



PRIMARY 6 SEMESTRAL ASSESSMENT 2 - 2012

Name : _____ () Date: 24 July 2012

Class : Primary 6 ()

Time: 8.00 a.m. - 9.45 a.m.

Duration : 1 hour 45 min

Parent's Signature : _____

Marks: _____ / 60

SCIENCE BOOKLET A

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

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

Follow all instructions carefully.

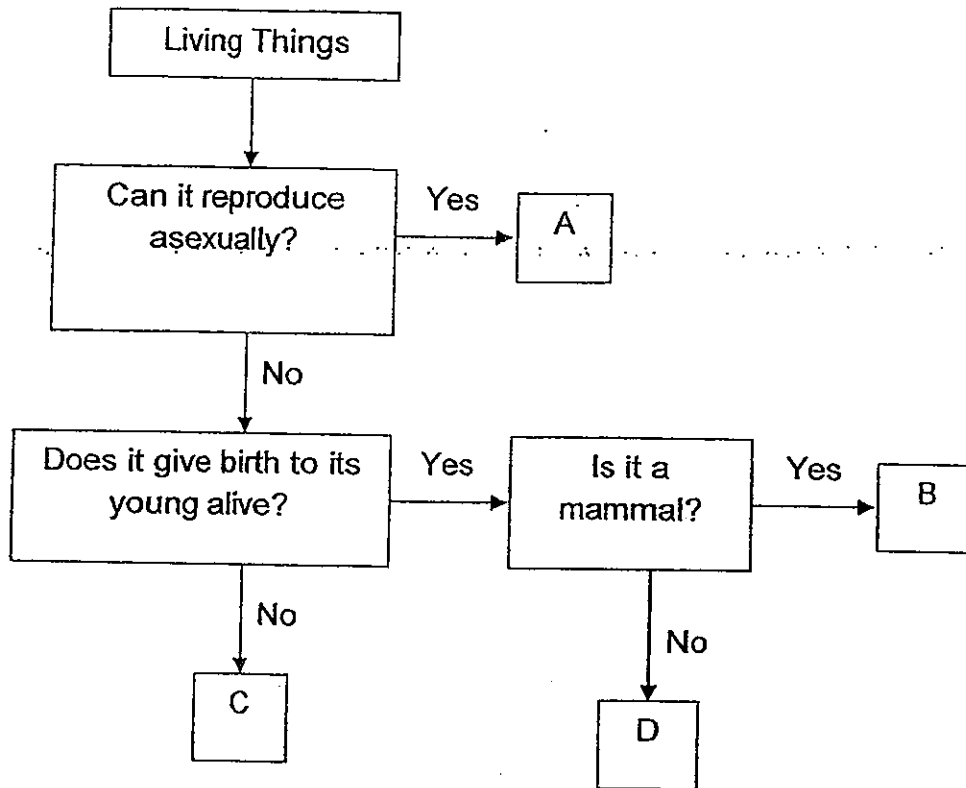
Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

Section A (30 x 2 marks)

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

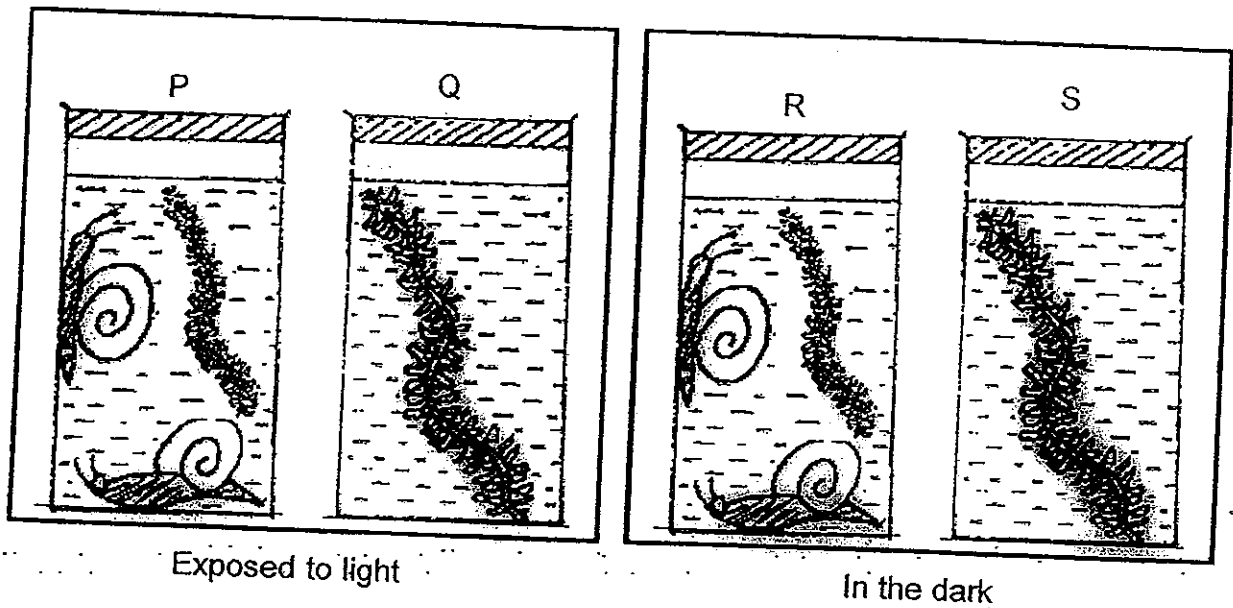
1 Study the flowchart below carefully.



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

	A	B	C	D
(1)	bougainvillea	duck	eagle	dolphin
(2)	yeast	bat	damselfly	guppy
(3)	duckweed	ostrich	frog	shark
(4)	African tulip	platypus	tortoise	goldfish

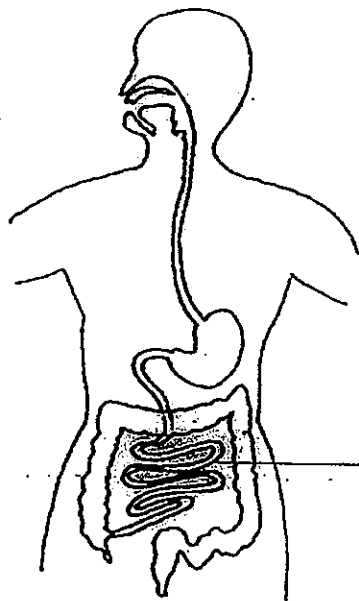
- 2 Four sealed tubes containing aquatic plants and animals were set up as shown below for a month.



At the end of the month, only the organisms in set-up Q were alive. What does the results of this experiment show?

- (1) Living things need light to survive.
- (2) Living things need food to survive.
- (3) Plants can only make food in the light.
- (4) There is insufficient dissolved oxygen in the water.

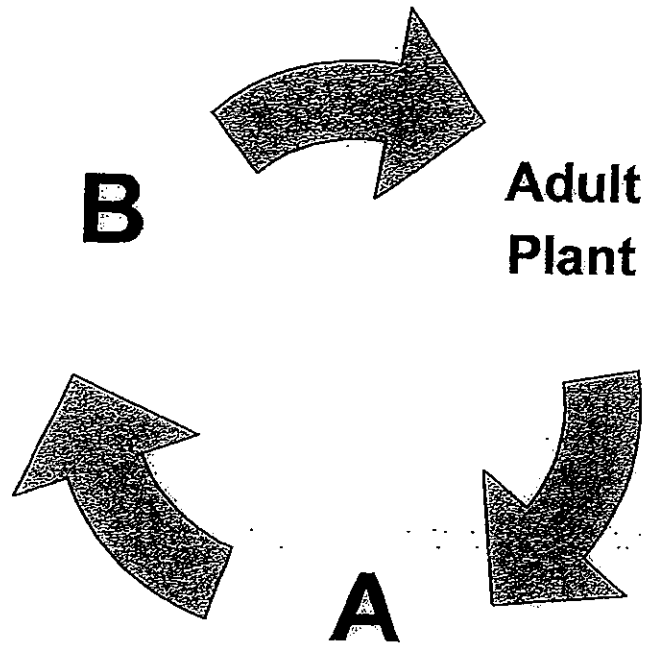
3 The diagram below shows part of the human digestive system.



Which of the following takes place at the part labelled A?

- (1) Digestion of food starts
- (2) Storage of undigested food
- (3) Absorption of digested food
- (4) Removal of water from undigested food

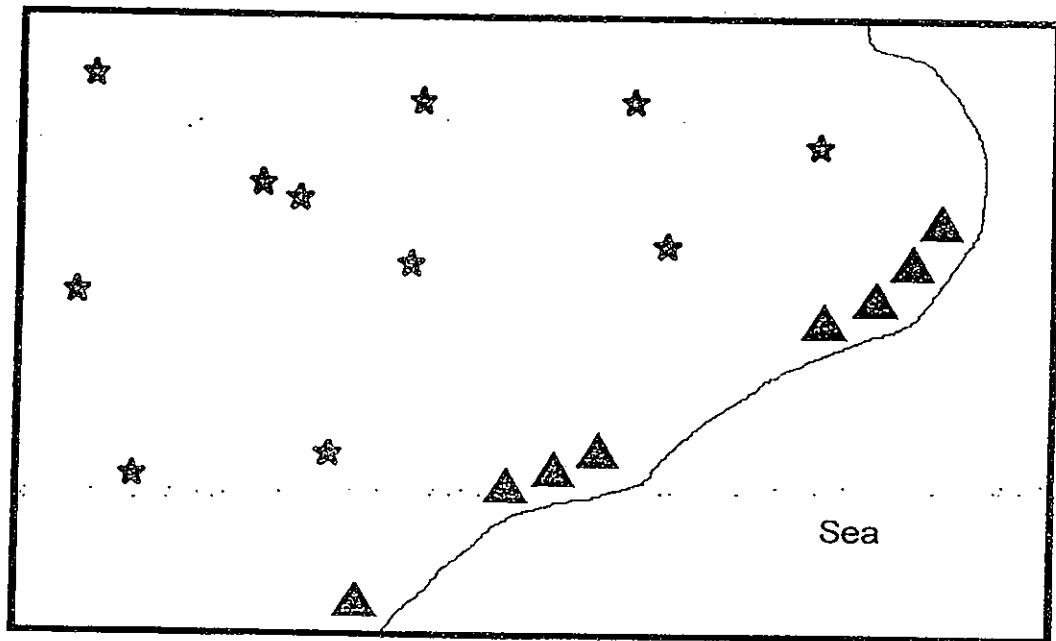
- 4 Study the life cycle of a flowering plant below. A and B represent the different stages of the life cycle.



Which one of the following statements about the stages of the life cycle of the plant is true?

- (1) Germination occurs at Stage A.
- (2) The plant is able to make food at Stage A.
- (3) The plant is able to bear flowers that develop into fruits at Stage B.
- (4) The plant needs only water and carbon dioxide to survive at Stage B.

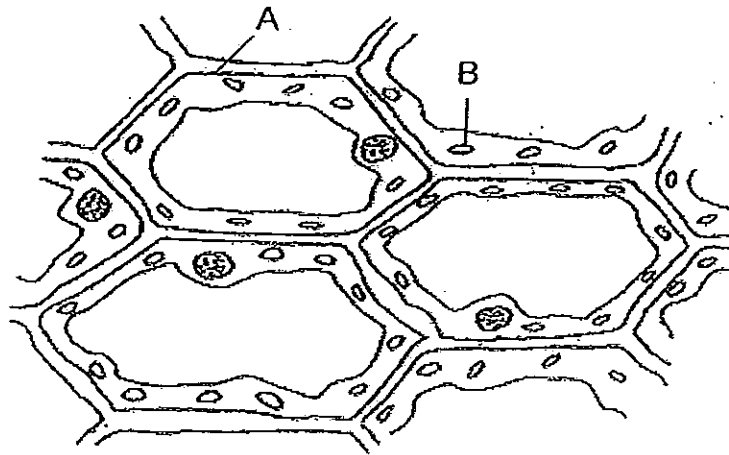
- 5 The diagram shows a coastal area where two types of plants (★, ▲) are growing.



How are the fruits or seeds of each type of plant most likely dispersed?

	▲	★
(1)	Water	Animals
(2)	Animals	Wind
(3)	Water	Splitting Action
(4)	Splitting Action	Wind

- 6 The diagram below shows some plant cells under a microscope.



Which of the following statements is true of Part A or Part B?

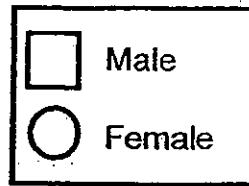
- (1) Part A provides the cell with a fixed shape.
- (2) Part A controls the substances moving in and out of the cell.
- (3) Part B contains cytoplasm.
- (4) Part B controls the activities of the cell.

7 Study the following relationships between A, B and C.

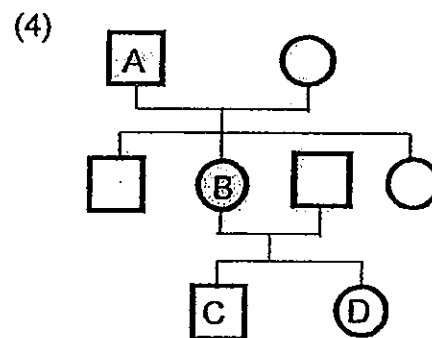
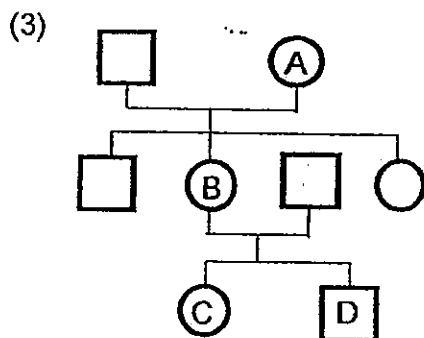
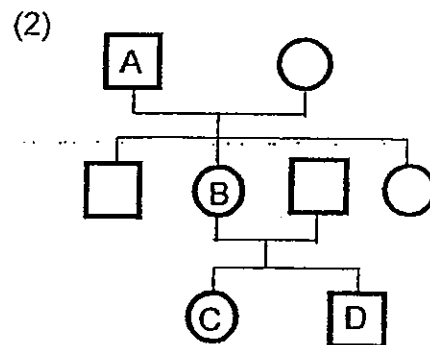
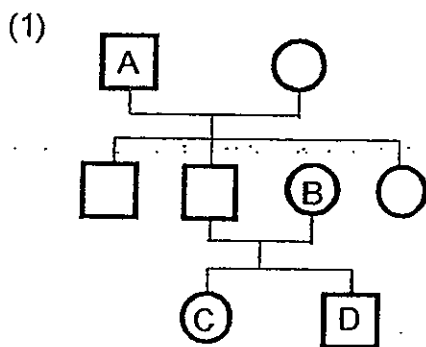
A is the father of B.

B is the mother of C.

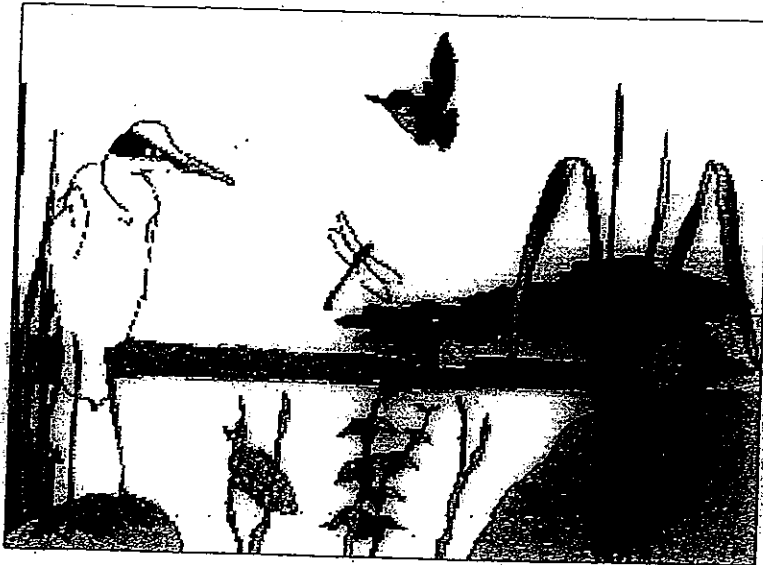
C is the brother of D.



Given the legend, which of the following family trees shows the relationship described?



- 8 The diagram below shows a pond community.



What is the source of energy for all the organisms in the pond above?

- (1) The sun
- (2) The aquatic plant
- (3) The water snail
- (4) The fish

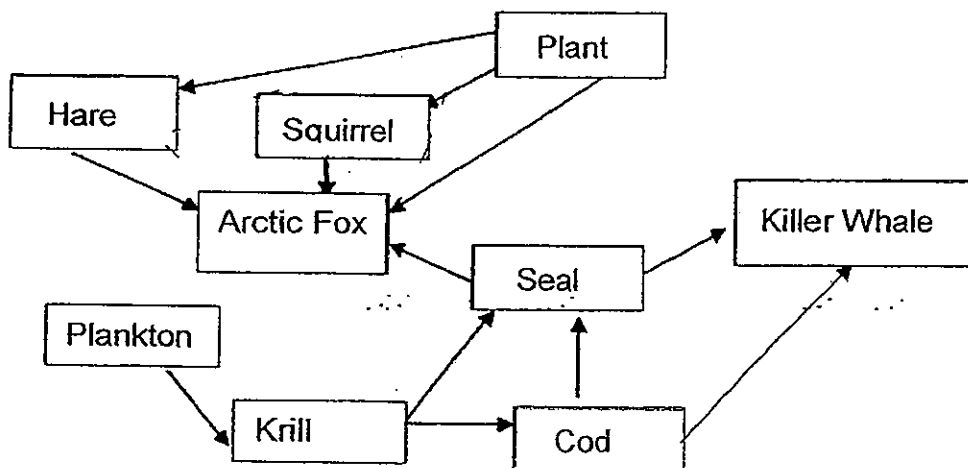
- 9 The table below shows the organisms in different communities.

Community X	Community Y	Community Z
Clownfish	Spider	Pondskater
Sea Anemone	Centipede	Tadpole
Horseshoe crab	Scorpion	Dragonfly nymph

Which of the following is correctly classified?

	Community X	Community Y	Community Z
(1)	Fighting Fish	Frog	Kingfisher
(2)	Starfish	Millipede	Water Hyacinth
(3)	Seahorse	Bracket fungus	Woodlouse
(4)	Prawn	Ladybird	Water Banana

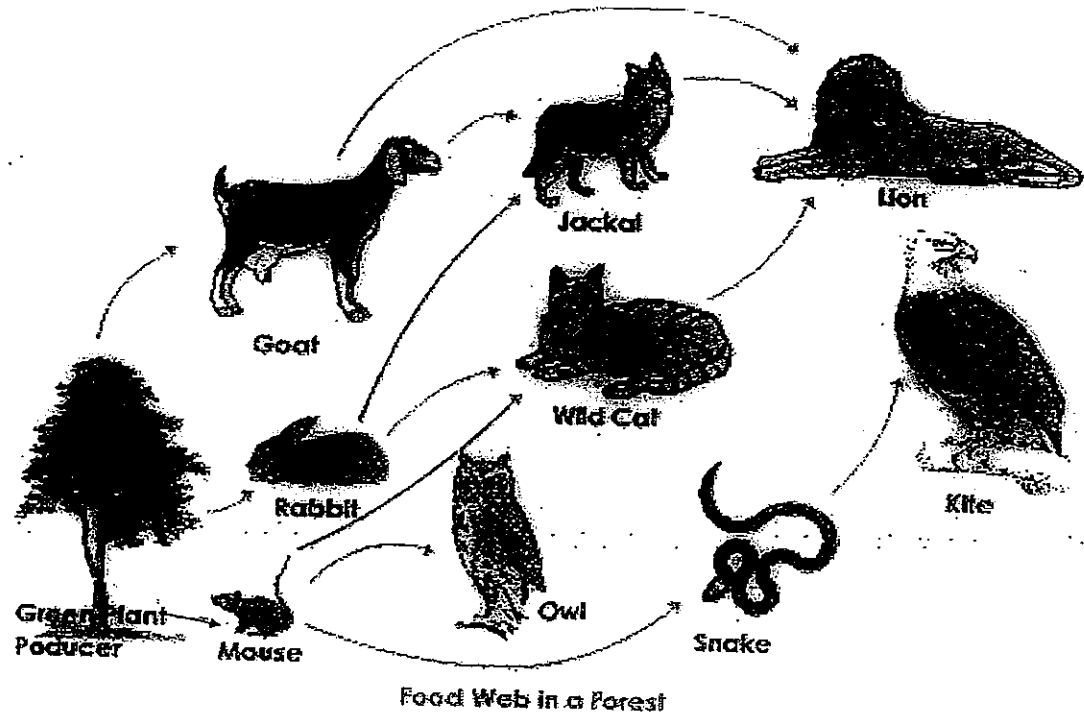
- 10 Study the food web in the Arctic region below.



How many food chains are there involving the arctic fox?

- (1) Three
- (2) Four
- (3) Five
- (4) Seven

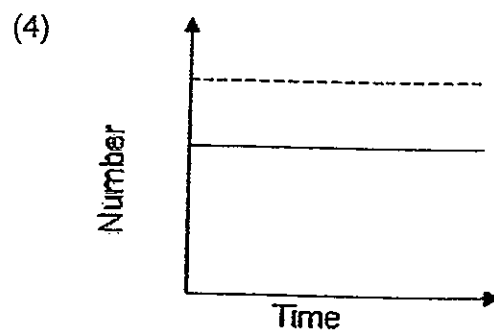
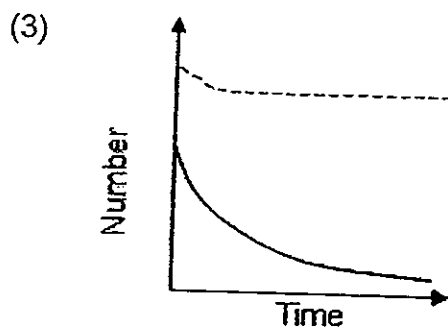
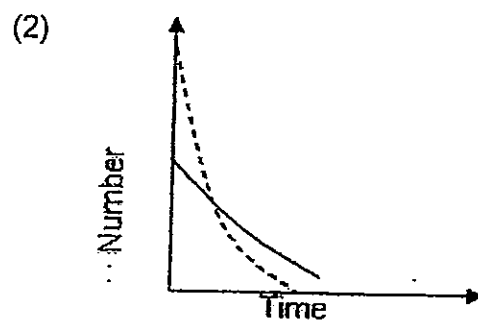
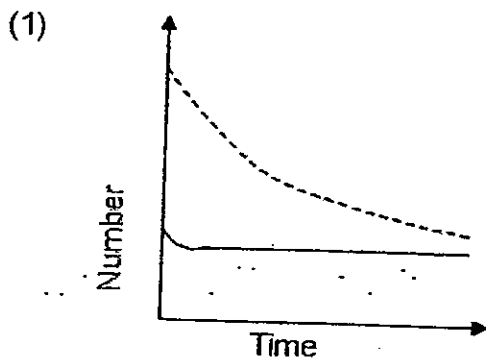
- 11 A disease killed the mouse in the food web below. Which of the following graphs would show the immediate change in population of the lion and owl?



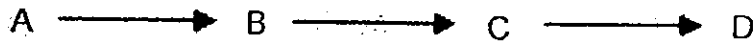
Key:

----- Owl

_____ Lion



- 12 The diagram below shows a simple food chain in a forest ecosystem. A, B, C and D are organisms in the food chain.



If there was a sudden decrease in the amount of carbon dioxide in the atmosphere, which one of the following groups of organisms, A, B, C or D, would be affected first?

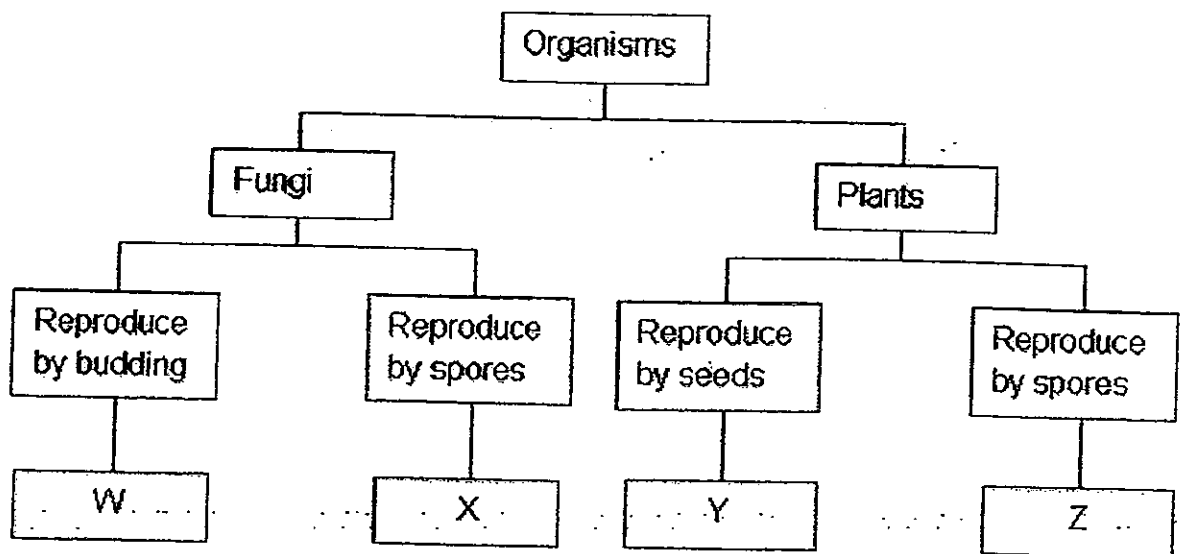
(1) A

(2) B

(3) C

(4) D

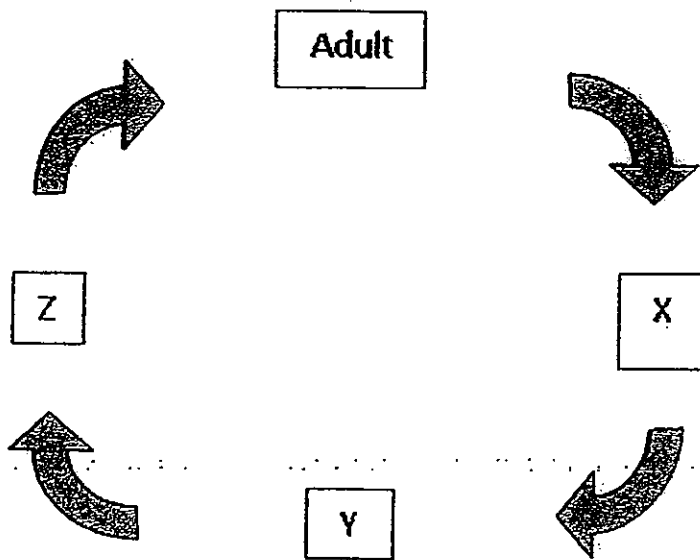
13 Four organisms are classified as shown below.



What do W, X, Y and Z represent?

	W	X	Y	Z
(1)	Button Mushroom	Onion	Bird's Nest Fern	Yeast...
(2)	Bird's Nest Fern	Yeast	Button Mushroom	Onion
(3)	Yeast	Bird's Nest Fern	Onion	Button Mushroom
(4)	Yeast	Button Mushroom	Onion	Bird's Nest Fern

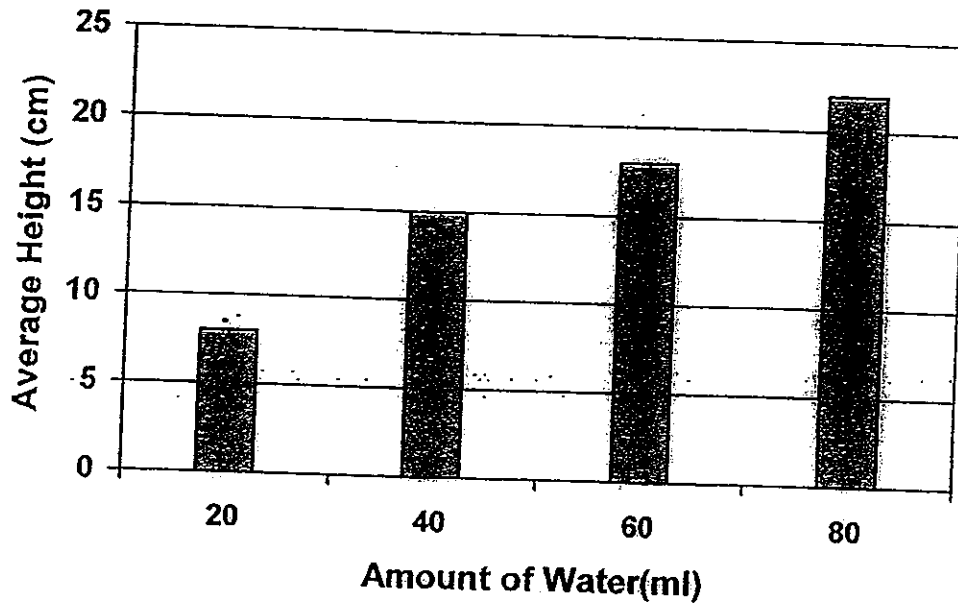
14 Below shows stages in the life cycle of a butterfly.



At which stage of the life cycle of the butterfly is it most harmful to plants in a garden?

- (1) Adult
- (2) X
- (3) Y
- (4) Z

- 15 A farmer planted the same number of string bean seedlings in 4 pots. He watered them daily with different amounts of water. He measured the height of the seedlings in each pot after 10 days and plotted their average heights in the bar graph below. The seedlings are considered to have grown well if they have grown at least 15 cm after 10 days.

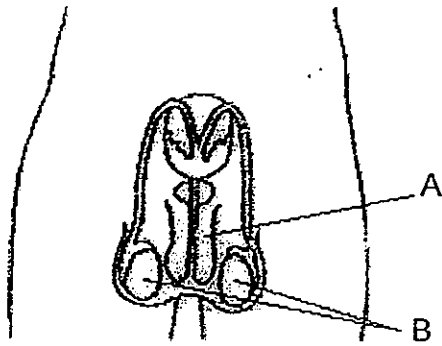


Based on the bar graph, what is the least amount of water to be given to the seedlings per day to ensure that they grow well?

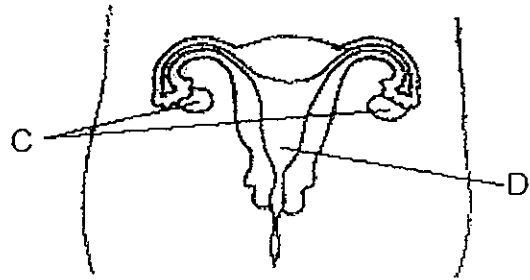
- (1) 20 ml
- (2) 40 ml
- (3) 60 ml
- (4) 80 ml

16 Study the diagram of the human reproductive system below.

Male Reproductive System



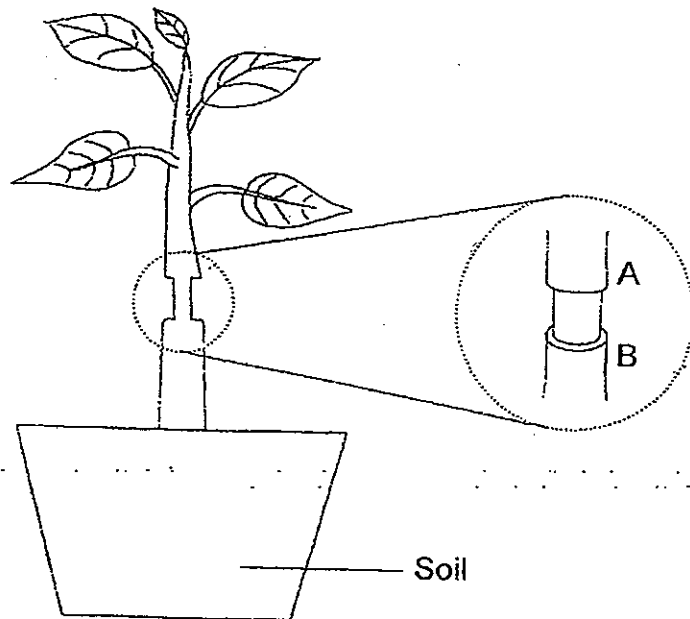
Female Reproductive System



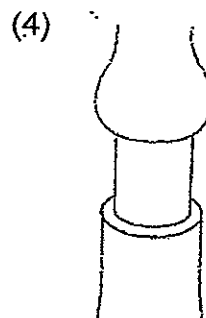
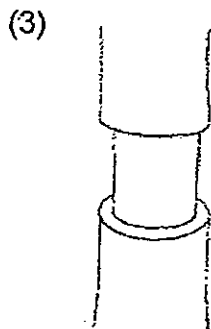
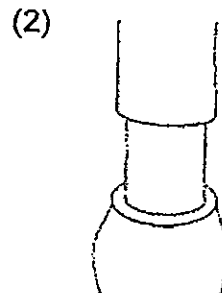
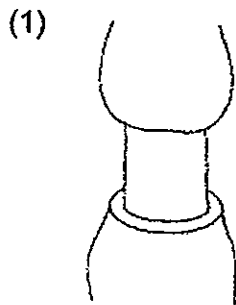
Which parts of the reproductive systems shown above produce the sperm and eggs respectively?

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

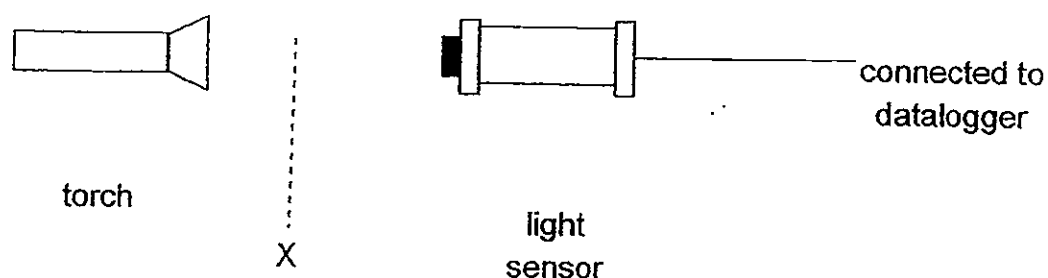
- 17 An outer ring of the stem between positions A and B of a plant is removed. The tubes which carry food between positions A and B are removed while the tubes which carry water remain in the stem.



After some time, which one of the following diagrams represents the appearance of the stem?



- 18 Joshua set up an experiment to count the number of sheets of paper. Position X refers to where the papers are placed.



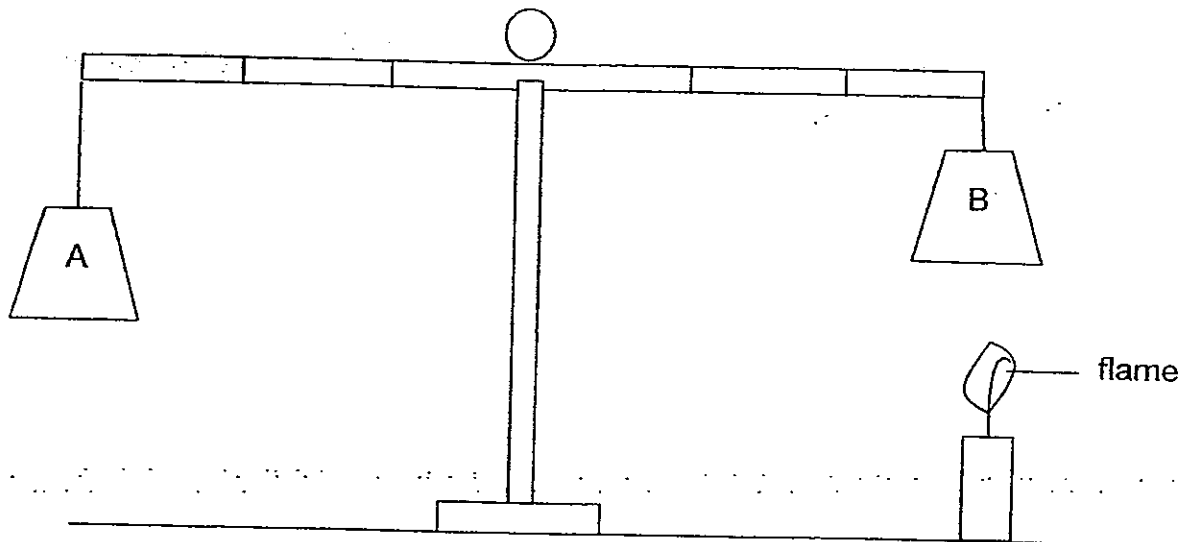
He increased the number of sheets of paper of the same type and recorded his readings in the table below.

Readings on the datalogger for different number of sheets of paper	
Number of sheets of paper	Amount of light (lux)
0	80
1	40
2	20
3	10
4	0
5	0

What changes should Joshua make to the set-up if he wants to count up to 6 sheets of the same type of paper?

- (1) Move the torch nearer to the paper.
- (2) Move the light sensor further away from the torch.
- (3) Move the light sensor further away from the papers.
- (4) Increase the distance between the torch and the light sensor.

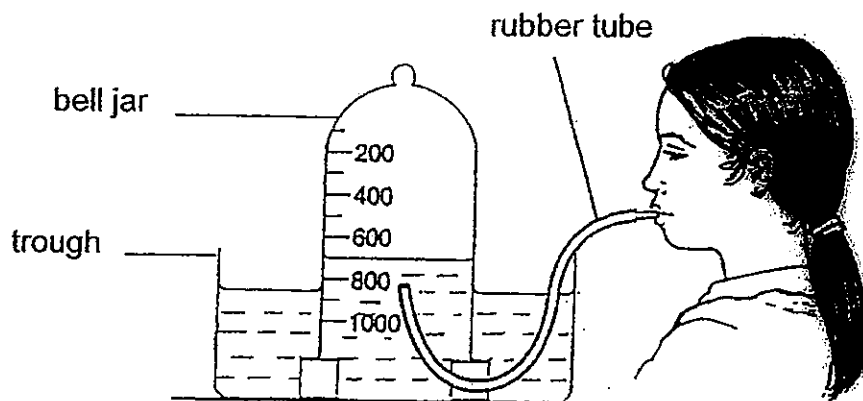
- 19 Two cups of similar shape and thickness, A and B, are hung on a rod. They are balanced when a lit candle is placed under the cup, B. Cup B is made of cardboard.



Based on the diagram, which of the following statements is definitely true?

- (1) The cup, A, is made of steel.
- (2) The cup, A, is lighter than the cup, B.
- (3) The cup, B, is able to withstand high heat.
- (4) The cups, A and B, are made of the same material.

20 Huiling set up an experiment as shown below.



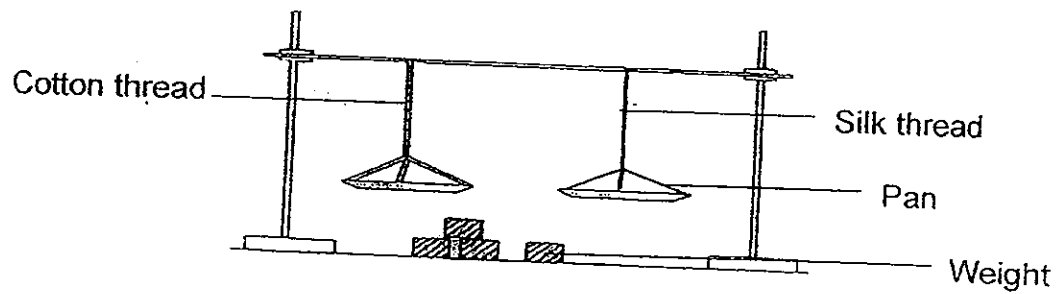
She blew into the rubber tube and made the following observations.

- A: The water level in the trough rose.
- B: The water level in the bell jar dropped.
- C: Bubbles were observed in the water in the bell jar.

Based on the above observations, what can Huiling conclude about the property of air?

- (1) Air is a gas.
- (2) Air occupies space.
- (3) Air does not have a definite shape.
- (4) Air does not have a definite volume.

- 21 Jamie used similar lengths of cotton thread and silk thread to set up the experiment below.

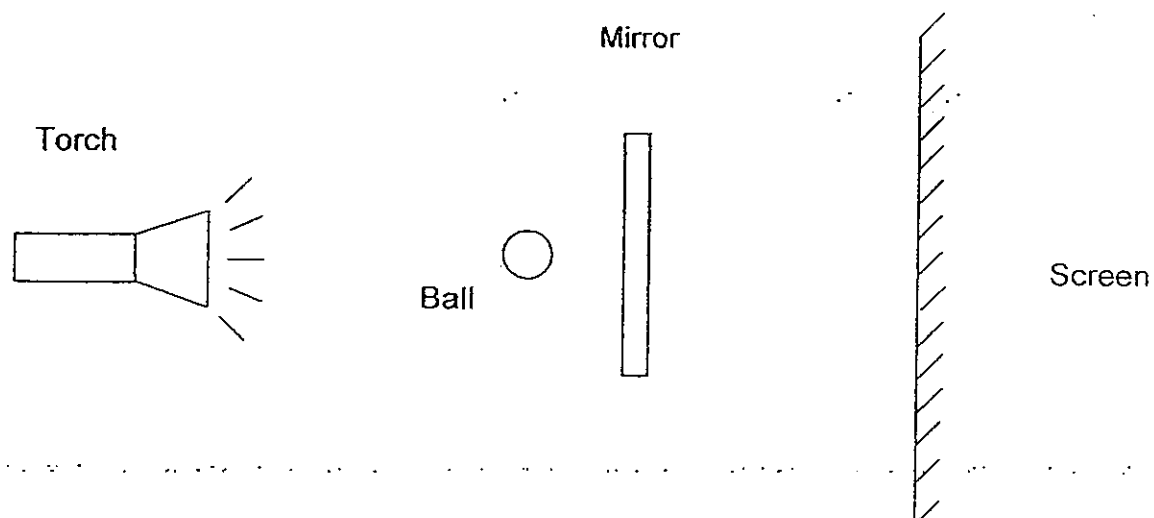


After adding 3 identical weights to each pan, the cotton thread snapped while the silk thread did not. She repeated the experiment twice and obtained the same results.

What can Jamie infer from the results of her experiment?

- (1) The silk thread is harder than the cotton thread.
- (2) The silk thread is lighter than the cotton thread.
- (3) The silk thread is stronger than the cotton thread.
- (4) The silk thread is more flexible than the cotton thread.

22 The diagram below shows a torch shining on a ball and a square mirror.

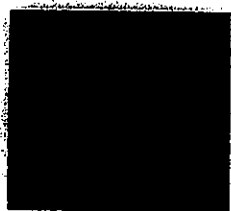


Which of the following shows the correct shadow cast on the screen?

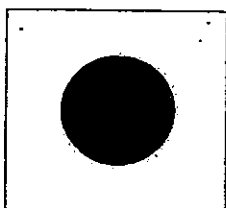
(1)



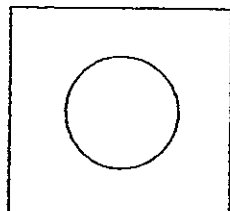
(2)



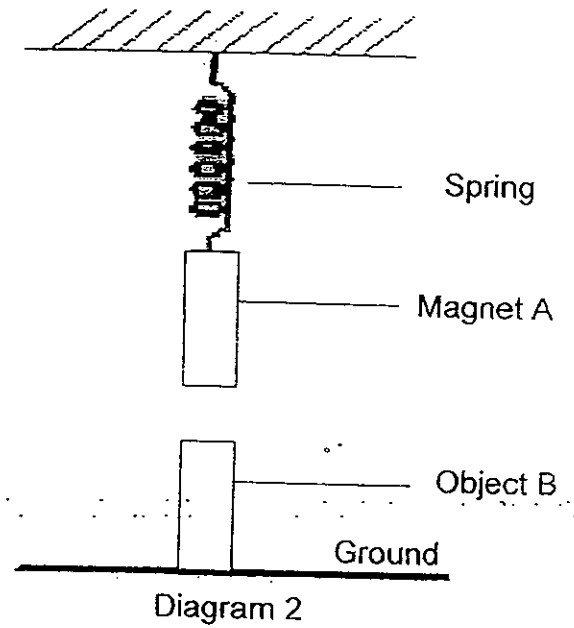
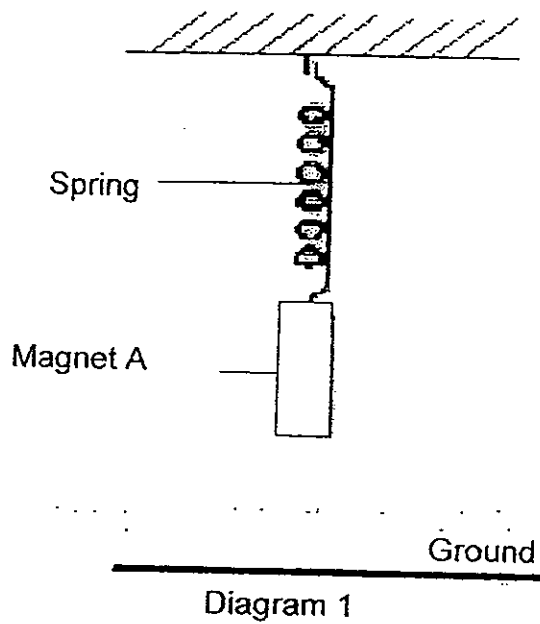
(3)



(4)



- 23 Magnet A is hung from a spring as shown in Diagram 1. Object B is then placed on the ground, directly below Magnet A as shown in Diagram 2.

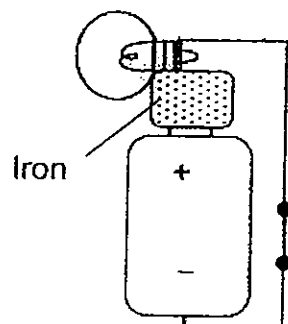


Which of the following is a possible explanation for the spring stretching less in Diagram 2?

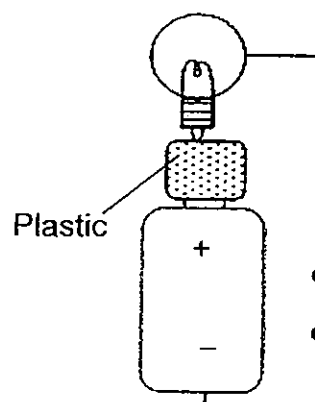
- (1) Object B repelled Magnet A.
- (2) Magnet A is attracted to Object B.
- (3) The spring is repelled by Object B.
- (4) Object B caused Magnet A to be lighter.

24 In which of the following circuits will the bulb light up?

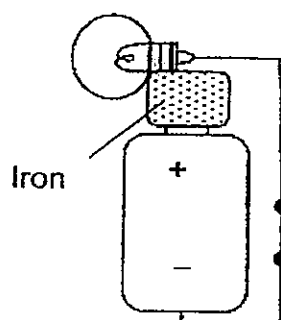
(1)



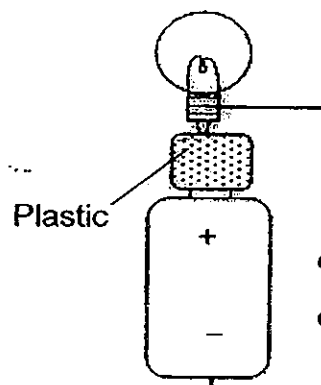
(2)



(3)



(4)



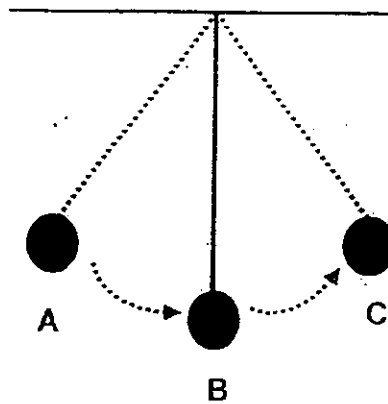
25 Study the table below.

	Freezing Point (°C)	Boiling Point (°C)
Substance R	10	50
Substance S	35	110
Substance T	-8	140

Which of the following is true?

- (1) R and S are solids at 0 °C.
- (2) R and S are gases at 75 °C.
- (3) R and T are liquids at 0 °C.
- (4) S and T are liquids at 125 °C.

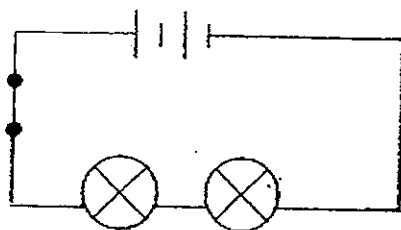
- 26 The diagram below shows a pendulum swinging from position A to position C.



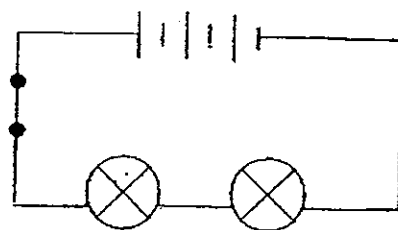
Which of the following shows the energy conversion of the pendulum swinging from position A to position C.

	A	B	C
(1)	Kinetic Energy	Gravitational Potential Energy	Kinetic Energy
(2)	Gravitational Potential Energy	Kinetic Energy	Gravitational Potential Energy
(3)	Gravitational Potential Energy	Kinetic Energy	Kinetic Energy
(4)	Kinetic Energy	Kinetic Energy	Gravitational Potential Energy

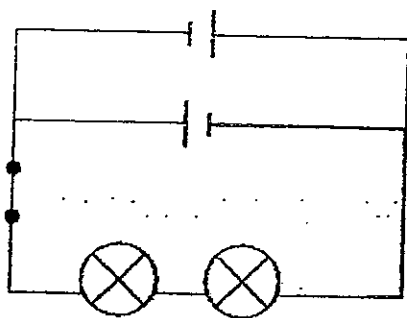
27 Study the four circuits A, B, C and D shown below.



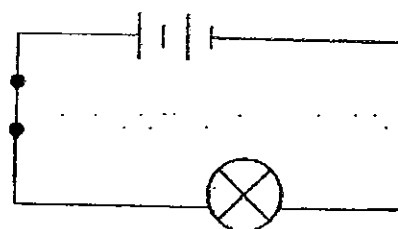
circuit A



circuit B



circuit C

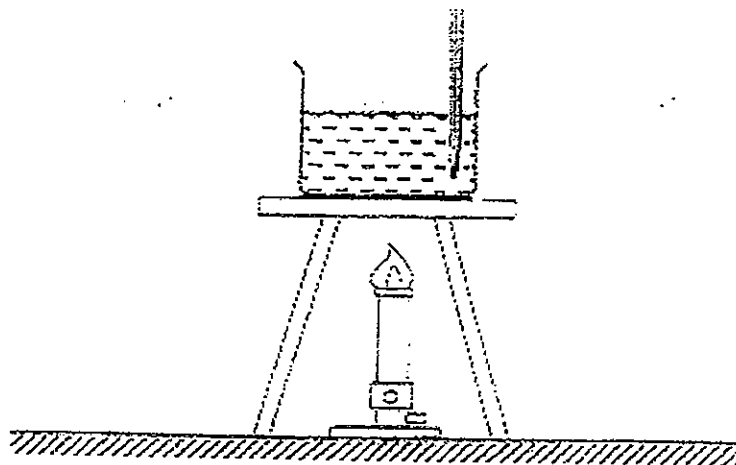


circuit D

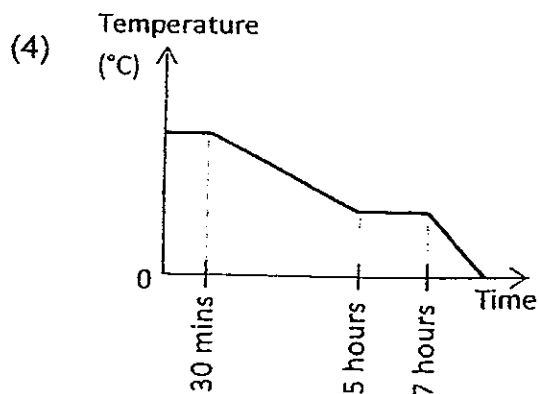
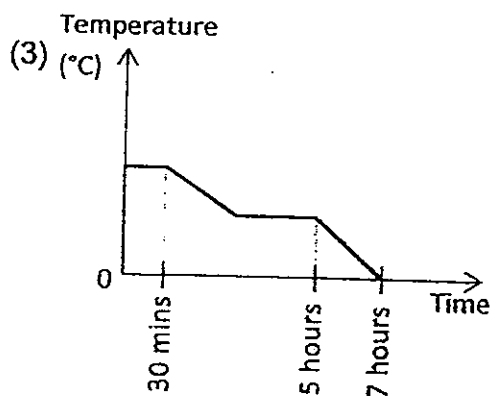
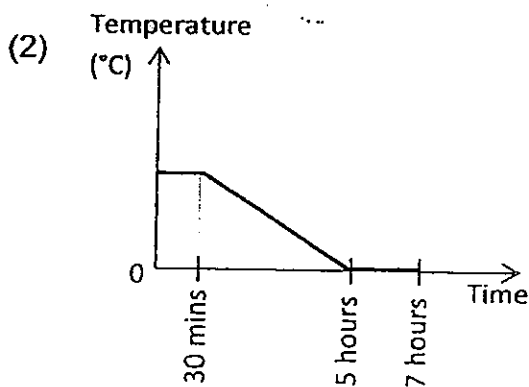
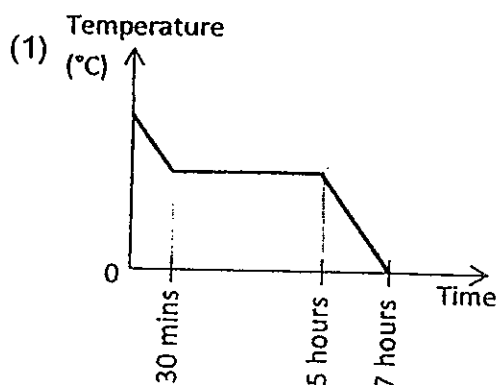
The bulbs and batteries in the four circuits are identical. Which one of the following statements about the brightness of the bulbs is correct?

- (1) Each bulb in circuit A is as bright as each bulb in circuit C.
- (2) Each bulb in circuit B is brighter than the bulb in circuit D.
- (3) Each bulb in circuit C is brighter than each bulb in circuit B.
- (4) The bulb in circuit D is brighter than each bulb in circuit A.

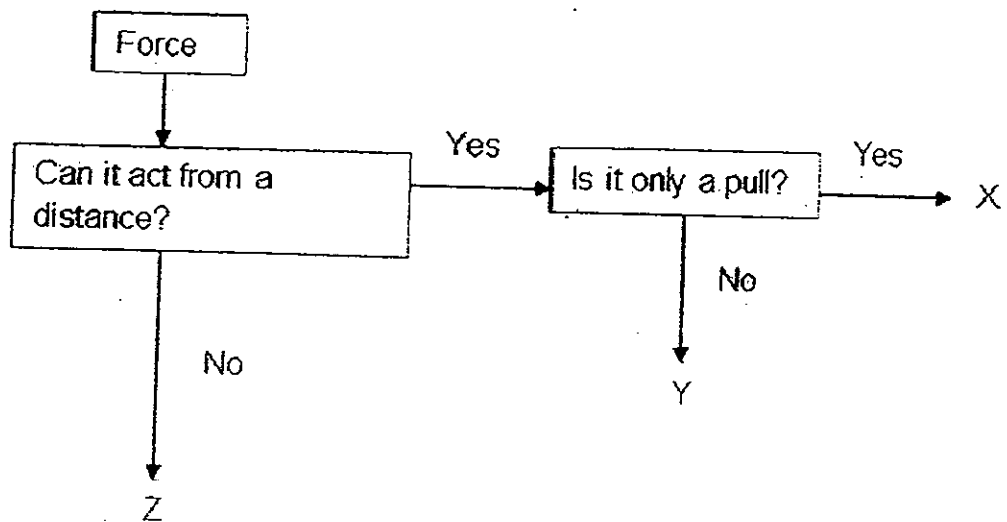
- 28 Colette measured the temperature of some boiling water as shown in the diagram below.



Colette turned off the flame after 30 minutes. She monitored the temperature of the water for 5 hours before putting the beaker of water in the freezer and left it there for 2 hours for the water to be frozen. Which of the following graphs correctly represent the change of the temperature of the water over this period?



29 Use the flow chart below to identify the forces, X, Y and Z.



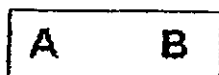
What could the forces, X, Y and Z be?

	X	Y	Z
(1)	Elastic Spring Force	Magnetism	Weight
(2)	Friction	Water Resistance	Elastic Spring Force
(3)	Magnetism	Air Resistance	Weight
(4)	Gravity	Magnetism	Elastic Spring Force

- 30 Betty conducted an investigation using a bar magnet and some paper clips. She marked different positions on a bar magnet with letters A, B, C and D. She cut the magnet in the middle to form 2 magnets. She counted the number of paper clips that could be attracted to the different positions on the magnets.



Before Cutting



After Cutting

Which one of the following sets of reading was she likely to obtain for her investigation?

	Number of paper clips attracted at A	Number of paper clips attracted at B	Number of paper clips attracted at C	Number of paper clips attracted at D
(1)	5	1	1	5
(2)	1	5	5	1
(3)	5	5	5	5
(4)	1	1	5	5

----- End of Booklet A -----



PRIMARY 6 SEMESTRAL ASSESSMENT 2 - 2012

Name : _____ () Date: 24 July 2012

Class : Primary 6 ()

Time: 8.00 a.m. - 9.45 a.m.

Duration : 1 hour 45 min

Parent's Signature : _____

Marks: _____ / 40

SCIENCE BOOKLET B

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

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

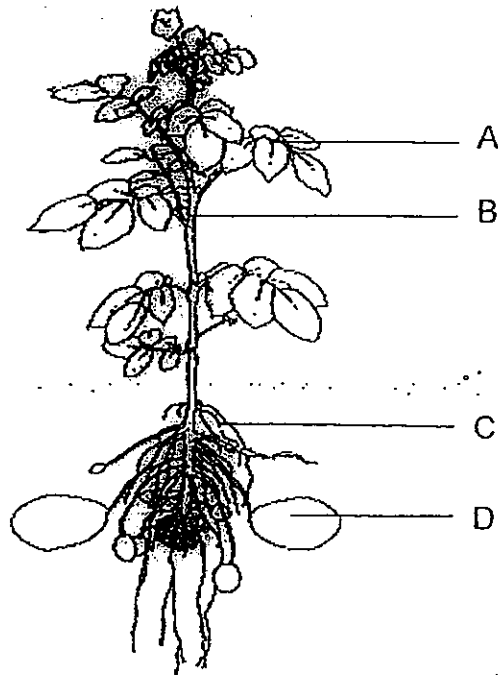
Follow all instructions carefully.

Answer all questions.

Section B (40 marks)

Write your answers for the questions, 31 to 44, in the spaces provided.

31 The diagram below shows a potato plant.



(a) Identify the part of the plant, A, B, C or D, that makes food. [1]

(b) Which parts of the plant, A, B, C or D, store starch? [1]

(c) Which part of the plant, A, B, C or D, is involved in the transport of mineral salts to all parts of the plant? [1]

(d) Which part of the plant, A, B, C or D, keeps the plant upright? [1]

- 32 Sophia collected three seeds each of four different plants, W, X, Y and Z. She put the seeds, one by one, in front of a standing fan. Sophia measured the distance travelled by the seeds and recorded her measurements in the table below.

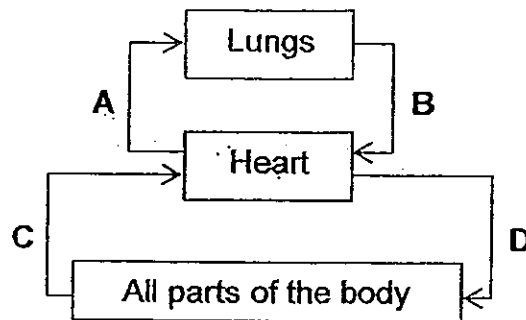
Distance travelled by the seeds of the four different plants				
	W	X	Y	Z
Seed 1	3 cm	34 cm	1 cm	45 cm
Seed 2	2 cm	38 cm	2 cm	50 cm
Seed 3	4 cm	33 cm	3 cm	37 cm
Average	3 cm	35 cm	2 cm	44 cm

- (a) Which plants, W, X, Y or Z, have seeds that are most likely to be dispersed by wind? [1]

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

- (c) Why did Sophia repeat the experiment 2 times and calculate the average distance travelled by the seeds? [1]

33 The diagram below represents the circulatory system of a human being.

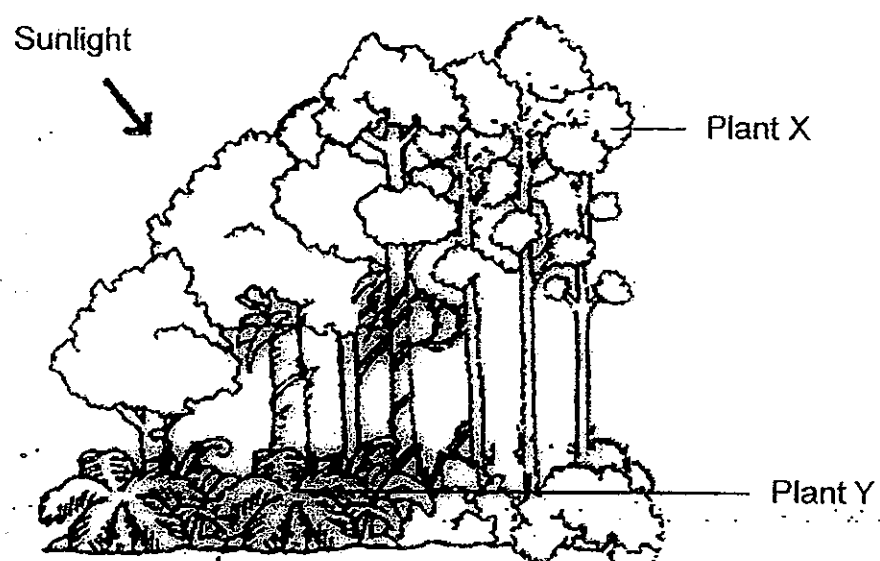


- (a) In which blood vessel, A, B, C or D would the blood contain the most amount of oxygen? [1]

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

- (c) At blood vessel C, would the blood contain more carbon dioxide and less oxygen as compared to blood vessel D? Explain. [2]

34 Look at the picture of the forest below.



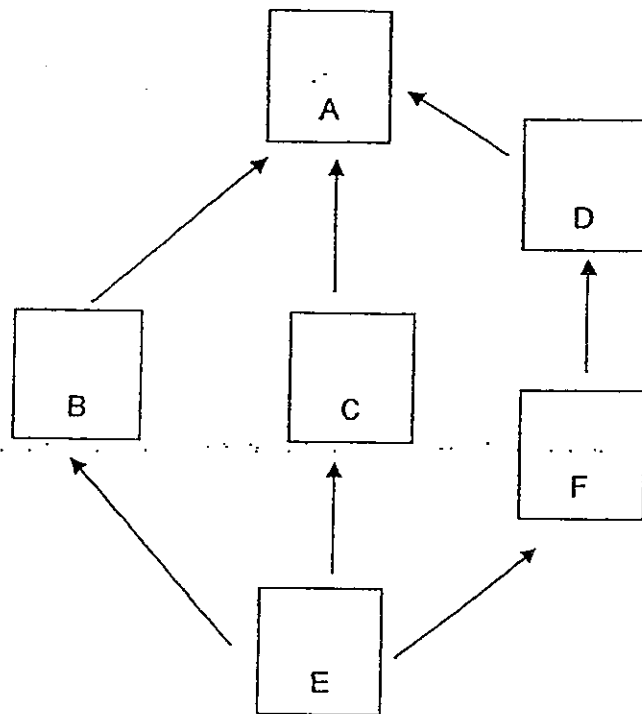
- (a) Describe how Plant X and Plant Y are adapted to obtain sunlight [2]
for making food.

Plant X - _____

Plant Y - _____

- (b) How is the leaf litter important to Plant X and Plant Y? [2]

- 35 A, B, C, D, E and F are organisms found in a school field. Their food relationships are shown in the food web below.



Match the organisms, A, B, C, D, E and F, to the descriptions in the table below. [2]

	Description	Organism
(a)	The organism which is both a prey and a predator.	
(b)	The organism which gets its energy directly from the sun.	
(c)	The organism which most likely has the smallest population.	
(d)	The organism which competes with B and C for food.	

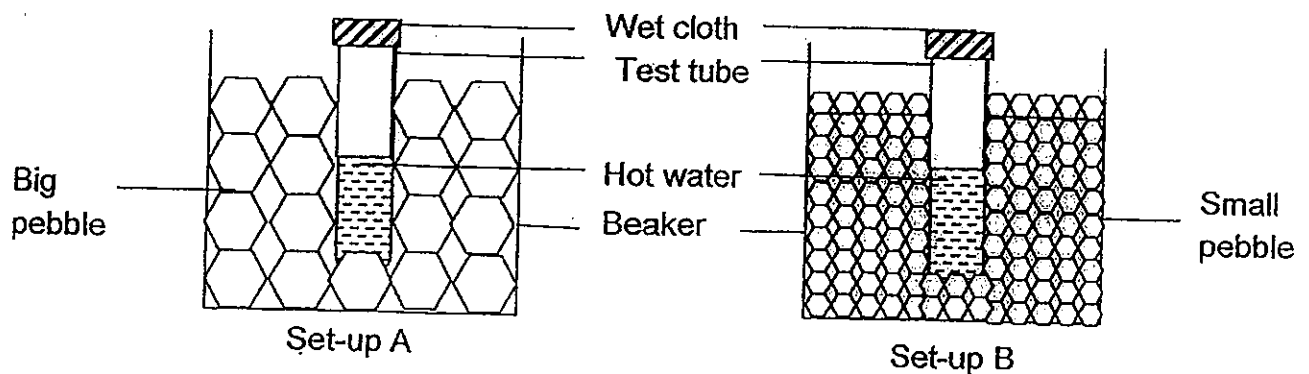
- 36 The table below shows the number of red blood cells present in the blood of people living at different heights above sea level.

Height above sea level (metres)	Number of red blood cells (million per mm ³ blood)
0	5.0
1 000	5.6
2 000	6.2
3 000	6.6
4 000	7.4
5 000	7.8
6 000	8.1

- (a) What is the relationship between the number of red blood cells in the human body and the height above sea level at which the people live? [1]

- (b) The amount of oxygen decreases as the height above sea level increases. Explain the advantage of this change in the number of red blood cells to people living in mountainous areas. [1]

- 37 John set up an experiment to find out if the size of the pebbles affects how fast the hot water at 70°C in the test tubes could cool down.



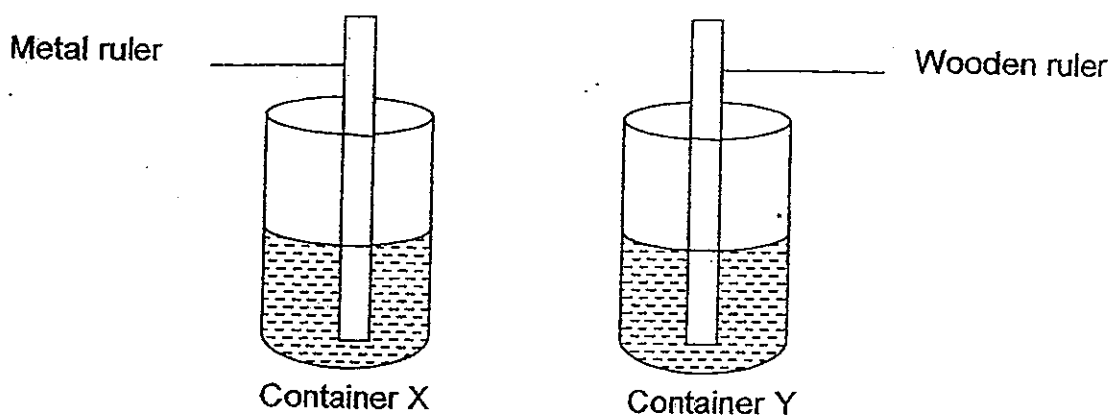
- (a) What should he measure at the end of the experiment? [1]

- (b) Based on your answer in (a), how would you determine which set-up's water, A or B, cooled faster? [1]

- (c) John found out that the hot water in set-up B cooled faster. [1]
Explain why it happened.

38

The same amount of boiling water was poured into two identical containers, X and Y. Both containers were left on the teacher's table in the classroom.



- (a) In which container, X or Y, would the water reach room temperature first? Explain your answer. [2]

- (b) The stall holder at the coffee shop will always put a metal spoon [1] into the glass cup before pouring in the boiling water to 'protect the cups'. Based on the experiment above, explain why he does so.

39

Ken wanted to find out if some objects would float or sink in water. He did this by putting 6 different objects in a bucket of water.

The table below shows his results.

Object	Material of Object			Results	
	Wood	Plastic	Metal	Floated	Sank
Button		✓		✓	
Toy car			✓		✓
Pencil	✓			✓	
Fork		✓		✓	
Ruler			✓		✓
Toy block	✓			✓	

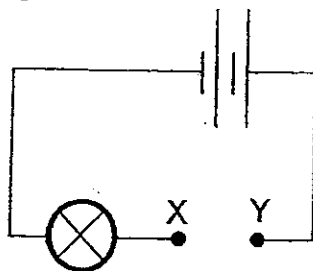
What can be concluded about the material of the objects based on the results? [2]

Wood - _____

Plastic - _____

Metal - _____

40 Bryan set up the following circuit.



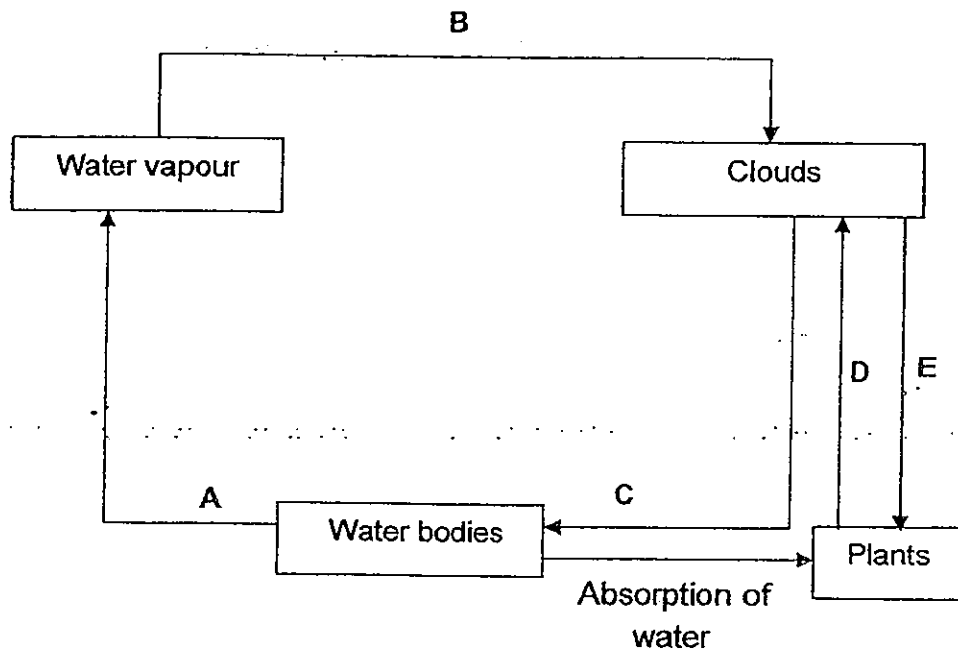
Bryan connected a rod of an unknown material across X and Y and measured the brightness of the bulb with a light sensor. He increased the number of rods and repeated the process and recorded his measurements in the table below.

Number of rods	Brightness of bulb (lux)
1	1250
2	948
3	?
4	678
5	125
6	0
7	0
8	0

- (a) What is the brightness of the bulb when 3 rods were connected [1]
across X and Y?

- (b) What is the relationship between the number of rods and the [1]
brightness of the bulb?

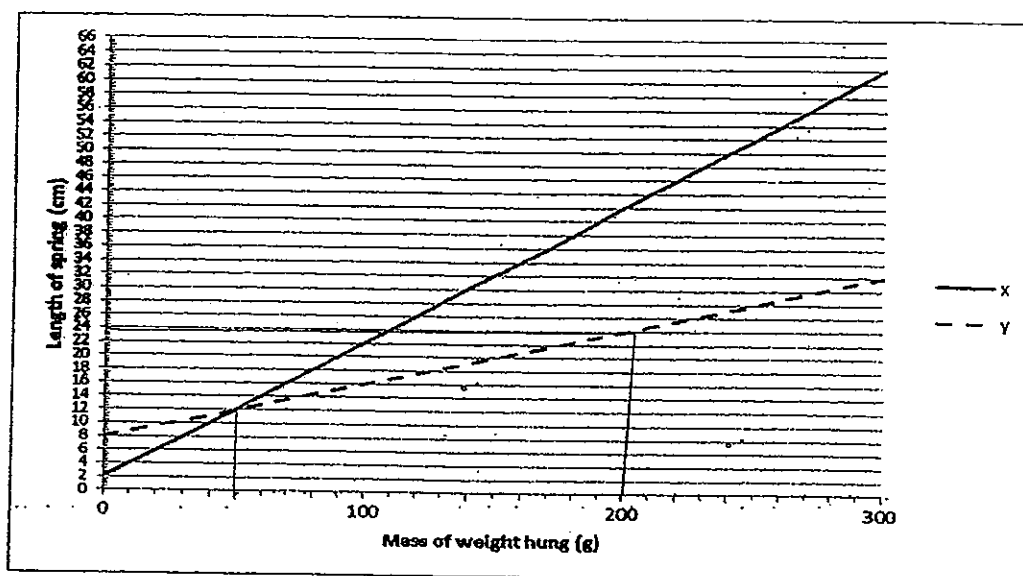
41 The diagram below represents the water cycle.



A, B, C, D and E are stages of the water cycle. Match the stages, A, B, C, D and E to the descriptions below.

	Descriptions	Stages of Water Cycle	
(a)	Change from liquid state to gaseous state:	_____	[1m]
(b)	Change from gaseous state to liquid state:	_____	[1m]
(c)	No change in state:	_____	[1m]

- 42 The graph below shows the length of two springs, X and Y, when different masses of weight were hung on them.



- (a) What is the original length of the springs, X and Y? [1m]

Original length of the spring, X - _____

Original length of the spring, Y - _____

- (b) What is the mass of the weight hung on the spring when the length of the springs, X and Y, are equal? [1m]

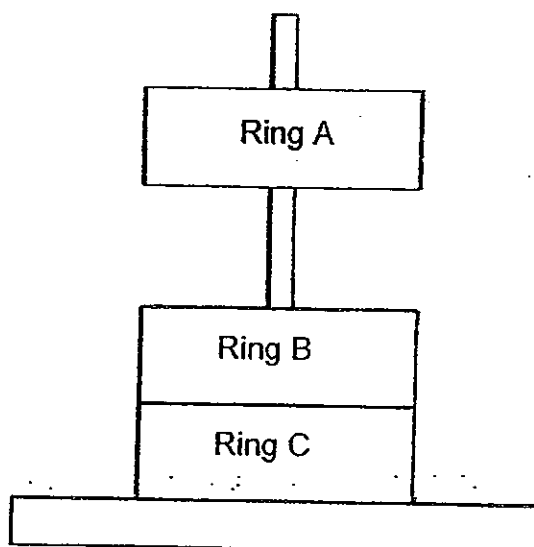
The mass of the weight - _____

- (c) What is the extension of the spring Y when a 200g weight is hung on it? [1m]

The extension of the spring Y - _____

- (d) What is the relationship between the mass of the weight hung on the springs and the length of the springs, X and Y? [1m]

- 43 The set-up below consists of two ring magnets and a plastic ring.



Based on the above diagram, state whether the following statements [2m]
are "True", "False" or "Not possible To Tell" by putting a tick (✓) in the
correct boxes.

Statements	True	False	Not Possible to Tell
Ring A and Ring B are ring magnets.			
Ring C is the plastic ring.			
Ring A is a magnet.			
Ring B and Ring C attract each other.			

- 44 Tom noticed that as he was inflating a balloon, the rubber material was stretched till it was very thin.



- (a) What is the source of energy that caused the material of the [1]
balloon to stretch?

- (b) Tom inflated the balloon until it burst. State the energy changes [1]
that occurred.



----- End of Booklet B -----

Answer Ke

EXAM PAPER 2012

SCHOOL : TAO NAN

SUBJECT : PRIMARY 6 SCIENCE

TERM : SA2

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

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

31)a)Part A.

c)Part B.

b)Part A,B,C and D.

d)Part B.

32)a)Seeds X and Z.

b)The seeds and Z and X traveled further when blown by the fan.

c)It was to ensure that her results were reliable.

33)a)Blood vessel B.

b)The blood at blood vessel B came from the lungs.

c)Yes, the body had used up the oxygen in the blood vessel for respiration and gave out carbon dioxide.

34)a)X: Grows tall to reach for sunlight.

Y: Has big leaves to obtain more sunlight.

b)The leaf litter provides Plant X and Plant Y with nutrients when decomposers break down the dead leaves into to simple substances for heal their growth of the plants.

35)a)D b)E c)A d)F

36)a)As the height above sea level at which the people live increases, the number of red blood cells in the human body increases.

b)The greater number of red blood cells in people living in mountainous areas will help transport more oxygen in the blood to other parts of the body.

37)a)The temperature of the hot water.

b)The set-up's temperature of hot water is lower than the other set-up.

c)Set-up B has a greater surface area of contact so more heat is lost from the test tube to the pebbles.

38)a)Container X. The metal ruler is a better conductor of heat than the wooden ruler so the metal ruler can conduct heat away from the container faster than the wooden ruler so the water in container X will reach room temperature first.

b)He does that to make sure that the metal spoon can conduct heat away from the boiling water fast to prevent the glass cup to gain too much heat.

39)Wood: Floats on water.

Plastic: Floats on water.

Metal: Sinks in water.

40)a)800 lux.

b)As the number of rods increases the brightness of the bulb decreases, when 6 or more rods are connected to the bulb did not light up.

41)a)A b)B,D c)C,E

42)a)2cm 8cm

b)50g

c)16cm

d)As the mass hung on the spring increases, the length of the springs increases.

43)Not

Not

True

False

44)a)The compressed air in side the balloon.

b)Potential energy→Kinetic energy→Sound energy