NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2013
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**

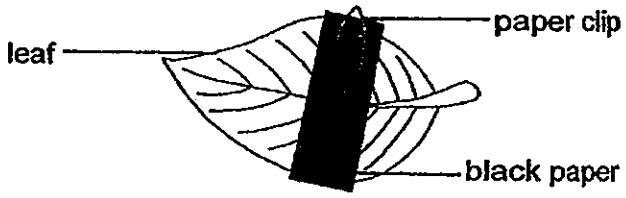
Name:_____( ) Class: P6_____

Date : 10 May 2013 **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.

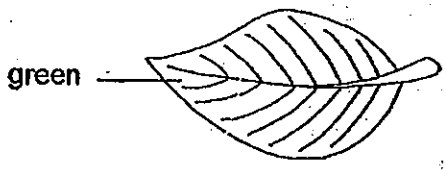
1. Amy conducted an experiment as shown below. She fastened a piece of black paper on a leaf of a plant with a paper clip.



The plant was then placed under the Sun for a day. Amy then removed the paper and tested the leaf for the presence of starch using iodine solution.

Which of the following diagrams shows what Amy would see when the iodine solution was added to the leaf?

(1)



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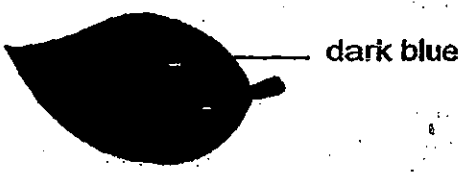
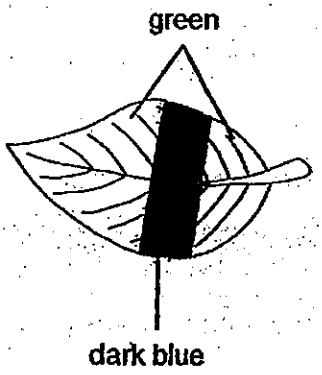


(3)



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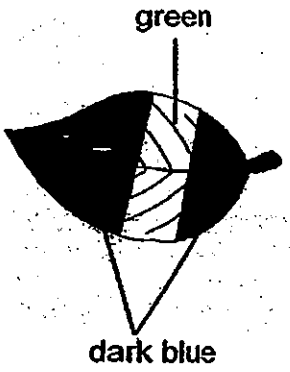
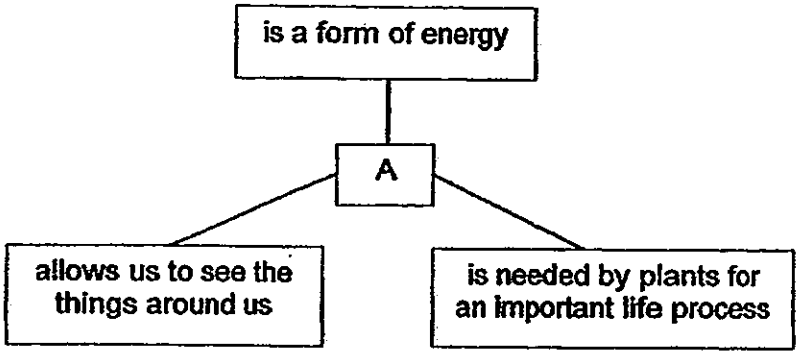


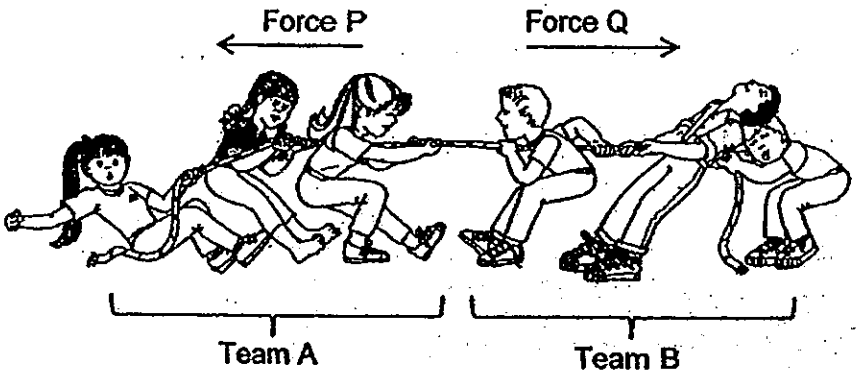
2. Study the concept map below carefully.



What will happen to a plant if A is missing?

(1) It cannot carry out photosynthesis.
(2) It cannot take in water from the soil.
(3) It cannot undergo pollination and fertilisation.
(4) It cannot exchange gases with the surroundings.

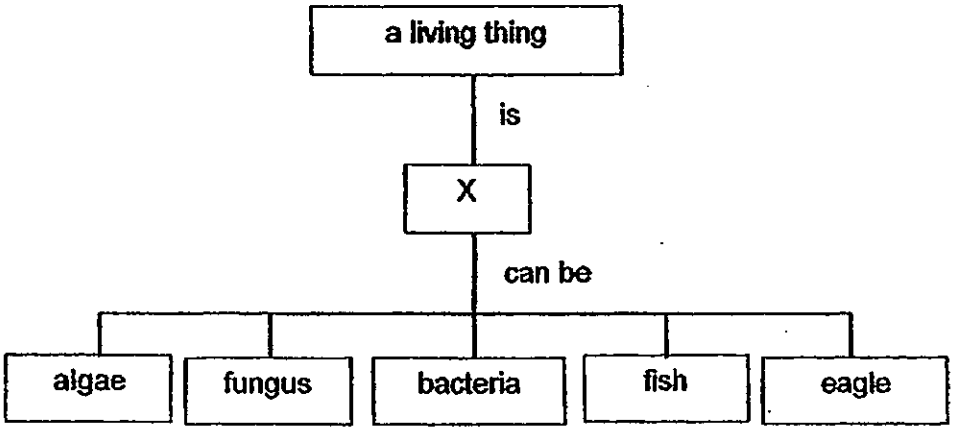
3. 6 children were playing a game of tug of war. They were divided into Team A and Team B as shown in the diagram below.



Based on the diagram above, which one of the following observations and corresponding conclusions is **incorrect**?

	Observations	Conclusions
(1)	Team A moved forward	Force P is smaller than Force Q
(2)	Team A moved backwards	Force P is greater than Force Q
(3)	Team B moved forward	Force P is smaller than Force Q
(4)	Both teams remained stationary	Force P is equal to Force Q

4. Study the concept map below carefully.



Based on the concept map above, what can X be?

(1) Habitat
(2) Organism
(3) Population
(4) Community

5. Four pupils were asked to give one example of an organism that lives in each of the three habitats given in the table below.

Pupil	Leaf litter	Pond	Garden
Ben	woodlouse	water snail	grass
Carl	millipede	clam	ant
Dan	centipede	duckweed	mimosa
Eric	termite	frog	earthworm

Out of the four pupils, which of them has/have given correct examples of organisms for all the three habitats?

(1) Ben only
(2) Carl and Dan only
(3) Carl and Eric only
(4) Ben, Dan and Eric only

6. Fanny conducted an experiment to find out how the amount of sunlight falling on an area affects the temperature of the area. She picked four locations in a park that were exposed to different amount of sunlight. The locations were:

Beside a bush
Under a big, shady tree
Inside a covered dustbin
In the middle of a big field

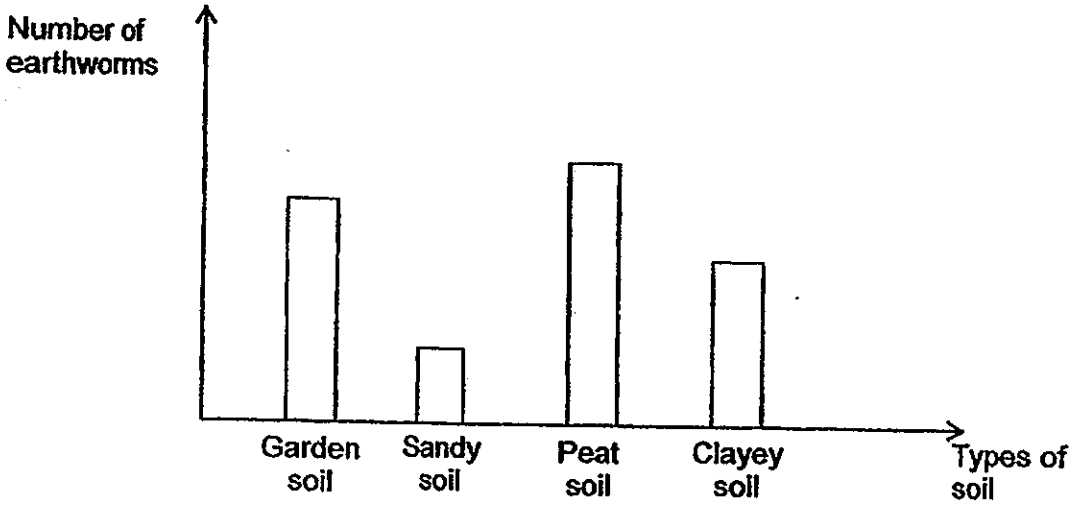
She then measured the temperature of these locations on a sunny day and on a cloudy day. She took the temperature at noon on each day and recorded the findings in the table shown below.

	Temperature taken	
Locations	**Sunny day**	**Cloudy day**
W	32°C	29°C
X	26°C	26°C
Y	31°C	28°C
Z	28°C	27°C

Which of the above locations is most likely to be under a big, shady tree?

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

7. Study the graph below carefully. It shows the number of earthworms found in different types of soil collected from different places.



From the graph above, which of the following soils is the most suitable for rearing earthworms?

(1) Peat soil
(2) Sandy soil
(3) Clayey soil
(4) Garden soil

8. The diagram below shows how energy from the Sun is transferred from one organism to another in an eco-system.

Plant ⟶ P ⟶ Q ⟶ R ⟶ S

Based on the diagram above, which of the following matches the roles the different organisms play in the food chain correctly?

	Prey	Predator	Prey and Predator
(1)	S	Q	R and P
(2)	P	S	Q and R
(3)	Q	S	P and R
(4)	Q	R	S and P

9. Gina filled four cups with equal amount of water at 90°C. Each cup is of the same shape and size but is made of different materials. She then left the four cups at the same place and took down the time taken for the water in the cup to reach the room temperature.

Material the cup is made of	Time taken for water to reach room temperature (min)
A	15
B	30
C	65
D	110

Based on the results shown above, which material is the best conductor of heat?

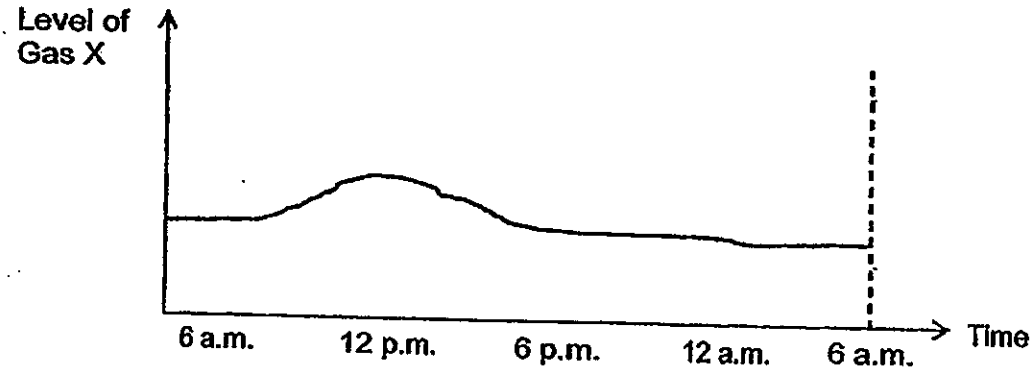
(1) A
(2) B
(3) C
(4) D

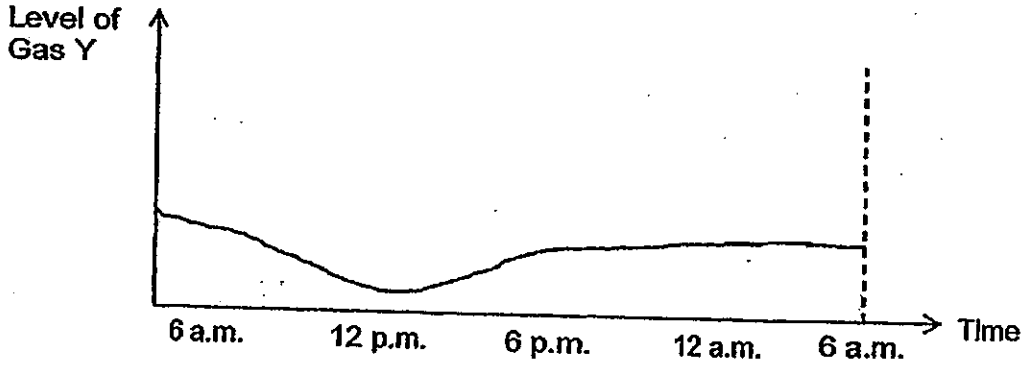
10. Which of the following is/are matter?

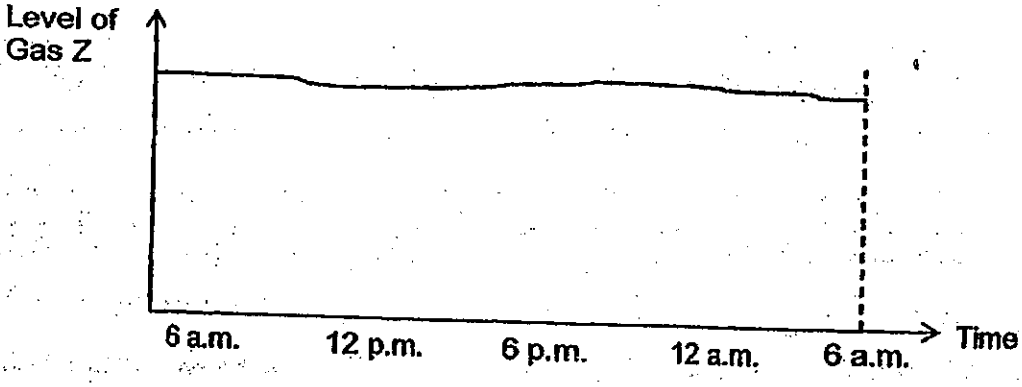
A Air
B Heat
C Shadow
D Water vapour

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

11. Henry placed a pot of plant in a covered glass box and left it in his garden for one day. He recorded the level of the different gases in the container and plotted the readings in three graphs as shown below.







His friends saw his graphs and made some comments.

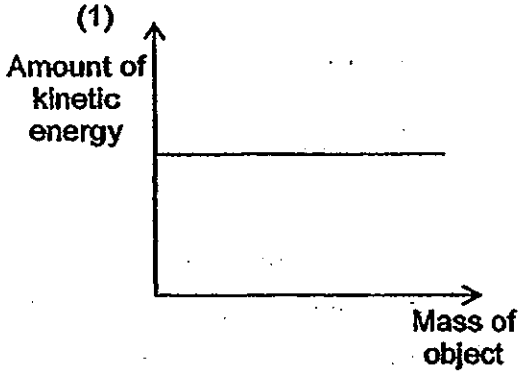
Irene	Gas X should be oxygen as the rate of photosynthesis is highest at 12 p.m.
Jerry	Gas Y should be oxygen as the rate of photosynthesis is lowest at 12 p.m.
Kelly	Gas X should be carbon dioxide as the rate of photosynthesis is highest at 12 p.m.
Larry	Gas Z should be nitrogen as nitrogen is not required in the process of photosynthesis.

Out of the four comments, which one is/are correct?

(1) Irene only
(2) Irene and Larry only
(3) Jerry and Kelly only
(4) Jerry, Kelly and Larry only

12. Which one of the following graphs correctly shows the relationship between the mass of an object and the amount of kinetic energy the object has?

(1)



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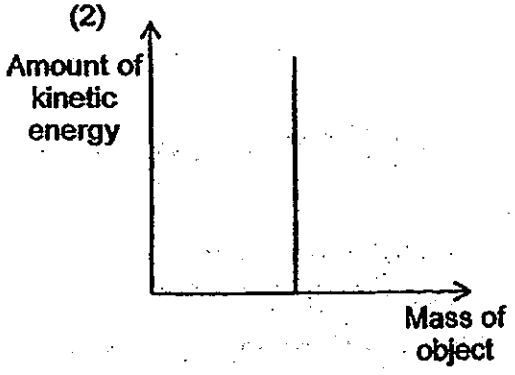
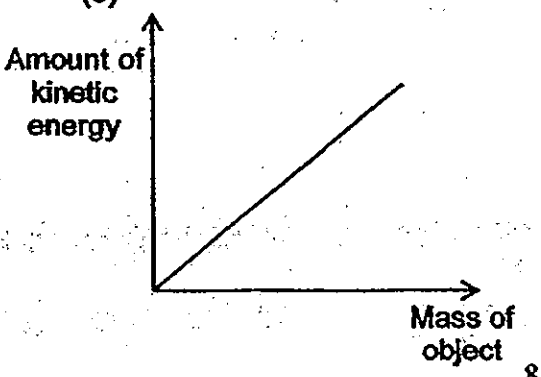
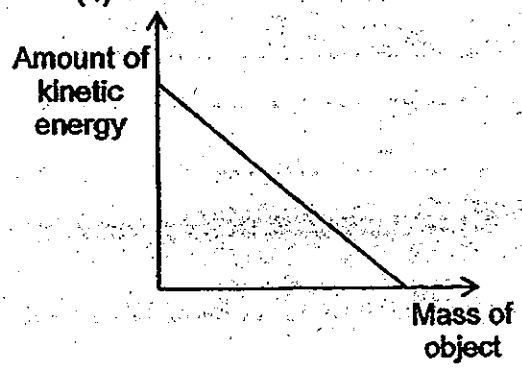


(3)



(4)



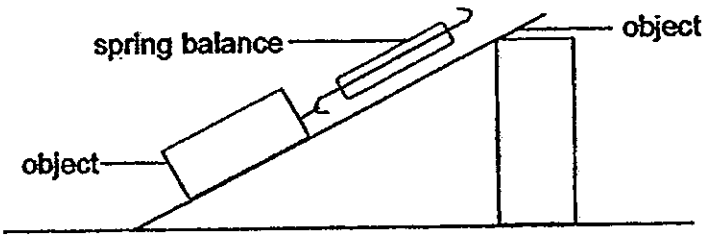
13. The diagram below shows what happens in pole vaulting, a competitive sport.

Based on the diagram above, which of the following statements is/are true?

A The man has kinetic energy at Point X.
B At Point Y, most of the man's kinetic energy has been converted to elastic potential energy of the pole.
C The man has no kinetic energy at Point Y.
D The man has the greatest amount of gravitational potential energy at Point Z.

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

14. Minah conducted an experiment to find out how the mass of an object affects the amount of force needed to move it up a ramp as shown in the diagram below.



In order to conduct a fair test, which of the following tables correctly shows the independent, dependent and controlled variables of this experiment?

(1)

Variables	Independent	Dependent	Controlled
the force used			√
the mass of the object		√	
the spring balance used			√
the steepness of the slope	√		
the type of surface of the ramp			√

(2)

Variables	Independent	Dependent	Controlled
the force used		√	
the mass of the object	√		
the spring balance used		√	
the steepness of the slope			√
the type of surface of the ramp			√

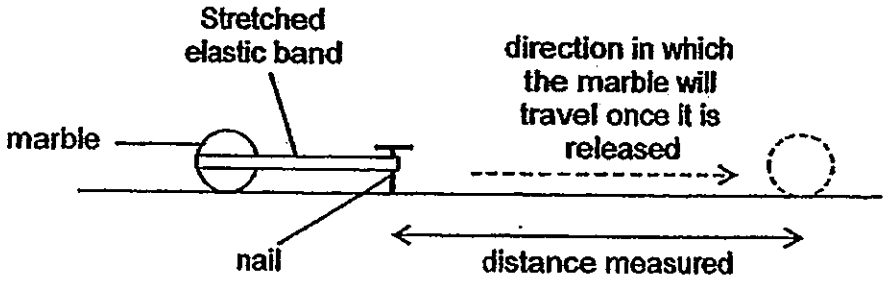
(3)

Variables	Independent	Dependent	Controlled
the force used	√		
the mass of the object		√	
the spring balance used			√
the steepness of the slope			√
the type of surface of the ramp			√

(4)

Variables	Independent	Dependent	Controlled
the force used		√	
the mass of the object	√		
the spring balance used			√
the steepness of the slope			√
the type of surface of the ramp			√

15. Ned prepared the set-up below.



He wanted to find out how the distance travelled by the marble is affected by how much the elastic band is stretched.

He recorded the results in the table below.

Length of the stretched elastic band (cm)	Distance measured (cm)					
	1st Try	2nd Try	3rd Try	4th Try	Average	
10	8	9	7	9	8.25	(A)
15	16	26	15	14	17.75	(B)
20	25	27	24	27	25.75	(C)
25	37	34	36	37	36	(D)

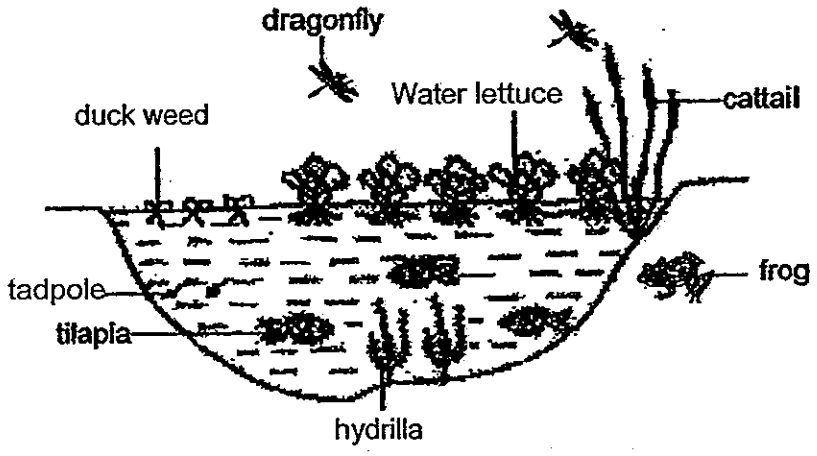
After his experiment, he decided to plot a graph using the results. His teacher looked over his findings and commented that he should not use one of the average readings as one of the readings was not consistent.

He needs to remove the inconsistent reading and recalculate the average.

Which one of the average readings, A, B, C or D should he recalculate?

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

16. **Study the diagram below carefully.**



A disease wiped out the entire population of tilapia in this community. What was the number of populations of organisms that was left over, if there were no other changes to this pond community?

(1) 1
(2) 2
(3) 6
(4) 7

17. Some pupils counted the number of some organisms in their school garden and recorded their findings in the table shown below.

Type of organisms	Number of organisms found in the garden
Grasshoppers	4
Grasshopper nymphs	3
Caterpillars	5
Butterflies	3
Plants found on plants	4
Plants found on ground	12

Based on the table above, which of the following statements are definitely true?

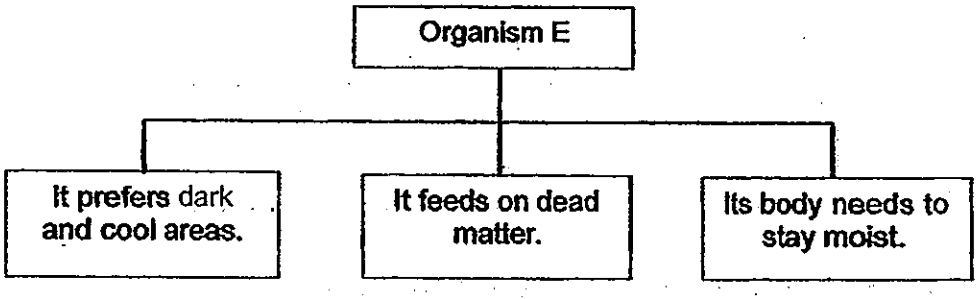
A There is only one garden population.
B There are at least two populations of plants in their garden.
C The population size of grasshoppers in their garden is four.
D There are at least four populations of animals in their garden.

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

18. Some scientists were studying four different habitats, A, B, C and D. The table below shows the characteristics of four different habitats.

Characteristics of habitat	Habitat			
	A	B	C	D
Amount of light falling on the area	Low	Medium	High	Low
Moisture level of soil	High	Very high	Low	High
Average temperature of the area	High	Medium	Very Low	Low

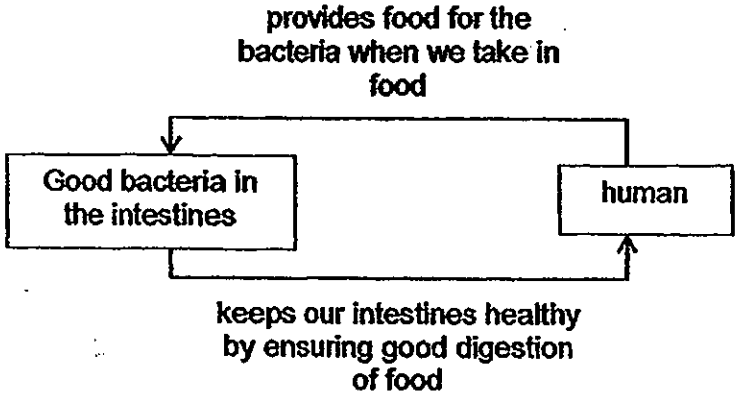
The scientists found an organism, E, in one of the habitats above. Organism E has the following characteristics:



Based on the information given above, where would Organism E be most likely found?

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

19. Study the diagram below carefully.

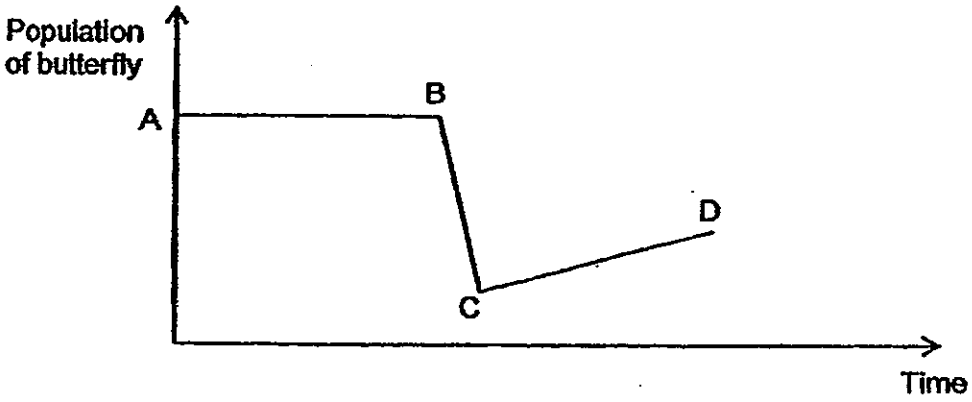


The diagram above shows a special type of relationship between two different organisms. Both organisms benefit from each other in this sort of relationship.

Which one of the following relationships is most similar to the one shown above?

(1) A whale eating planktons
(2) Birds living in holes in trees
(3) Weeds growing around a plant
(4) Bees feeding on nectar of flowers

20. The graph below shows the population of a species of butterfly in a habitat over a period of time.



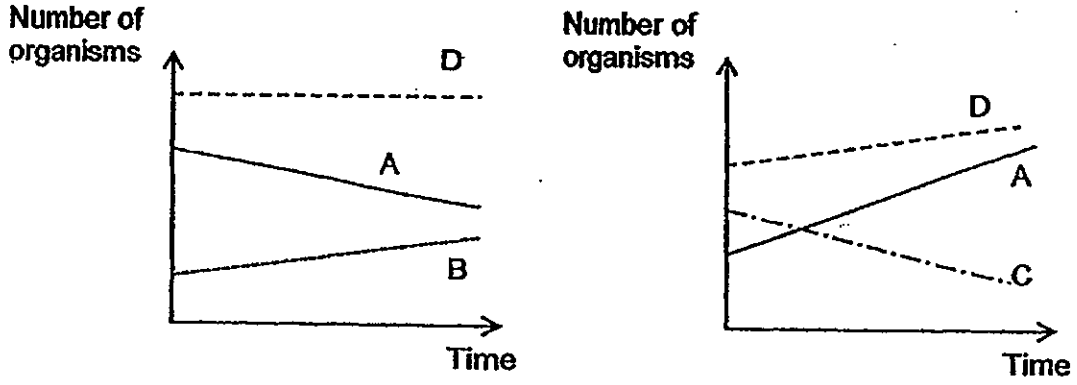
What could have happened at Point B?

A There was an increase in rainfall over a period of time.
B A predator of caterpillars was introduced into the habitat.
C A disease infected the plants that the caterpillars were feeding on.
D Another pollinator of the plant that the butterflies were feeding on was wiped off by a disease.

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

21. Pat placed four different types of organisms, A, B, C and D into two tanks and monitored their populations over a period of two weeks. She placed Organisms A, B and D into Tank 1 and Organisms A, C and D into Tank 2.

She counted and recorded the populations of the four organisms every day and plotted two graphs as shown below.



Based on the graphs above, which of the following shows the correct food chain linking the four organisms above?

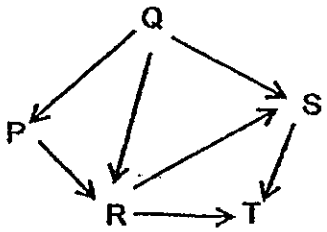
(1) D → C → A → B
(2) A → B → D → C
(3) B → A → C → D
(4) C → D → B → A

22. There are five organisms, P, Q, R, S and T, in a particular community. After observing these organisms, Susan came up with a list of information about them.

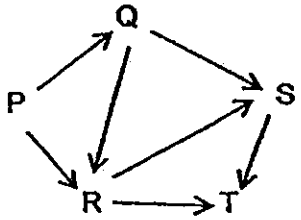
- P converts light energy from the Sun into chemical potential energy.
- Q is a herbivore and has 2 predators.
- R eats meat and plant.
- S has 2 food sources
- T feeds on R and has no predators.

Which of the following food webs matches the information given above?

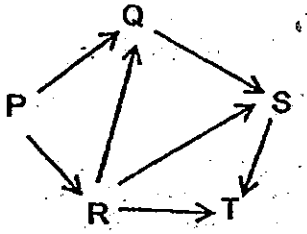
(1)



(2)



(3)



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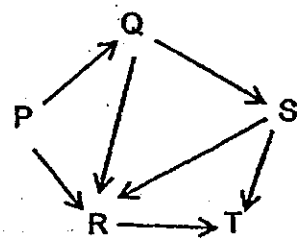
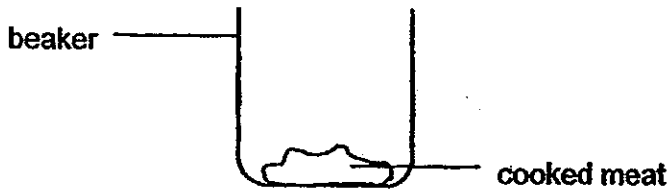


23. Tammy prepared a set-up as shown below and left the set-up in a room for a week.

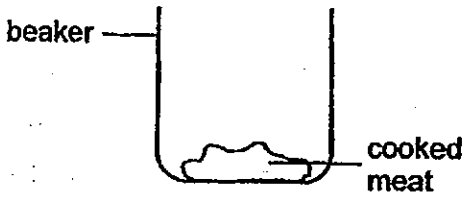


After a week, she noticed some maggots, which are the young of houseflies, on the piece of cooked meat.

Her sister commented that the maggots came from the cooked meat. Tammy then decided to prove that the maggots did not come from the cooked meat.

Out of the four set-ups shown below, which one should Tammy use as a control to prove her point?

(1)



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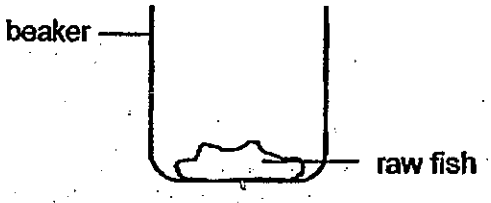
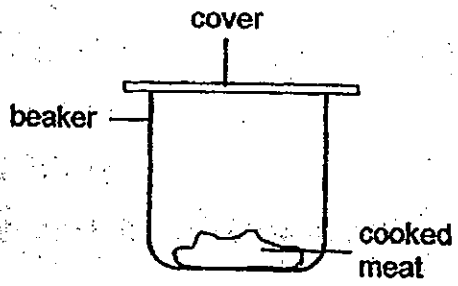
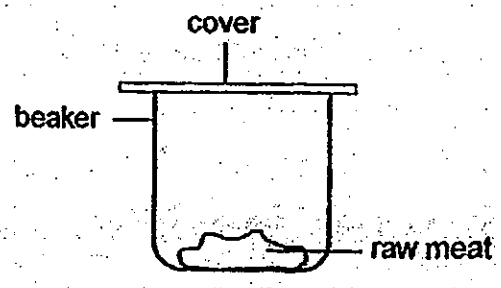


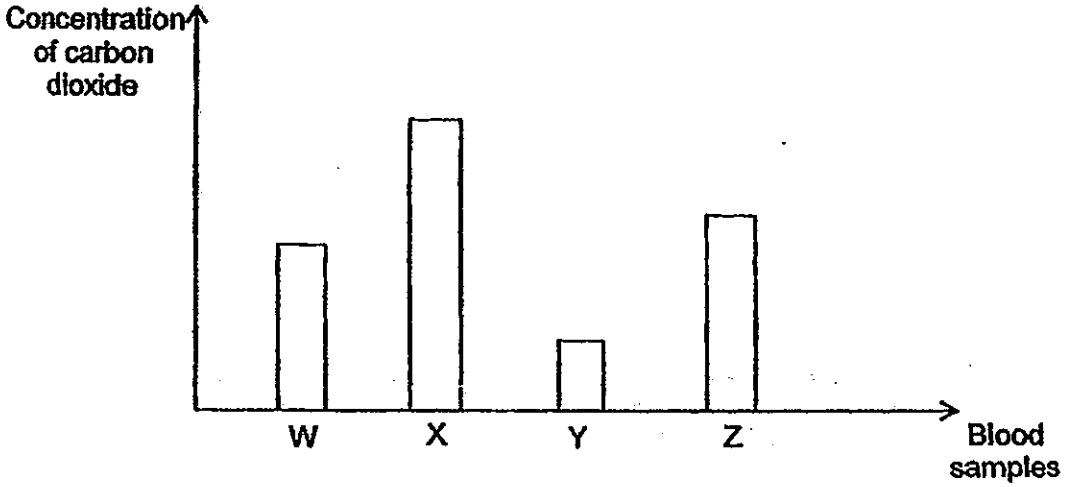
(3)



(4)



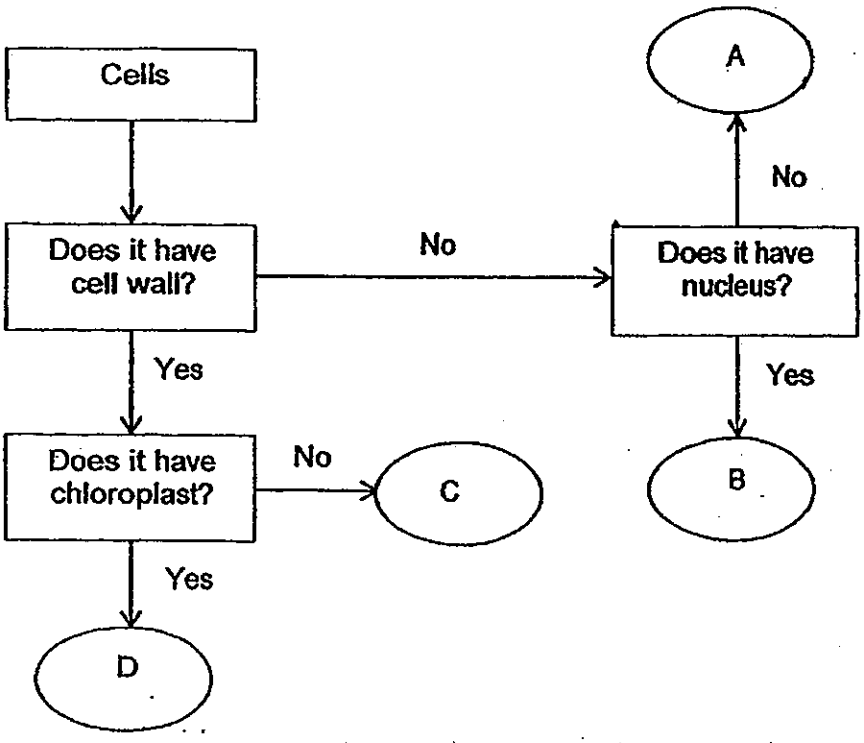
24. Study the bar graph below carefully. The graph shows the concentration of carbon dioxide in 4 blood samples taken from different part of the body.



Out of the four samples, which one is most likely to be taken from the blood vessel which carries blood from the heart to the lungs and which one is most likely to be taken from the blood vessel which carries blood from the lungs to the heart?

	Samples of blood	
	From heart to lungs	From lungs to heart
(1)	X	Y
(2)	Y	X
(3)	W	Z
(4)	Z	W

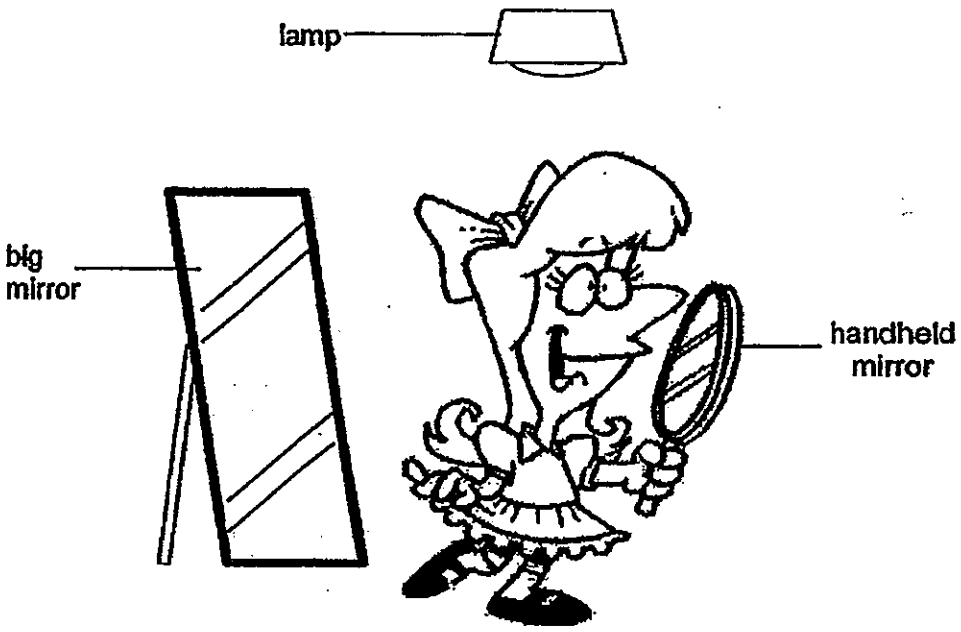
25. Study the flow chart below carefully.



Which of the following correctly represents the organisms A, B, C and D?

	A	B	C	D
(1)	root cell	leaf cell	cheek cell	red blood cell
(2)	cheek cell	red blood cell	leaf cell	root cell
(3)	leaf cell	root cell	red blood cell	cheek cell
(4)	red blood cell	cheek cell	root cell	leaf cell

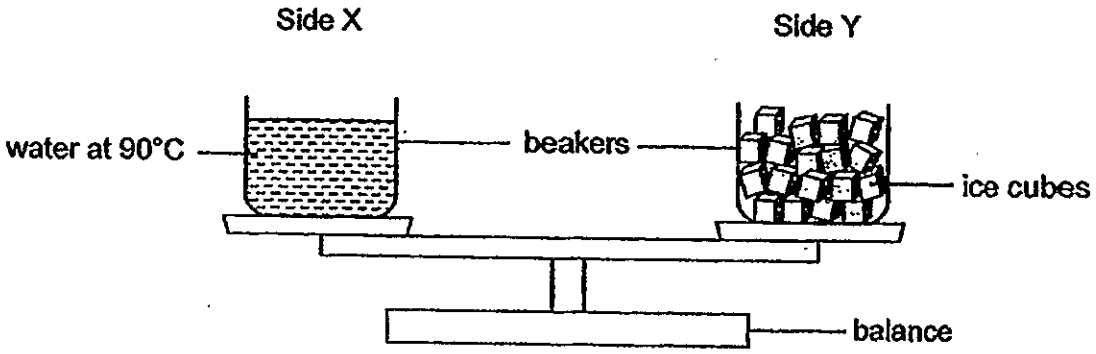
26. Alice had just done up her hair and wanted to check if the back of her head is neat. She decided to make use of a small handheld mirror and a larger mirror to do so as shown in the picture below.



Which of the following shows the path of light that allowed her to see the back of her head?

(1) Lamp → big mirror → head → handheld mirror → eyes
(2) Big mirror → lamp → head → eyes → handheld mirror
(3) Lamp → head → big mirror → handheld mirror → eyes
(4) Eyes → handheld mirror → big mirror → head → lamp

27. Mr Lee placed two beakers on each side of a balance. In one beaker, he poured in water with a temperature of 90°C. In the other beaker, he poured in ice cubes. Both beakers have the same mass at the beginning of the experiment as shown in the diagram below.



Mr Lee placed the balance in a room for 30 minutes.

What could be the likely observations he would make after 30 minutes?

A Side X would become lighter as some of the water in the beaker had evaporated.
B Side X would become heavier as the water had more heat than the ice in another beaker.
C Side Y would become heavier as water vapour in the surrounding air had condensed on the outer surface of the beaker.
D Side Y would become heavier as the ice had gained heat and melted.

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

28. The diagrams below show four different set-ups in an experiment.

A

B

C

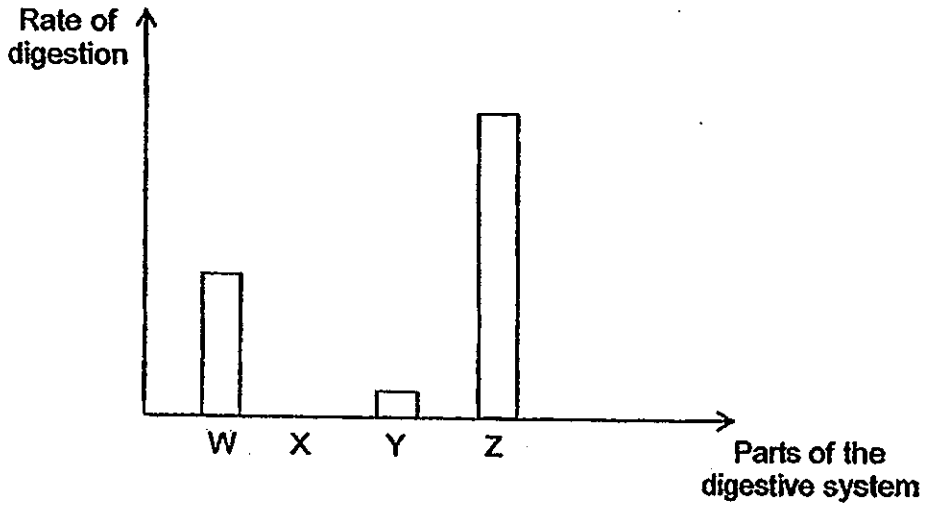
D

Annie wanted to find out how the number of leaves on a plant will affect the amount of water taken in by the plant.

Which set-ups should she use?

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

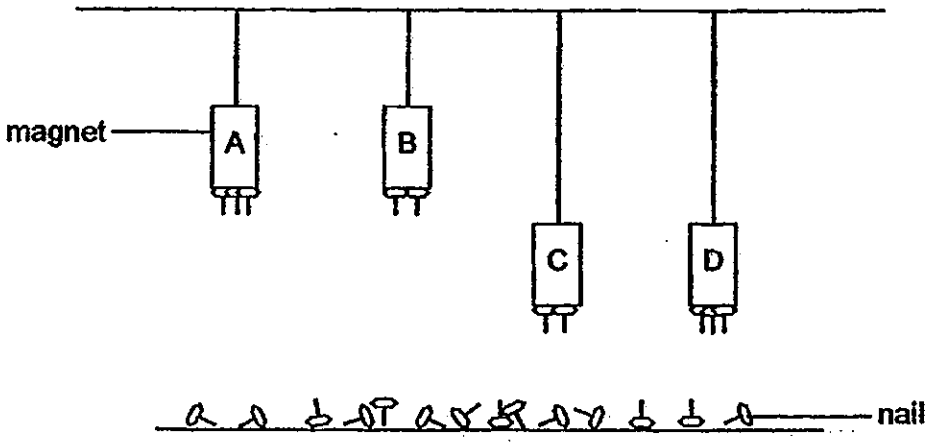
29. The graph below shows the rate of digestion of food that takes place at four different parts of the human digestive system.



Based on the graph above, which of the following correctly matches the letters, W, X, Y and Z to the correct part of the human digestive system?

	W	X	Y	Z
(1)	stomach	large intestine	mouth	small intestine
(2)	gullet	stomach	large intestine	small intestine
(3)	large intestine	gullet	mouth	stomach
(4)	mouth	small intestine	stomach	large intestine

30. Jason recently purchased four magnets. In order to find out which is the strongest magnet, he prepared the set-up shown below.



From the results shown in the set-up, which one of the following best describes the strength of the magnets above?

	Strongest	Weakest	Not possible to tell
(1)	C	D	A, B
(2)	A	C	B, D
(3)	B	A	C, D
(4)	D	B	A, C

NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2013
PRIMARY 6

SCIENCE

BOOKLET B

14 Open-ended questions (40 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. Write your answers in this booklet.

Marks Obtained

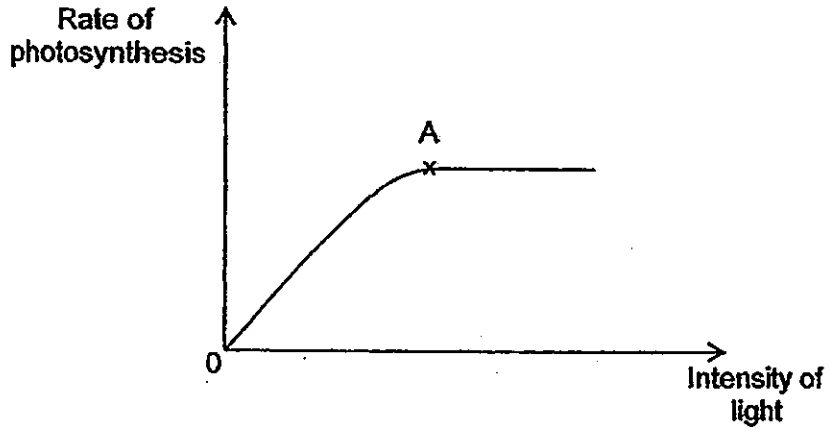
Section B		/40

Name:_____( ) Class: P6_____

Date : 10 May 20013 Parent's Signature:_____

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 graph below shows how the rate of photosynthesis is affected by the intensity of surrounding light.



(a) Based on the graph above, what is the relationship between the intensity of light and the rate of photosynthesis? [2]

_____

_____

_____

_____

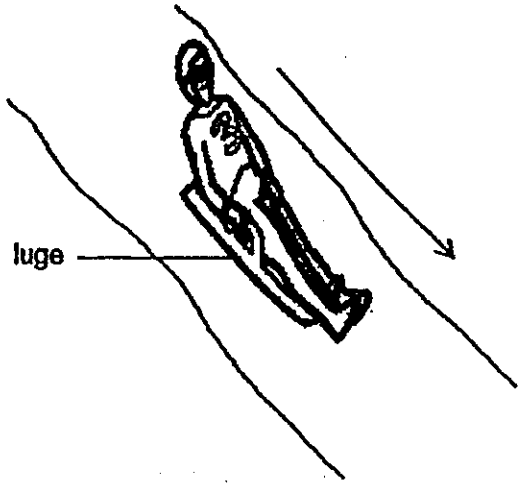
(b) Kelvin wants the plants in his garden to grow up fast and healthy. Other than ensuring that the plants get enough light, name two other factors that he should take note of. [1]

_____

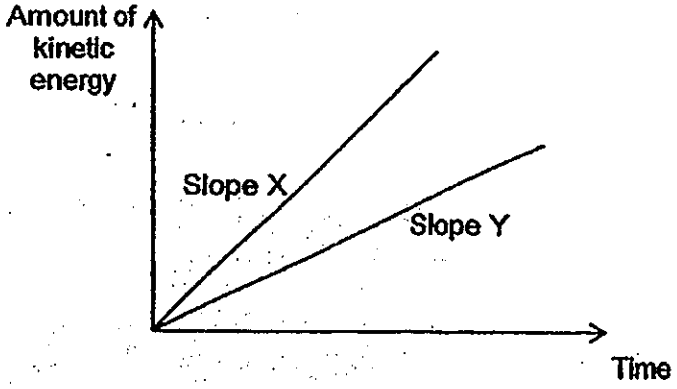
_____

Score	3

32. A luge is a small one or two person sled on which one sleds facing up and feet first. In the Winter Olympics, luge is a popular competitive sport. The picture below shows a luge athlete on a luge going down a slope.



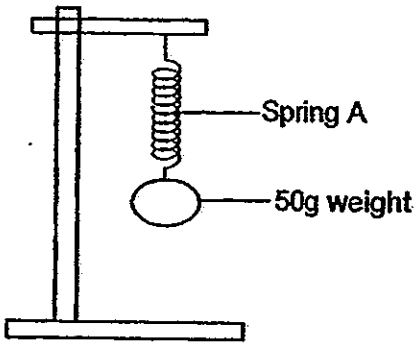
Jim sled down two different slopes, X and Y, on a luge. Slopes X and Y are of the same length. The graph below shows the kinetic energy he possessed as time passes while he sled down the slope.



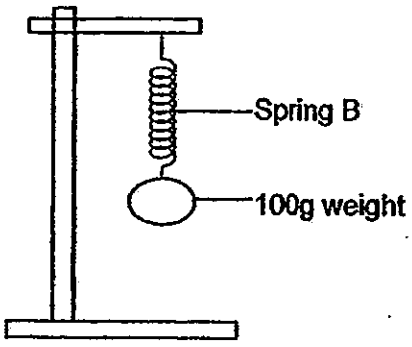
Which slope is steeper? Explain your answer clearly. [2]

Score	2

33. Ben set up an experiment as shown in the diagram below to find out which of the two springs that can stretch more. The springs were of the same length.



Set-up A



Set-up B

(a) Mr Tan told him that his experiment was not fair. Why do you think Mr Tan said so? [2]

_____

_____

_____

_____

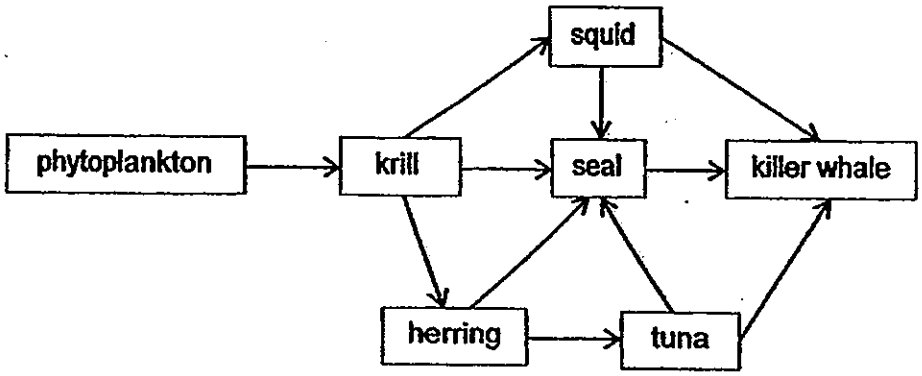
(b) What can he do to make it a fair experiment? [1]

_____

_____

Score 3

34. Study the food web below.



(a) Name the habitat where the organisms in the above food web can be found. [1]

_____

(b) If an organism from the above habitat is transferred to a pond habitat, what will happen to it? Why? [1]

_____

_____

_____

(c) Name 2 conditions that are different between the pond habitat and the habitat in (a) [1]

_____

_____

Score	/ 3

35. A scientist made observations of a certain community and noted the interdependence of 4 organisms, W, X, Y and Z living in the community:

A If population of W decreases, population of X will also decrease.
B If population of Z increases, population of W will also gradually increase.
C If population of Y dies, all the other populations will eventually die as well.

(a) Based on the above observations, write down a possible food chain linking all the organisms. [1]

_____

(b) From the food chain you created, did organism X obtain energy directly or indirectly from the Sun? Explain your answer clearly [1]

_____

_____

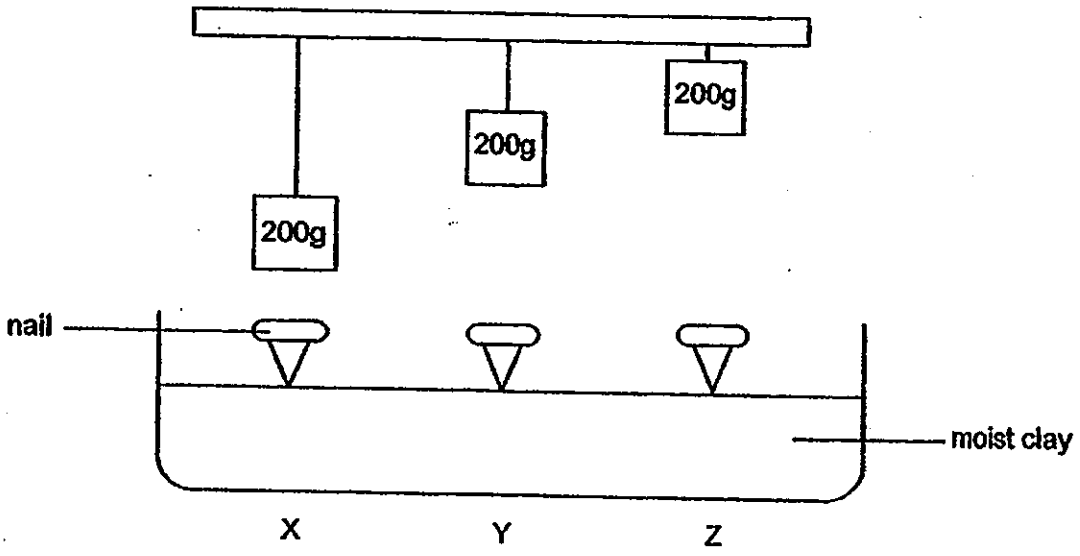
(c) Why must a food chain be kept at not more than 4 or 5 organisms? [1]

_____

_____

Score	3

36. Three cubes of 200g each were suspended using three strings to a support as shown in the picture below. Three nails are placed directly underneath the three cubes at position X, Y and Z. The nails are placed on top of some moist clay.



Each string is then cut, allowing the cube to drop onto the nail, driving it into the moist clay, creating a depression. The table below shows the depression made by the nails once all the three cubes have landed on the nails.

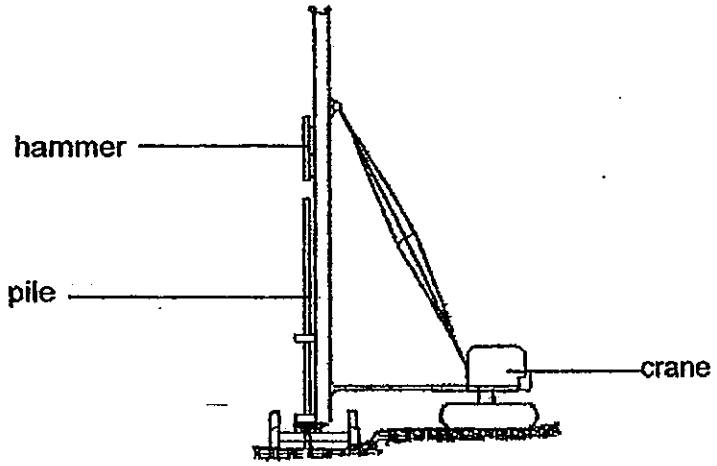
(a) In the table below, fill in the blanks with positions X, Y and Z to match them to the depression created. [1]

Position	Depth of depression (cm)
	15
	8
	4

Score	1

The picture below shows a pile driver, commonly used during construction of buildings. The hammer is raised to a height above the pile before being released. The hammer will then drop and land on the pile, driving it into the earth.

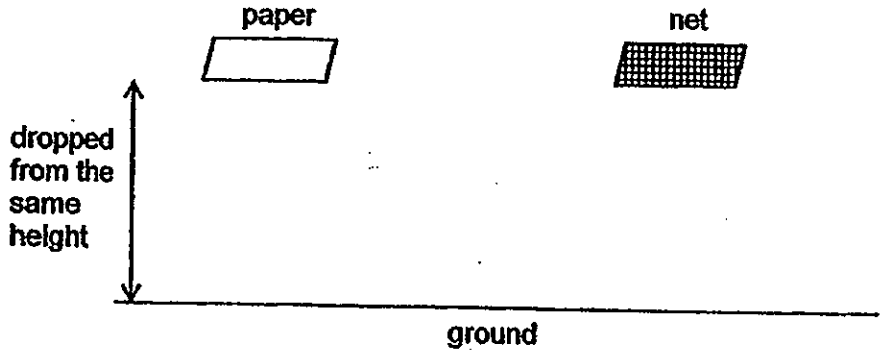
It is important for construction companies to complete their projects as fast as possible so that it will be more cost-saving.



(b) Explain clearly why it is necessary to raise the hammer to a height before releasing it. [2]

Score	/ 2

37. Jaden conducted an experiment as shown below. He dropped two items of the same size and thickness from the same height. The first item is a piece of paper. The second item is a piece of net. Both items have the same mass.



He recorded his findings in a table as shown below.

Items	Time taken for item to drop to the ground (Seconds)
Paper	7
Net	3

He showed his teacher the table but his teacher commented that his findings are not reliable.

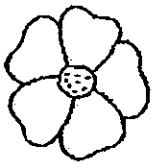
(a) What can Jaden do to improve on the reliability of his experiment? [1]

_____

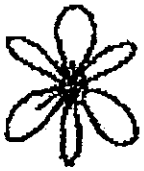
_____

Score	/ 1

Jaden then took a walk in his garden and spotted two flowers from different trees dropping down. The flowers have the same mass. The pictures of the flowers are as follows.



Flower A



Flower B

(b) Predict which flower, A or B, would reach the ground first if they were dropped from the same height. [1]

_____

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

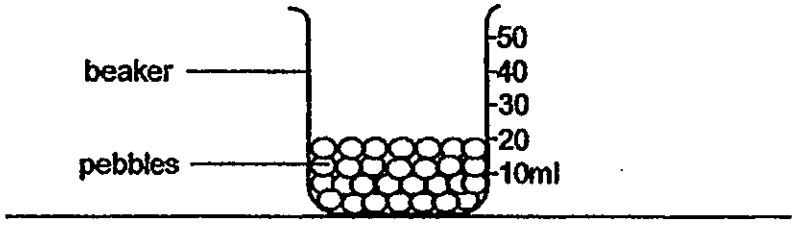
_____

_____

_____

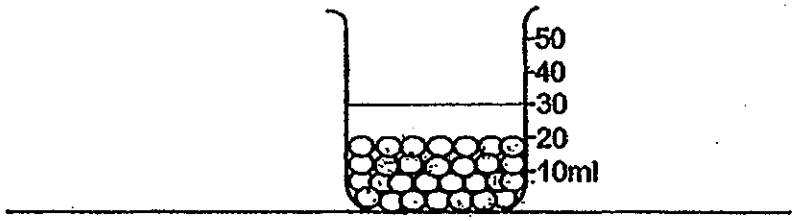
Score	/ 2

38. Jane filled a beaker with some pebbles.



She then poured 30ml of water into the beaker.

(a) In the diagram below, draw a line to show the estimated final volume of water in the beaker. [1]



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

_____

_____

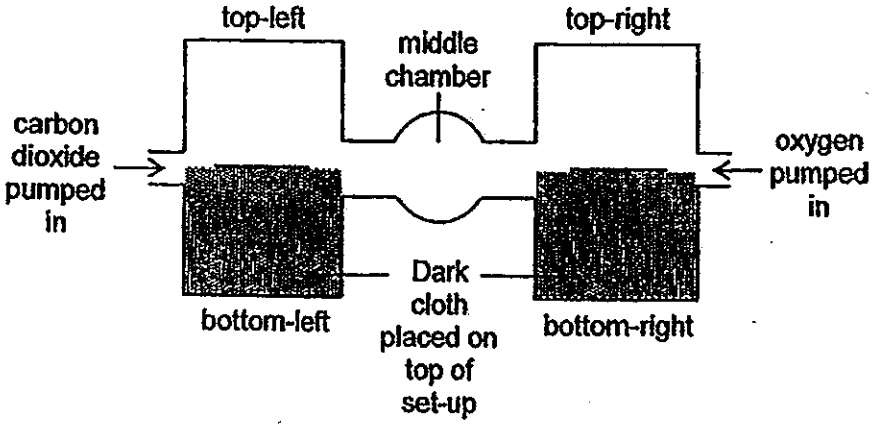
(c) Explain clearly what change you will see in the water level if the pebbles were replaced by the same amount of clayey soil. [1]

_____

_____

Score	/ 3

39. Mark set up an experiment to find out the preferred living conditions of bed bugs as shown below. The left chambers had increased amount of carbon dioxide gas pumped in. The right chambers had increased amount of oxygen gas pumped in. The set-up was left in a bright room.



The bed bugs were firstly placed in the middle chamber. After one hour, the number of bed bugs found in each chamber was counted and recorded in the table below.

Chamber	Number of bed bugs
Top-left	2
Bottom-left	8
Top-right	0
Bottom-right	0

(a) Based on the results shown in the table, what are the preferred living conditions of bed bugs? [1]

_____

_____

(b) Mark's uncle told him that to prevent being bitten by bed bugs, he could install a fan in his room to circulate the air. Explain how that idea could help to reduce the chances of being bitten by bed bugs. [1]

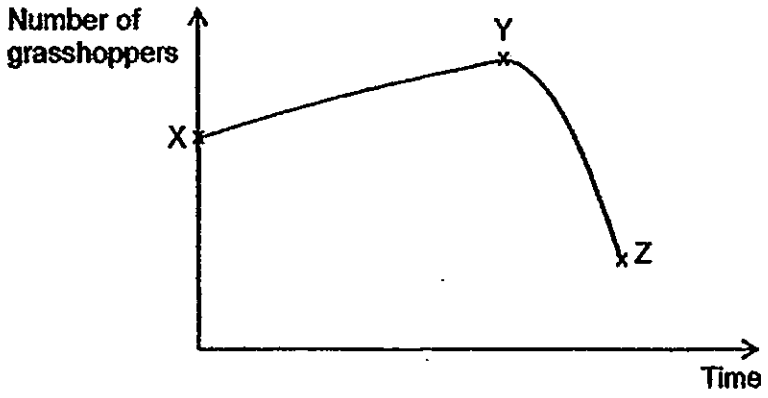
_____

_____

_____

Score 2

40. The graph below shows the population of grasshoppers in a plot of land.



It was noted that at some point in time, a developer started construction of an estate of houses on that plot of land.

(a) At which point, X, Y or Z on the graph do you think the development started? [1]

_____

(b) Clearly explain your answer in (a). [2]

_____

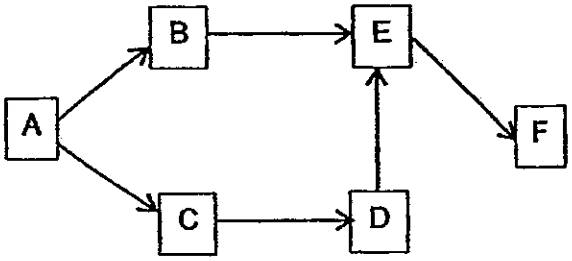
_____

_____

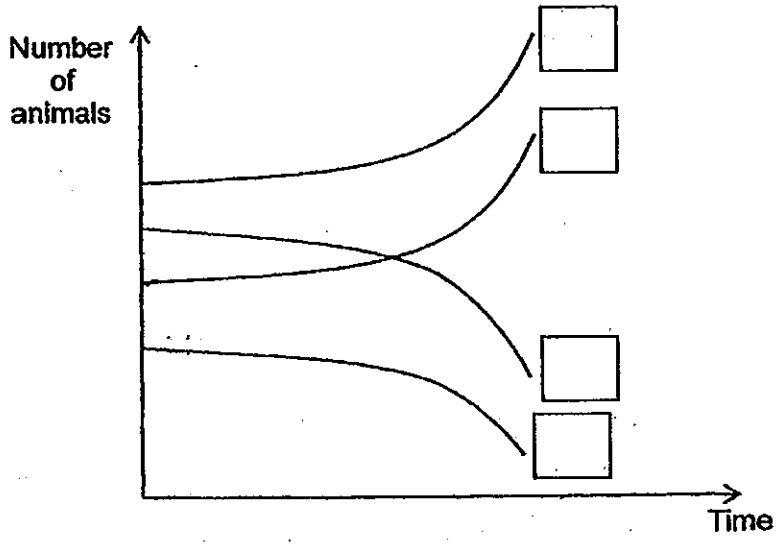
_____

Score 3

41. The diagram below shows a food web.



(a) A disease caused the population of E to decrease sharply. How will the population of B, C, D and F be affected immediately? Put in the labels, B, C, D and F in the graph shown below. [2]



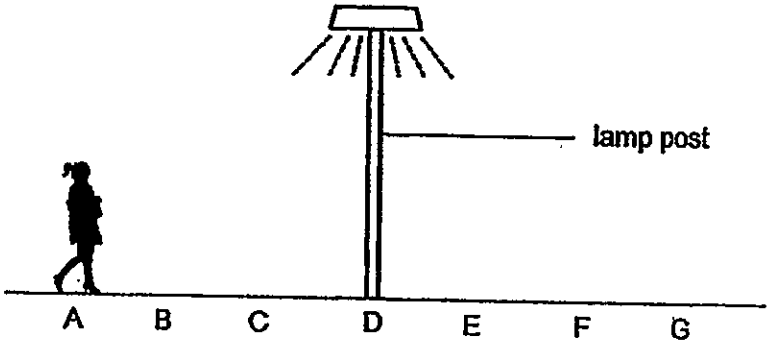
(b) What is the reason for your choice of answer for animal F in (a)? Explain your answer clearly. [1]

_____

_____

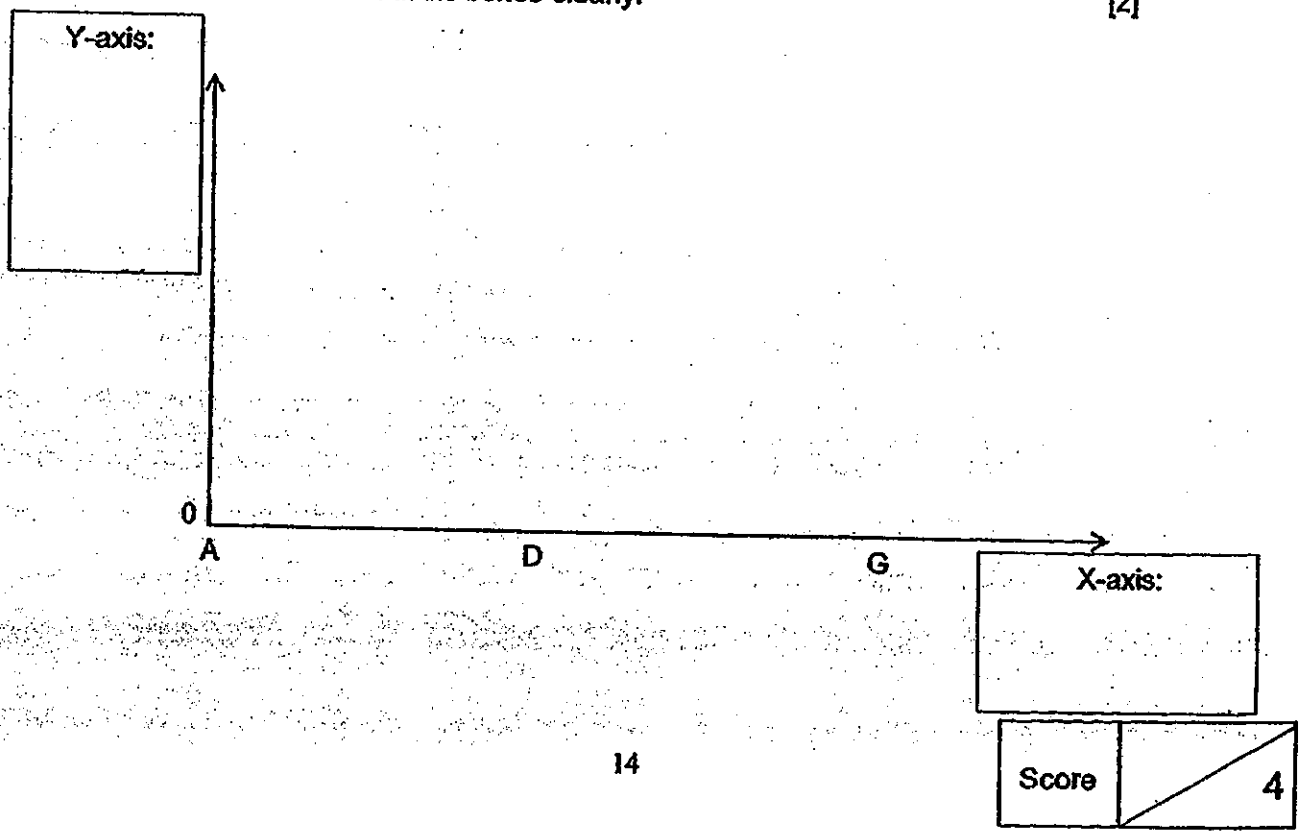
Score / 3

42. Miss Jamie was walking from point A to point G passing a lamp post at D as shown in the diagram below.



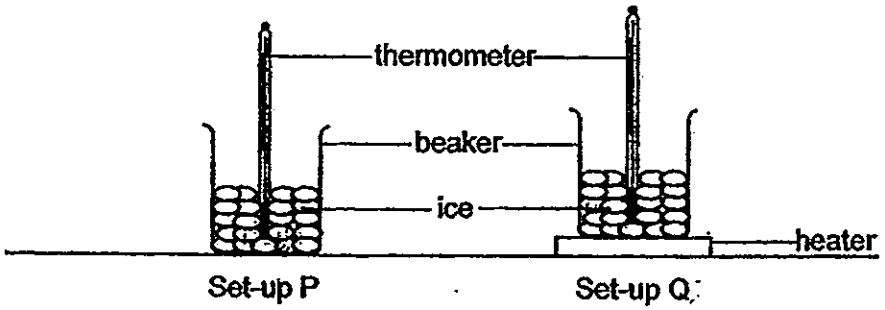
(a) What is the relationship between the distance between Miss Jamie and the lamp post and the length of her shadow as Miss Jamie walks from Point A to Point G? [2]

(b) Based on the above result, sketch the graph in the space provided below. Label the axis in the boxes clearly. [2]

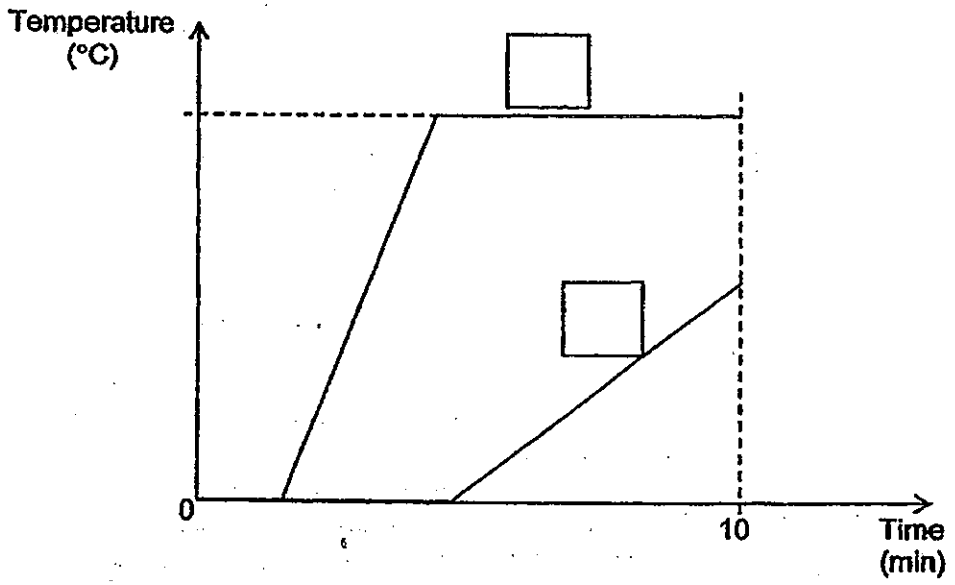


Score / 4

43. Jeremy prepared the set-up shown below.



He monitored the temperature of the ice in both set-ups for 10 minutes and plotted the graph shown below.



(a) Fill in the labels, P and Q, for the graphs in the box provided. [1]

(b) Based on the diagrams and results above, what is the aim of the experiment? [1]

Score 2

After all the ice in both set-ups had melted, Jeremy measured the volume of water in both set-ups. He found out that one of the set-ups had lesser water than the other.

(c) Which set-up had lesser water and what do you think is the reason for it?

[1]

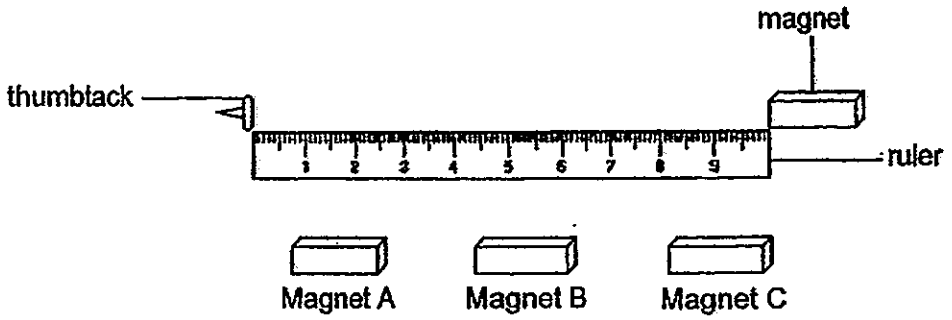
_____

_____

_____

Score	/ 1

44. David prepared the following set-up for an investigation as shown below.



D is the maximum distance between the magnet and the thumbtack where the magnet will attract the thumbtack.

He conducted the investigation with three different magnets of different strengths. They were of the same size and shape.

He followed the following procedure to conduct his investigation.

Steps	Procedure
1	Place the thumbtack against the ruler at the 0 mark.
2	Move the first magnet along the ruler from the other end of the ruler till the thumbtack gets attracted to it.
3	Record the distance, D, in the table.
4	Repeat the experiment two more times and calculate the average.
5	Record the average in the table.
6	Repeat Steps 1 to 5 with the other two magnets.
7	Compare the average distance, D, in the table to find out how the strength of the magnet affects D.

(a) What is the independent and dependent variables for this investigation? [1]

Independent variable - _____

_____

Dependent variable - _____

_____

Score	/ 1

The table below shows the results of his investigation.

Magnet	Distance, D (cm)			
	1st Try	2nd Try	3rd Try	Average
A	3	4	3	3.33
B	5	5	6	5.33
C	8	9	9	8.66

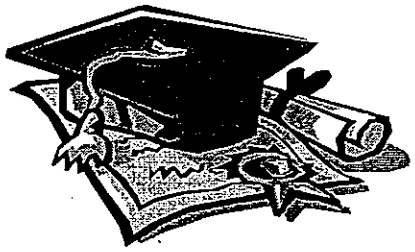
(b) Based on the results, what conclusion can you draw? [1]

_____

_____

End of paper

Score 1



ANSWER SHEET

EXAM PAPER 2013
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
4	1	3	2	4	4	1	2	1	2	2	3	4	4	2	3	1

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

31)a)As the intensity of light increase, the rate of photosynthesis increases. But from point A onwards, as the intensity of light increases the rate of photosynthesis remains the same.

b)Water, fertilizers or air, nutrients, oxygen or carbon dioxide.

32)Slope X is steeper as he had greater kinetic energy when going down slope X so he took a shorter time to reach the end of the slope.

33)a)In an experiment, there should only be one independent variable. In this experiment, it should be the type of spring. Changing the mass of the weight hung on it will affect the results of the experiment.

b)Change the 50g weight in set-up A to a 100g weight.

34)a)Ocean habitat.

b)It will die. The environment conditions will be suitable for the organism. Organism that live in the sea are accustomed to the salinity and temperature of the sea.

c)The sea water is saltier than the pond water. The temperature of the sea water is lower than the pond water.

35)a)Y→Z→W→X

b)Indirectly. Organism X is a carnivore and feeds on animals and do not make its own food as it not a plant.

c)During the energy transfer of animals, most of the energy that the organism get is lost, therefore if a food chain has more than 4 or 5 animal the last organism may not survive ad it gets very little energy.

36)a)Z Y X

b)When the hammer is raised to a height above the pile, the hammer possessed greater gravitational potential energy. As the hammer drops towards the pile the gravitational potential energy will be converted to greater amount of kinetic energy and thus there will be more energy to drive the pile deeper into the earth so less time will be needed.

37)a)Repeat the experiment at least three times and take the average.

b)Flower B.

c)Flower B has a lesser exposed surface area in contact with the air just like the net, therefore, reducing the air resistance acting on it, and hence taking a faster time for it to reach the ground.

38)a)40ml

b)The pebbles has air spaces in between them, allowing the water to enter and take up the space, therefore the water level would not reach 50ml.

c)The water level will be higher. There are fewer air spaces in clayey soil so less water can flow into occupy the air spaces. So, more of the water will remain above the soil.

39)a)The beg bugs prefer to live in dark and high level of carbon dioxide surroundings.

b)A fan will help to disperse the carbon dioxide that he breathed out as he sleeps so it will reduce the chances that the beg bug is attracted.

40)a)Point Y.

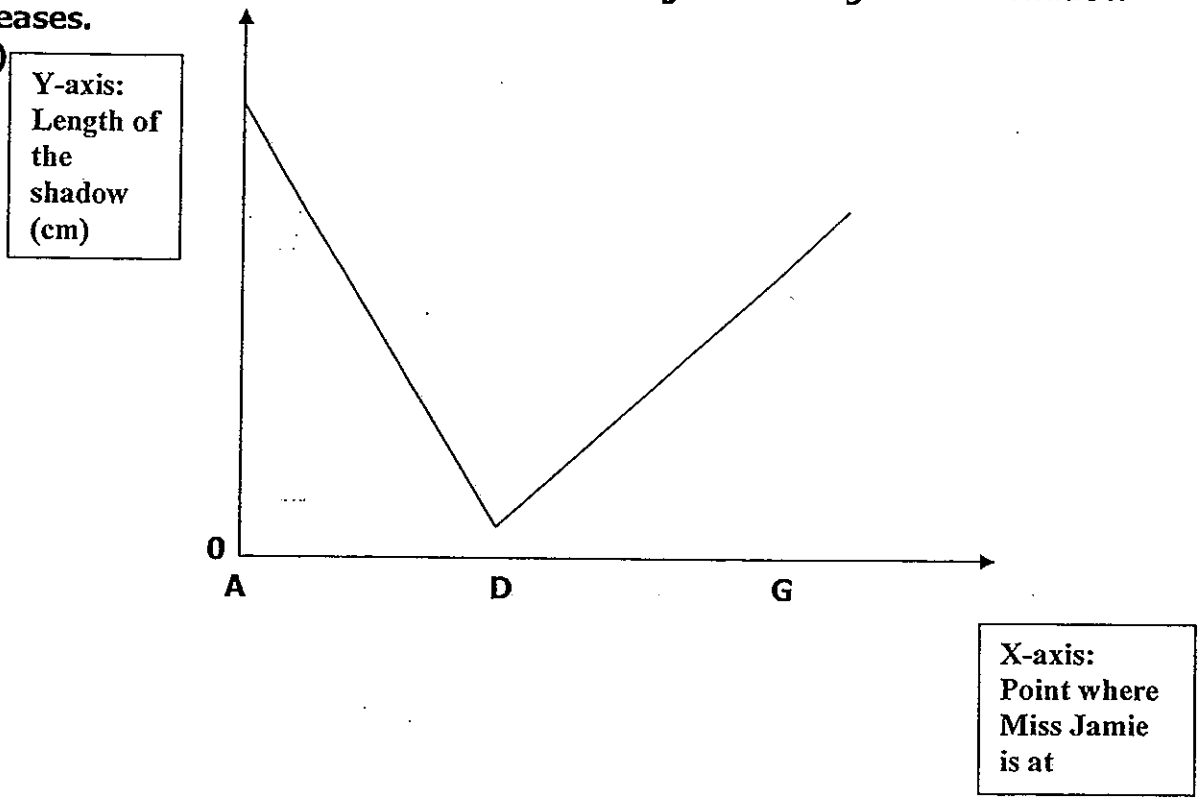
b)From point Y, there is a decrease in the population of grasshopper. The grasshoppers habitat is being destroyed by the development and the grasshoppers had either moved away of died.

41)a)B D
C F

b)Animal F is E's predator. When the population of E decreases there will be less food for F and so some off to decrease F is at the end to the food web so the number of F should be the least.

42)a)As the distance between Miss Jamie and the lamp post decreases the length of her shadow decrease so the length of her shadow decreases until she is below the lamp. As the distance increases again the length of her shadow increases.

b)



43)a)Q P

b)To find out how the presence of a heater will affect the time taken for the ice to melt completely.

c)Set-up Q. The water has reached boiling point and some of the water had turned into steam.

44)a)The different magnets with different strength.

Distance D.

b)Magnet C is the strongest magnet followed by Magnet B and Magnet A is the weakest magnet.