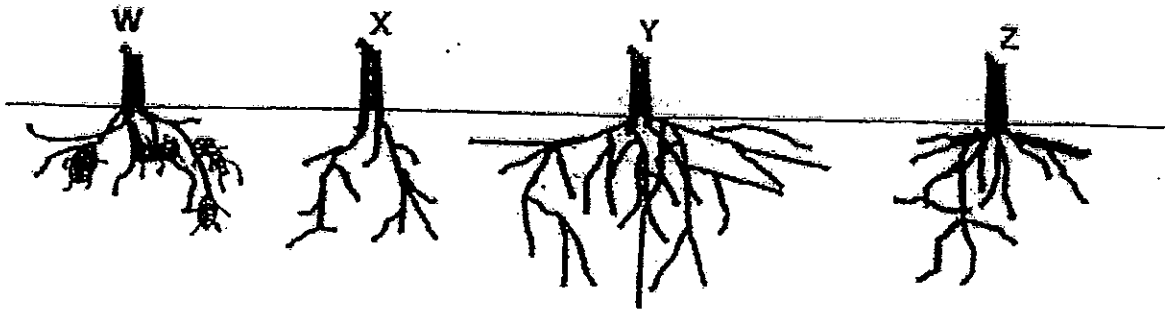
27. Study the diagram below carefully.



Which one of the following correctly shows the transfer of heat when water changes from one state to another?

	P	Q	R	S
(1)	Heat loss	Heat loss	Heat gain	Heat gain
(2)	Heat loss	Heat gain	Heat loss	Heat gain
(3)	Heat gain	Heat gain	Heat loss	Heat loss
(4)	Heat gain	Heat loss	Heat gain	Heat loss

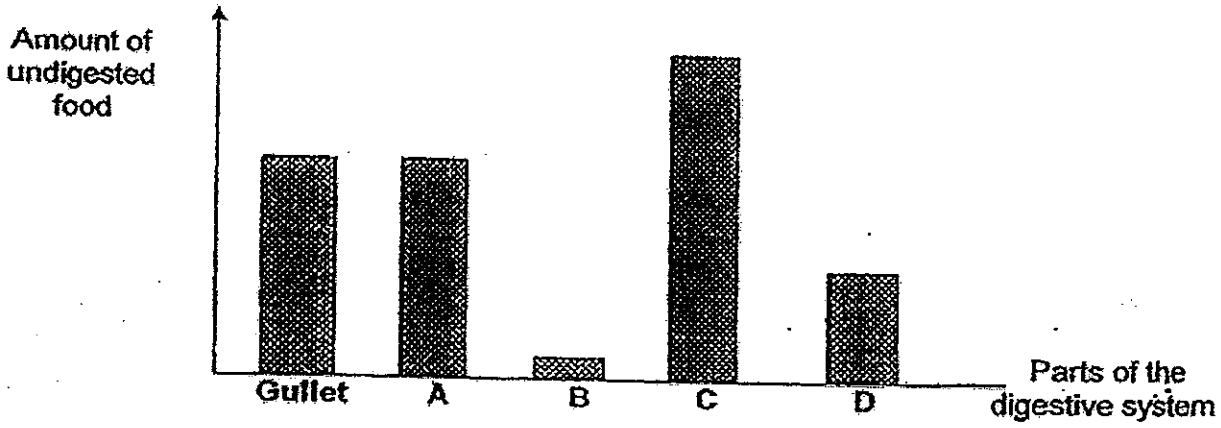
28. The diagram below shows the roots of four plants.



Which one of the above plants is least likely to be uprooted in a storm?

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

29. The graph below shows the amount of undigested food entering different parts of the digestive system.



Which letter A, B, C or D represents the large intestine?

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

30. Yong Jie and Penny tried to magnetise some iron nails using the Stroke Method. They then tested the strength of each of the magnets that they have made. It was found that the magnet Penny made was much stronger than the magnet Yong Jie made. Which of the following is/are possible reason(s) for the difference in the strength of their magnet?

A Penny used a bigger magnet to stroke her iron nail.
B Penny used a stronger magnet to stroke her iron nail.
C Penny stroked the iron nail 100 times while Yong Jie stroked his iron nail 40 times.

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

Name : _____( )

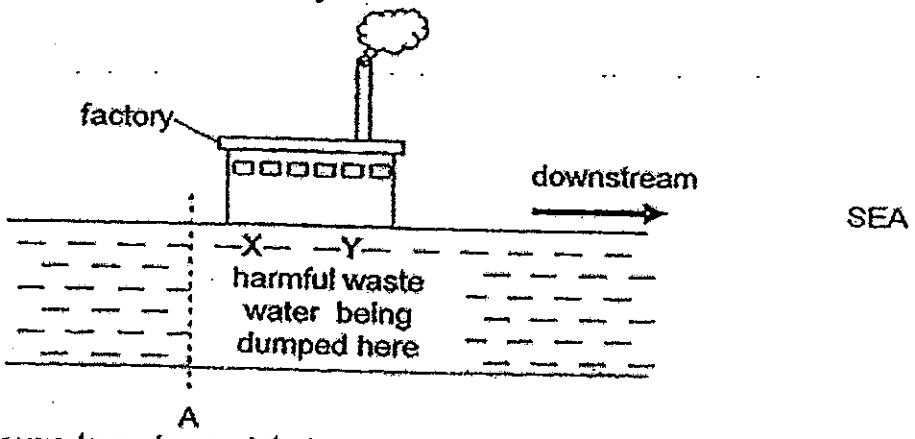
Class : Primary 6 / ____

Date : 11 May 2012

MARKS	
Sect B:	/ 40

Section B: (40marks)
Write your answers to question 31 to 44.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

31. The diagram shows a river flowing downstream towards the sea.
Situated near the river is a factory.

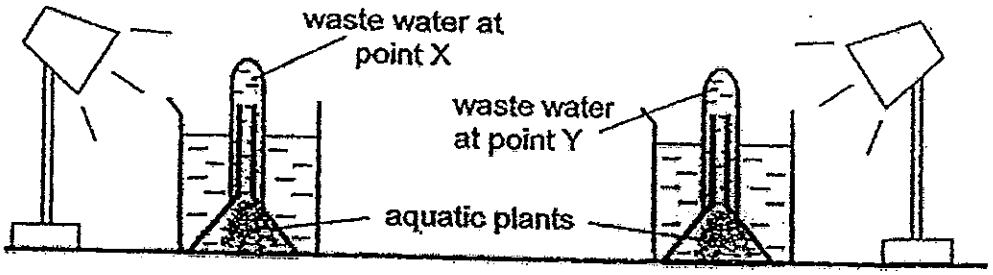


The factory workers dumped their waste water in the river after Point A.

An experiment was set up to find out if the rate of photosynthesis of the aquatic plants would be affected by the waste water in the river. Same amount of waste water, same amount and type of aquatic plants and the same intensity of light were used in the experiment.

The diagram below shows the set-ups.

Set-up A Set-up B (control set-up)



(a) The experiment was not correctly set up.
What should be done to improve the wrong set-up? [2]

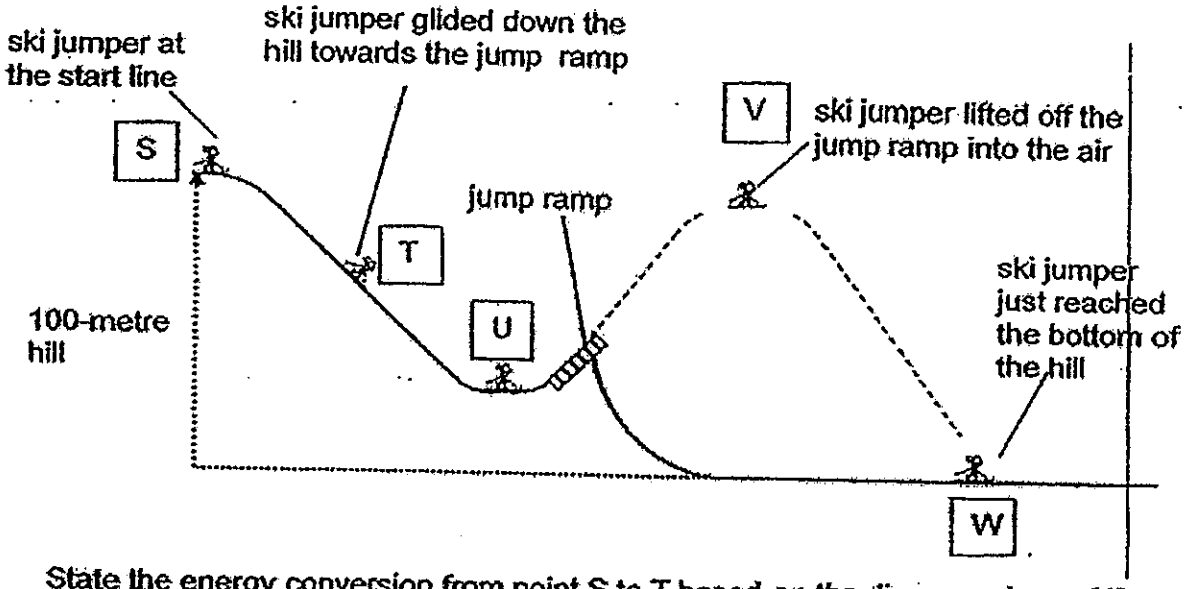
_____

_____

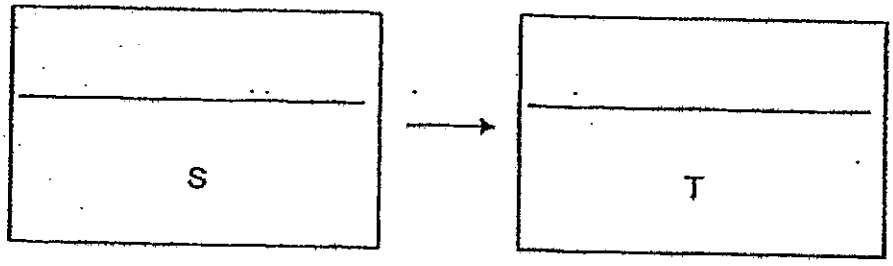
2

(b) What data should be collected in order to arrive at a conclusion for the investigation? [1]

32. The diagram shows the motion of a ski jumper.



(a) State the energy conversion from point S to T based on the diagram above. [1]

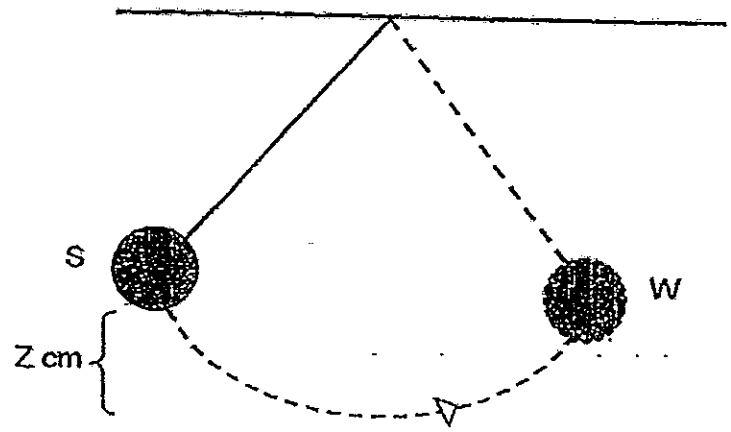


(b) Explain why the ski jumper at point V could not reach the same height as when the ski jumper was at point S? [1]

3

33. The diagram below shows the motion of a ball.

In experiment 1, the suspended ball is released at Z cm. The number of times the ball moved back and forth is counted and recorded.



(a) What is/are the force(s) acting on the ball? [1]

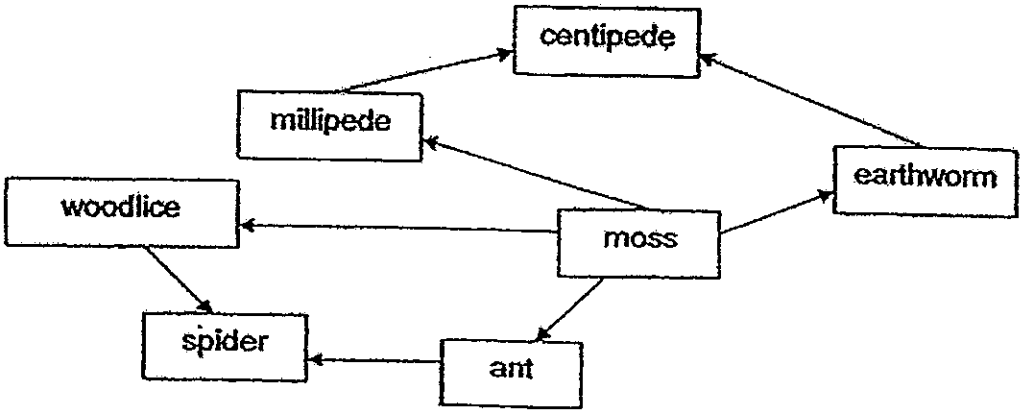
In experiment 2, the same ball is released on an arched platform at Z cm. The number of times the ball moved back and forth is also counted and recorded.

Experiment	Number of times the ball moved back and forth
1	18
2	13

(b) In which experiment did the ball move a greater distance? Explain your answer clearly. [2]

3

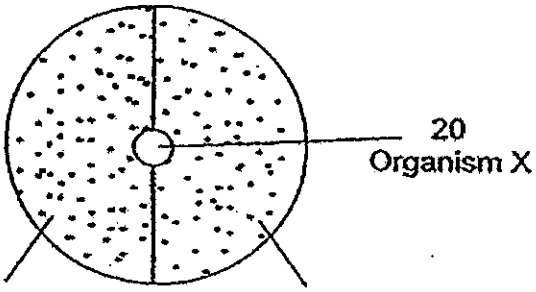
34. Study the food web below.



(a) Name the habitat where all the living things above can be found. [1]

_____

An experiment was carried out to find out if Organism X preferred damp environment. Twenty Organism X were put in the middle of Dish A.



Half of Dish A is filled with a thin layer of fine moist sand

Half of Dish A is filled with a thin layer of fine dry sand

(b) What should be observed and recorded to come to a conclusion for the experiment? [1]

_____

_____

2

35. Study the information on the food relationship between some organisms in a habitat.

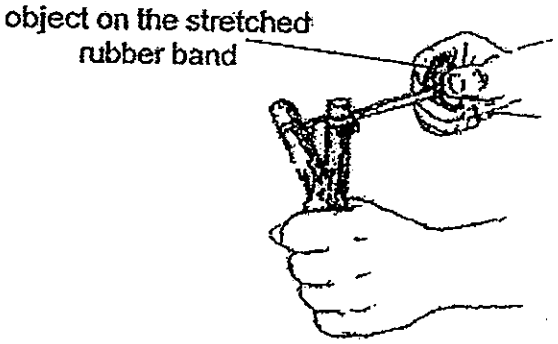
A eats C only.
C eats D only.
B eats A and D.

(a) Draw a food web consisting of the four organisms A, B, C and D in the space below. [1]

(b) What will happen to the population of C when a population of organism which feed on D is introduced to this habitat? Explain your answer. [2]

3

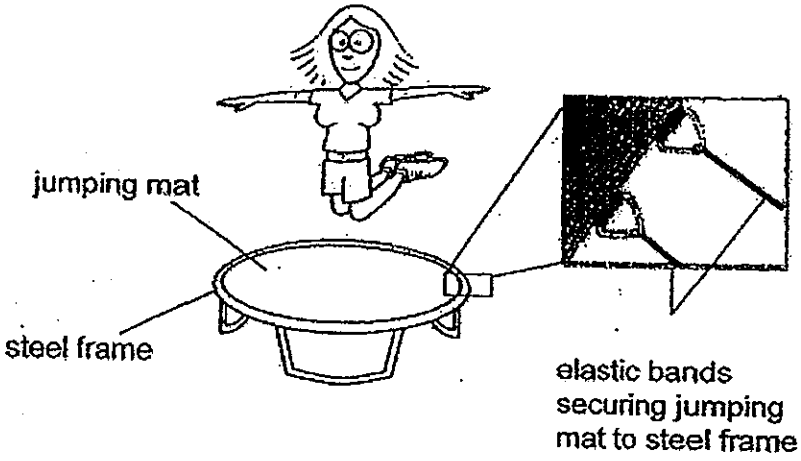
36. The diagram shows a slingshot.



(a) Write down the energy conversion of the object when the slingshot is released. [1]

stretched rubber band → object moving in mid-air

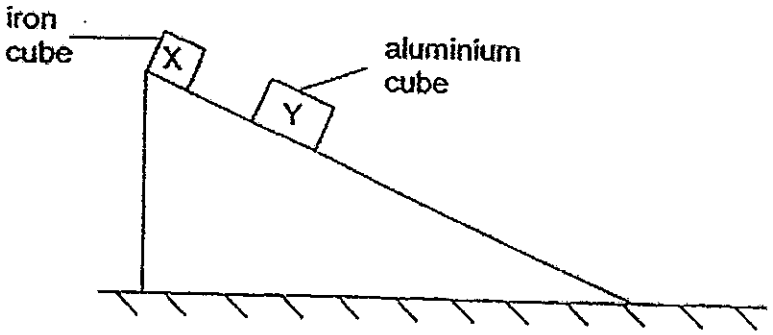
Mary jumped on a trampoline which was made of an inelastic jumping mat and she was lifted up into the air.



(b) Explain how Mary was lifted up when she jumped on the trampoline. [2]

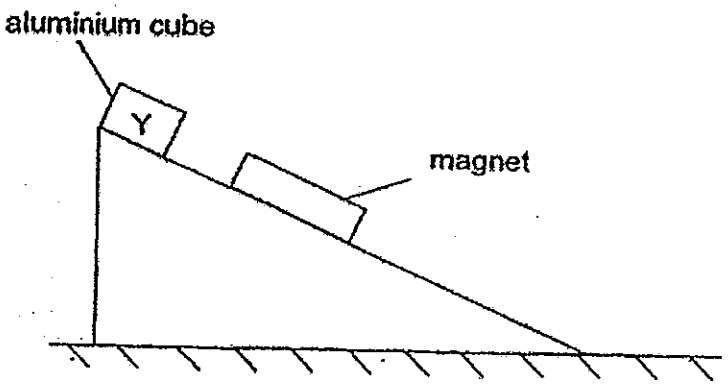
3

37. The diagram shows two cubes of the same mass on a ramp.



(a) Which cube has a greater amount of gravitational force acting on it? Explain your answer. [2]

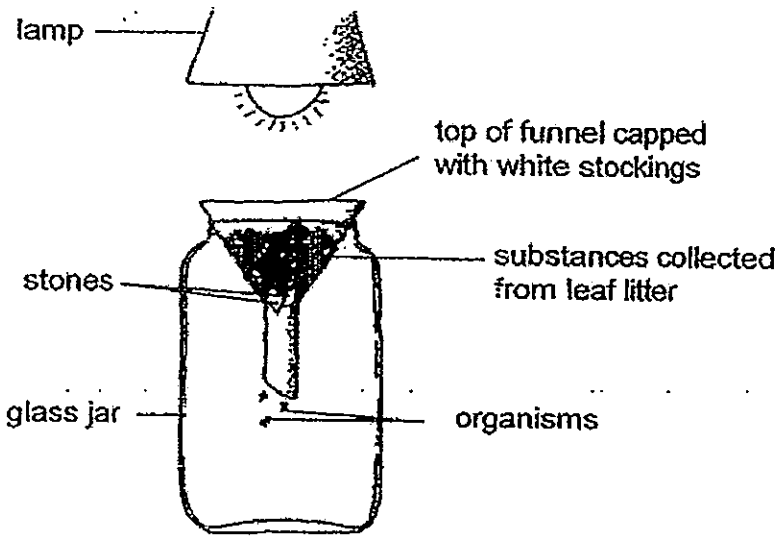
The iron cube was removed from the ramp and a magnet was put on the ramp as shown in the diagram below.



(b) What can be observed when the magnet is placed near the aluminium cube? Explain your answer. [2]

4

38. The diagram below shows substances collected from leaf litter.



Some stones were put at the base to hold the leaf litter. An amount of loosely packed leaf litter was put into the funnel and a light source was put above the funnel. After a while, organisms were seen moving down the funnel.

(a) Give an example of an organism that was seen moving down the funnel. [1]

_____

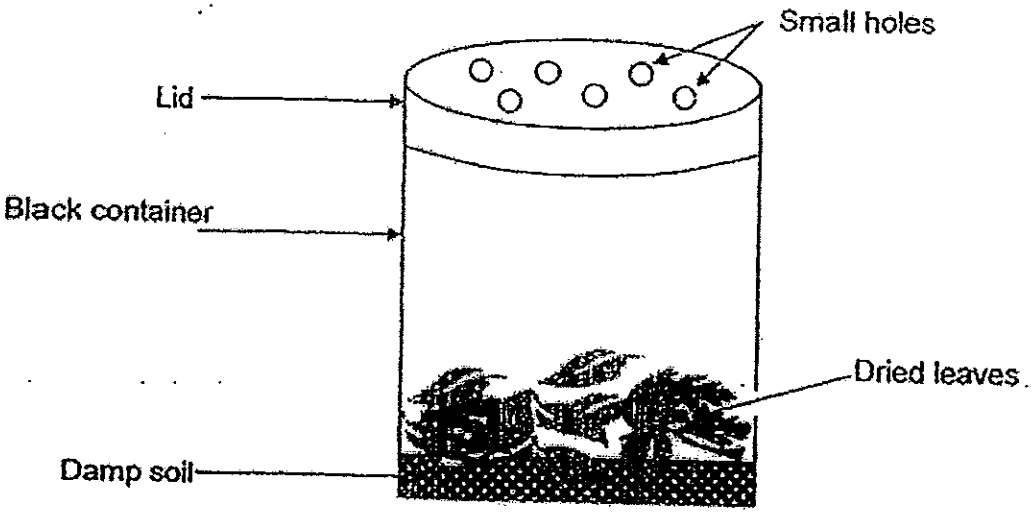
(b) Why did the organisms move down the funnel? [1]

_____

_____

2

39. Gina wanted to make some fertilizer from the fallen leaves that she had collected from her garden. She put all the dead leaves and some damp soil into a container and covered it with a lid as shown below.



After five months, the dead leaves became a damp black substance which can be used as fertiliser for her other plants in the garden.

(a) What causes the dead leaves to become the black substance? [1]

_____

_____

(b) Suggest one way that Gina can make the dead leaves turn into the black substance faster. Give a reason for your answer. [2]

Suggestion : _____

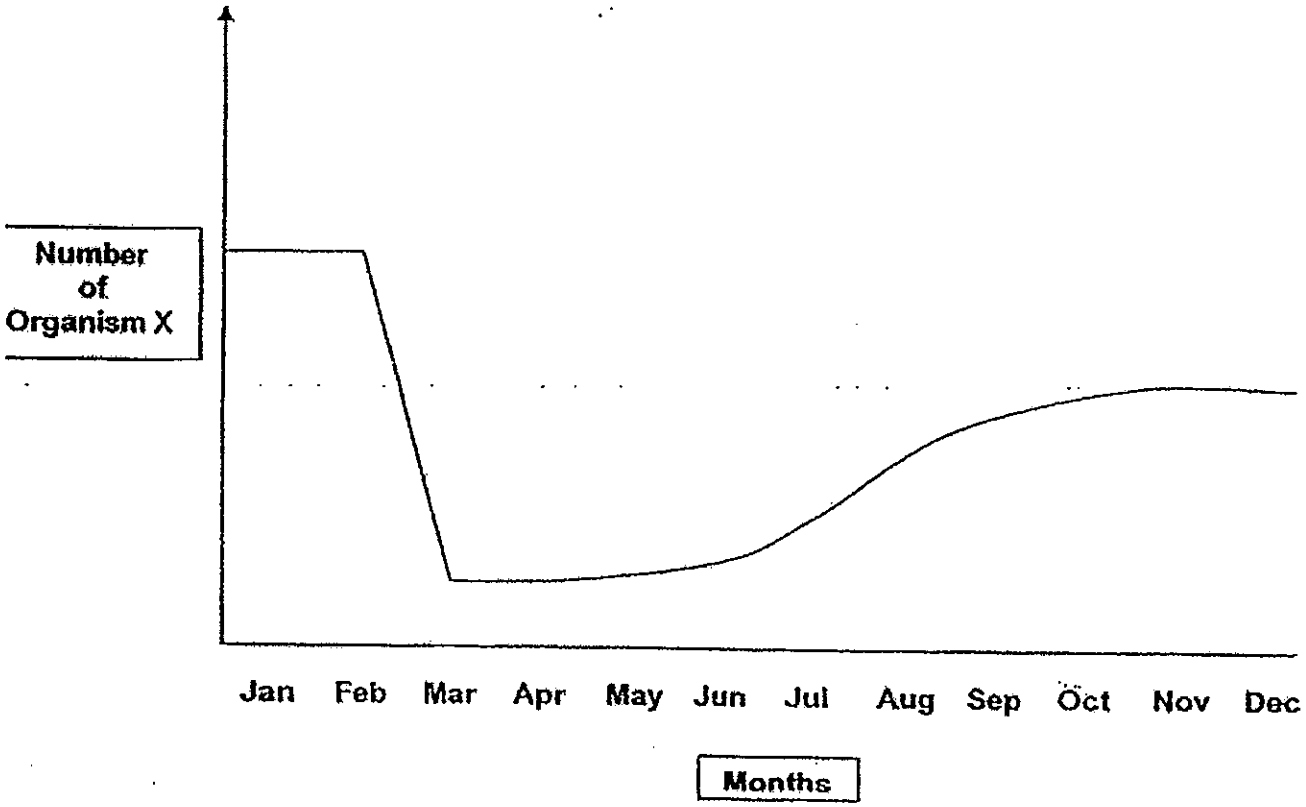
_____

Reason : _____

_____

3

40. The graph below shows the number of Organism X found in the forest over a period of 12 months.



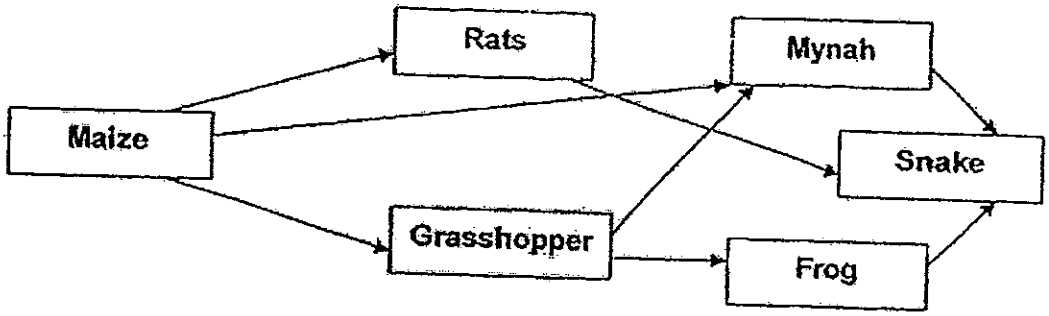
What is the likely reason for the drop in the number of Organism X in the month of March? [1m]

_____

_____

1

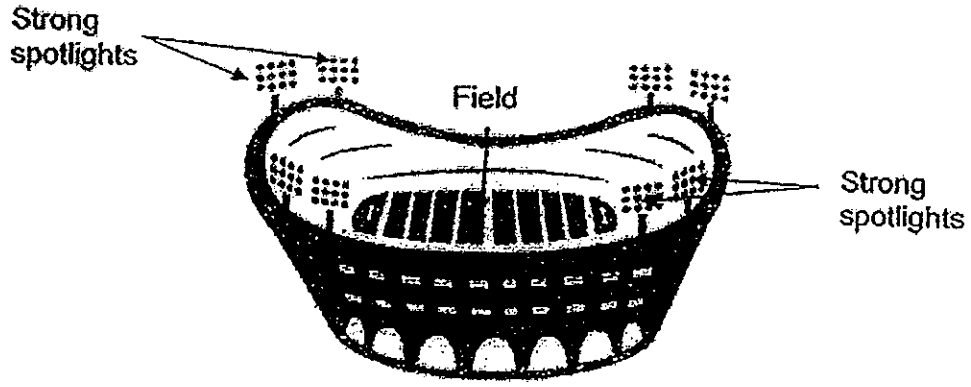
41. The diagram below shows a food web in Mr Ismail's maize field.



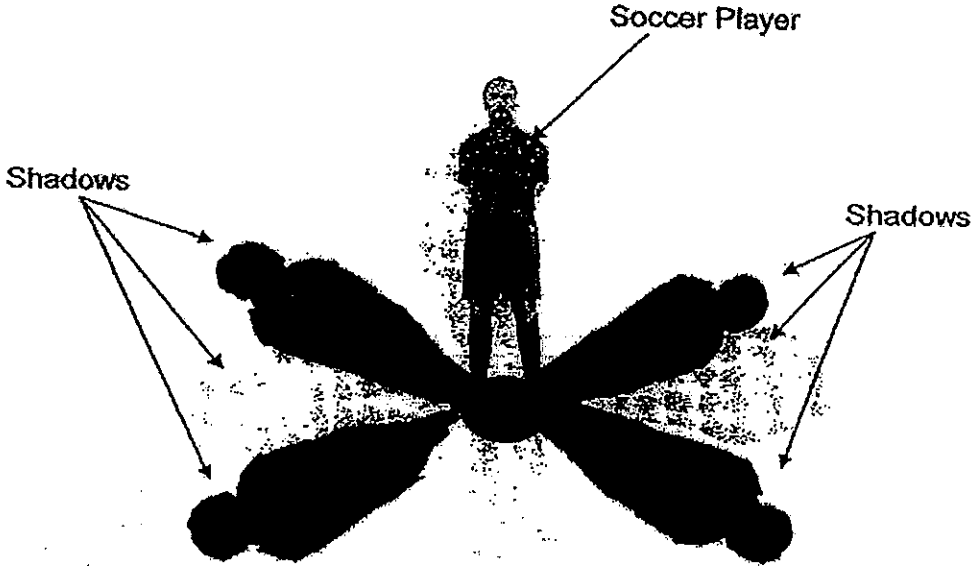
Mr Ismail engaged the help of a pest control company to wipe out the population of rats in his farm. However, the rat poison used by the pest control company also wiped out most of the grasshopper population.
Explain what will happen to the population of the Mynah and Maize. [2]

2

42. Soccer matches that take place in the evenings are carried out in a well-lit stadium as shown below.



The soccer players in these evening soccer matches are always seen with multiple shadows as shown in the diagram below.



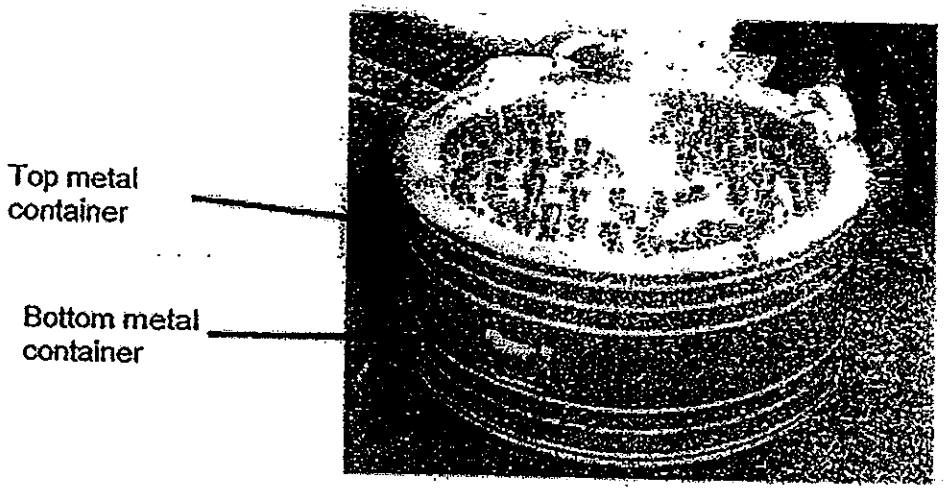
(a) Explain why each player has multiple shadows. [2]

(b) How are shadows of the soccer player formed? [2]

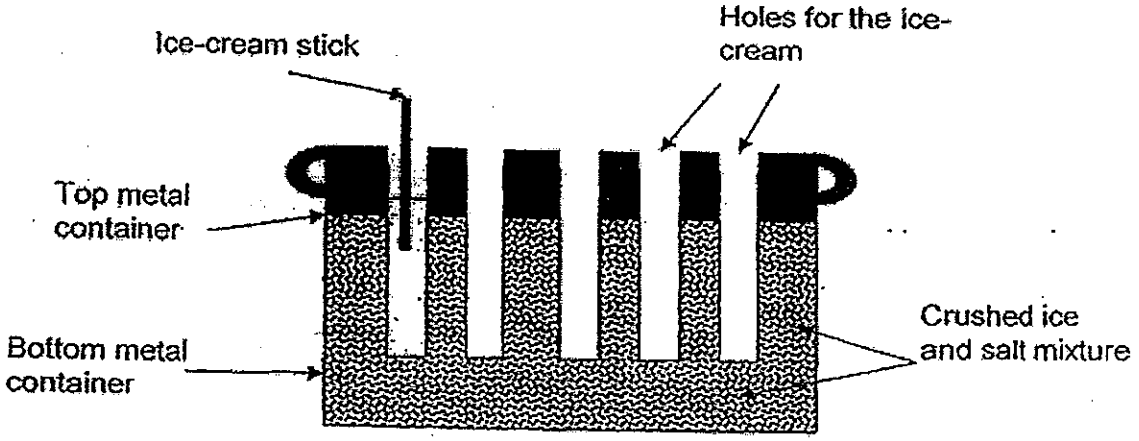
4

43. Adding impurities to water can change the boiling and freezing point of water. For example, adding salt to water can increase the boiling point and decrease the freezing point of water.

Kiko went to the night market near her house and saw an ice-cream stall that does not have a fridge. Instead, the ice-cream seller uses 2 metal containers stacked on top of each other similar to the one shown in the picture below.



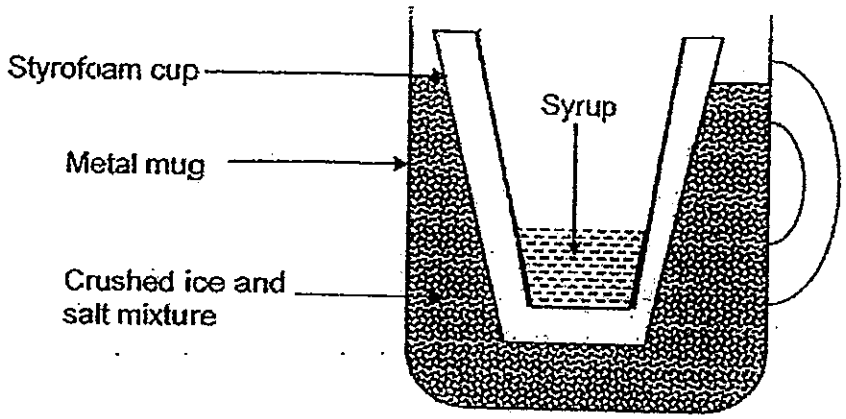
The stall holder will pour syrup into the holes in the top metal container, 10 minutes later, the syrup in the hole will be frozen and the ice-cream is ready. The diagram below shows the cross-sectional view of the metal containers.



(a) Explain how the syrup can be frozen without putting it into a freezer. [2]

2

(b) Kiko wanted to try and make some ice-cream herself too. She used the set up below to try making her own ice-cream.



Kiko waited for 15 minutes but her syrup did not freeze at all.

(i) Why was Kiko's syrup not frozen after 15 minutes? [2]

_____

_____

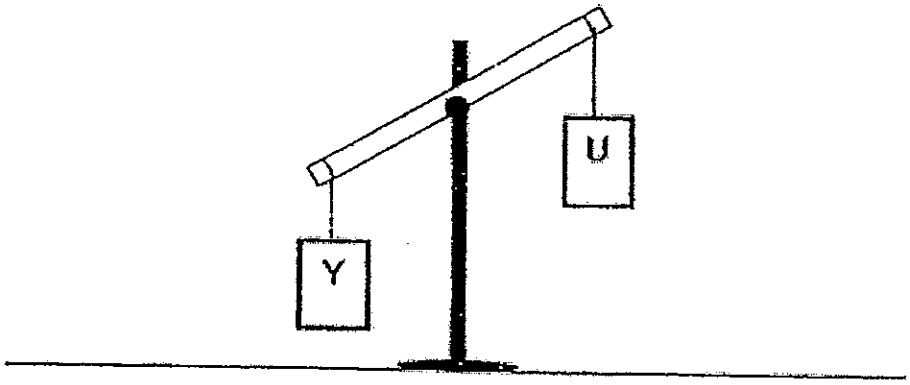
(ii) What should Kiko do to her set-up in order for her ice-cream to freeze? [1]

_____

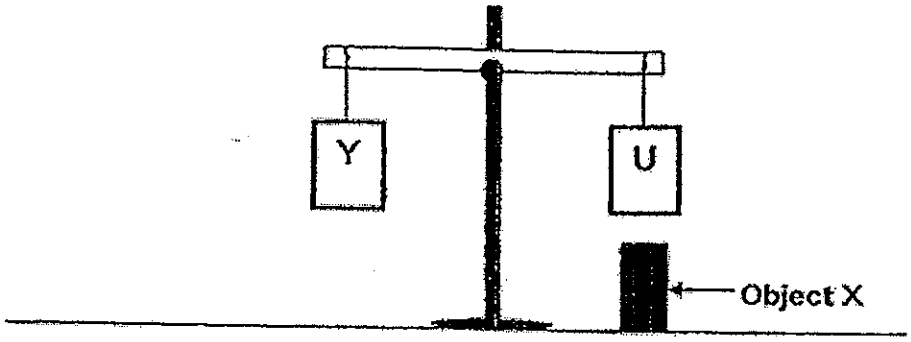
_____

3

44. Study the diagram of 2 iron blocks on a balance below.



Jun Kai put Object X below Block U and the balance tilted towards the right as shown below.



(a) What could Object X be? [1]

_____

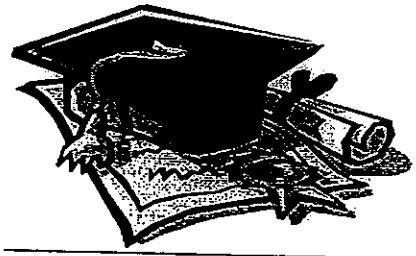
(b) Explain your answer in (a). [2]

_____

_____

~~ End of Paper ~~

3



ANSWER SHEET

EXAM PAPER 2012

SCHOOL : NAN HUA
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	2	4	1	1	1	1	2	1	1	4	1	4	1	3	4	2

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
4	1	3	1	4	3	4	2	4	1	3	2	4

31)a)Set-up B is wrongly set-up. The waste water should be change to water collected before point A.

b)The amount of gas collect at the top of both the test tubes.

32)a)Gravitational potential energy→Kinetic energy

b)When the ski jumper glided down the hill towards the jump ramp, some of the kinetic energy had been coveted to heat energy due to friction and sound energy, thus the ski jumper at point V could not reach the same height as when the ski jumper was at point S.

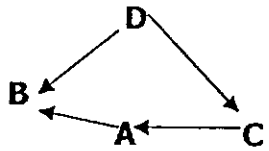
33)a)Gravitational force and air resistance.

b)In experiment 1 because the friction between the ball and the surrounding air is less than the friction between the ball and the solid surface less energy coveted to heat and sound energy to over come the air resistance, so more energy to convert to kinetic energy.

34)a)Leaf litter.

b)The number of organism X in the different regions at the end of the experiment.

5)a)



b)The population of C will decrease there is now more competition for food
) C will have less food to eat so some organism C will die. The new population
: organism eats D too so they will compete with organism C for food so
'ganism C will have less food to eat.

5)a)Elastic potential energy→Kinetic energy.
b)When Mary jumped on the jumping mat, the elastic bands stretched. The
retched elastic bands possesses elastic potential energy which is converted
to kinetic energy allow Marry to jump.

7)a)Both cube X and Y. Both cube Y have the same mass so the amount of
avitational force acting on it is the same.
b)The gravitational force acting on cube Y could not overcome the friction
rce between the base of the cube and the surface of the ramp. Cube Y did not
ove because aluminium is not a magnetic material and cube Y will not be
tracted to the magnet.

3)a)Ants.
b)In a leaf little, the organism prefer a dark environment so it will move
vay from the light.

)a)Decomposition.
b)Suggestion : Add ants in the container.
Reason : Ants break down the leaves into small substance and bigger
rface area thus speeding up the rate of decomposition.

)There was a forest fire in March thus the number of Organism X decreases
the month of March.

)The population of Maize will increase because there is now less animals
ting it. The number of Mynah will decrease because the snake will eat more
mahs since there is less frogs and no rats to eat.

)a)The strong spotlights are placed at four corners of the stadium thus each
yers has multiple shadows.
b)Light travels in a straight line so when the soccer player who is opaque
ocks the path of light, a shadow will be formed.

43)a)The salt added to the crushed ice causes the temperature of ice to drop. Since metal is a good conductor of heat, the top container will lose heat quickly to the crushed ice. This will cause the syrup to lose heat to the top container.

b)i)She used a Styrofoam cup which is a poor conductor of heat so the syrup will not lose heat to the crushed ice quickly to turn into ice-cream.

ii)She should change the Styrofoam cup into a metal cup.

44)a)magnet.

b)Without the magnet, the balance was titled towards object Y with the magnet in place, object U gets attracted to the magnet as iron is a magnetism material and magnetic force of attraction can act at a distance.