



RAFFLES GIRLS' PRIMARY SCHOOL
PRELIMINARY EXAMINATION
2008

Name : _____ Index No: _____ Class: P 6 _____

Your score out of 100 marks		
	Class	Level
Highest score		
Average score		
Parent's signature		

21 Aug 2008

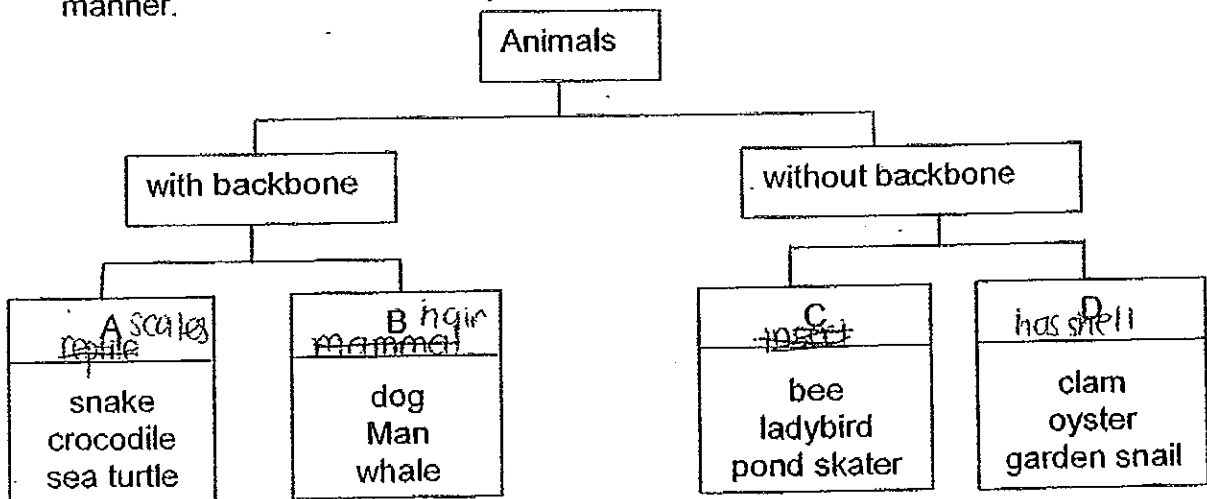
SCIENCE

Att: 1 h 45 min

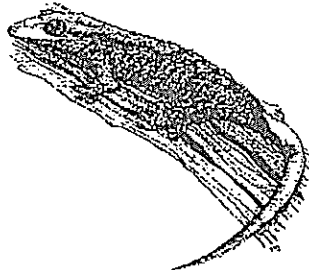
SECTION A (30 X 2 marks)

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 on the Optical Answer Sheet (OAS) provided.

1. The diagram shows that some animals can be grouped in the following manner.



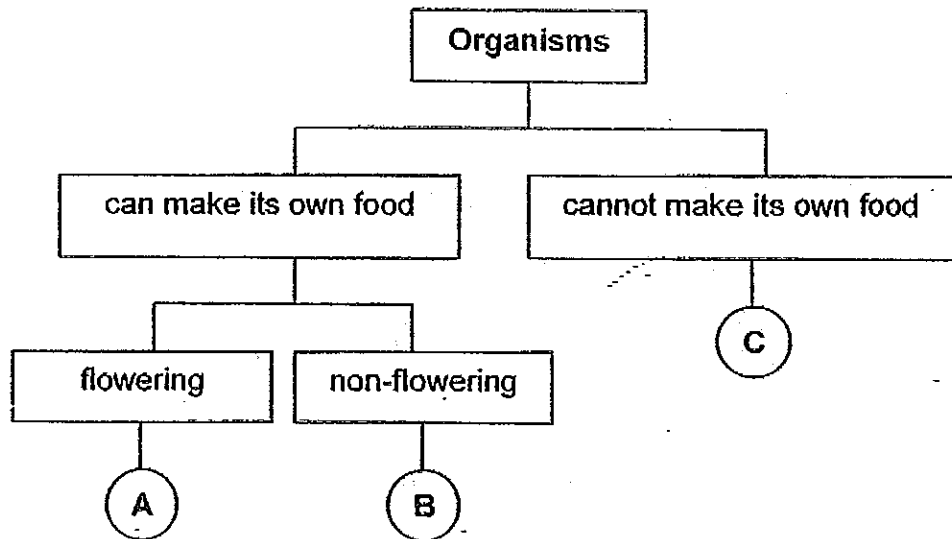
The picture below shows an animal in its actual size.



In which group should the above animal be placed in the diagram above?

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

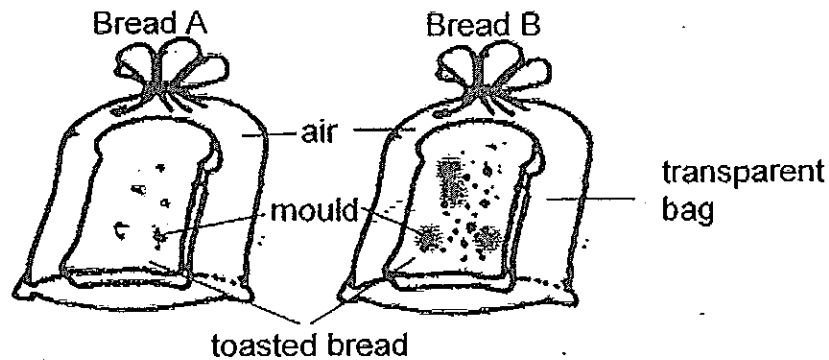
2. The following shows a classification chart for some organisms.



Which one of the following identifies the organisms A, B and C correctly?

	A	B	C
(1)	cotton plant	potato plant	mushroom
(2)	angsana tree	algae	cotton plant
(3)	balsam plant	bird's nest fern	mould
(4)	hibiscus plant	potato plant	bird's nest fern

3. In an experiment, Vilma kept 2 identical pieces of toasted bread, A and B, in a dark cupboard as shown below. Each bread is put in a transparent bag.



Vilma added several drops of water to Bread B but Bread A remained dry. Three days later, she observed that Bread A had turned mouldy and Bread B had more mould than Bread A.

Based on the above observations only, which of the following inferences is/ are correct?

- A Mould needs oxygen to survive.
- B Mould does not need sunlight to grow.
- C Yeast in the bread causes the mould to grow.
- D Mould grows faster on bread with more moisture.

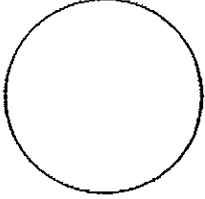

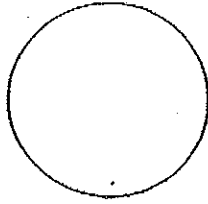
(1) B only

(2) A and C only

(3) B and D only

(4) A, B and D only

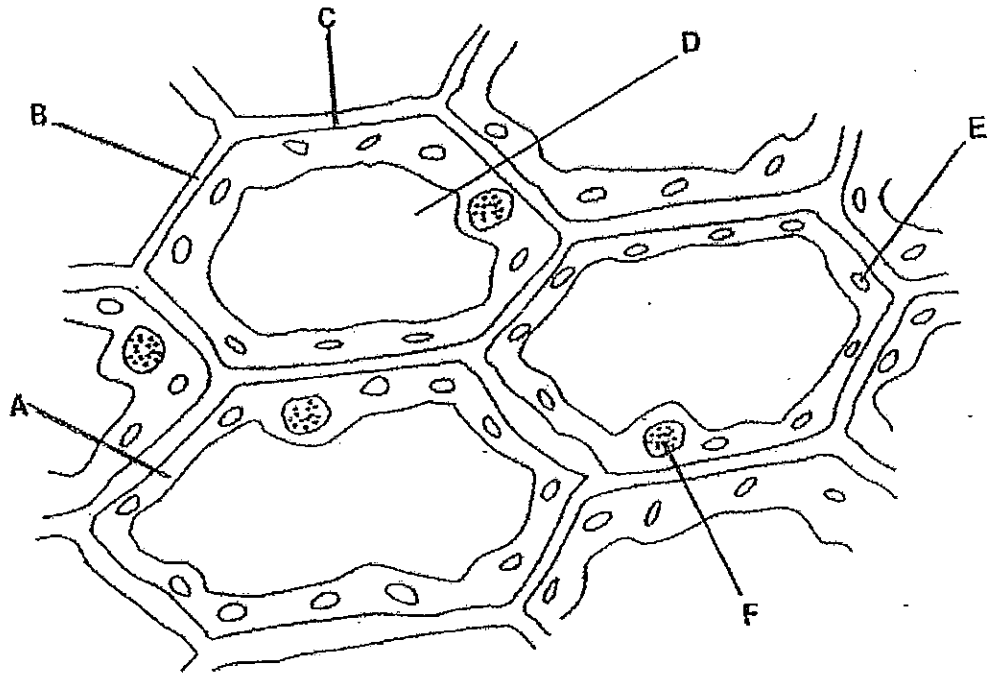
4. Peter looked at the Moon on different nights and recorded the following observations.

		
1 st June	9 th June	29 th June

Peter found that he could **NOT** see the Moon on _____.

- (1) 6th June
- (2) 10th June
- (3) 15th June
- (4) 30th June

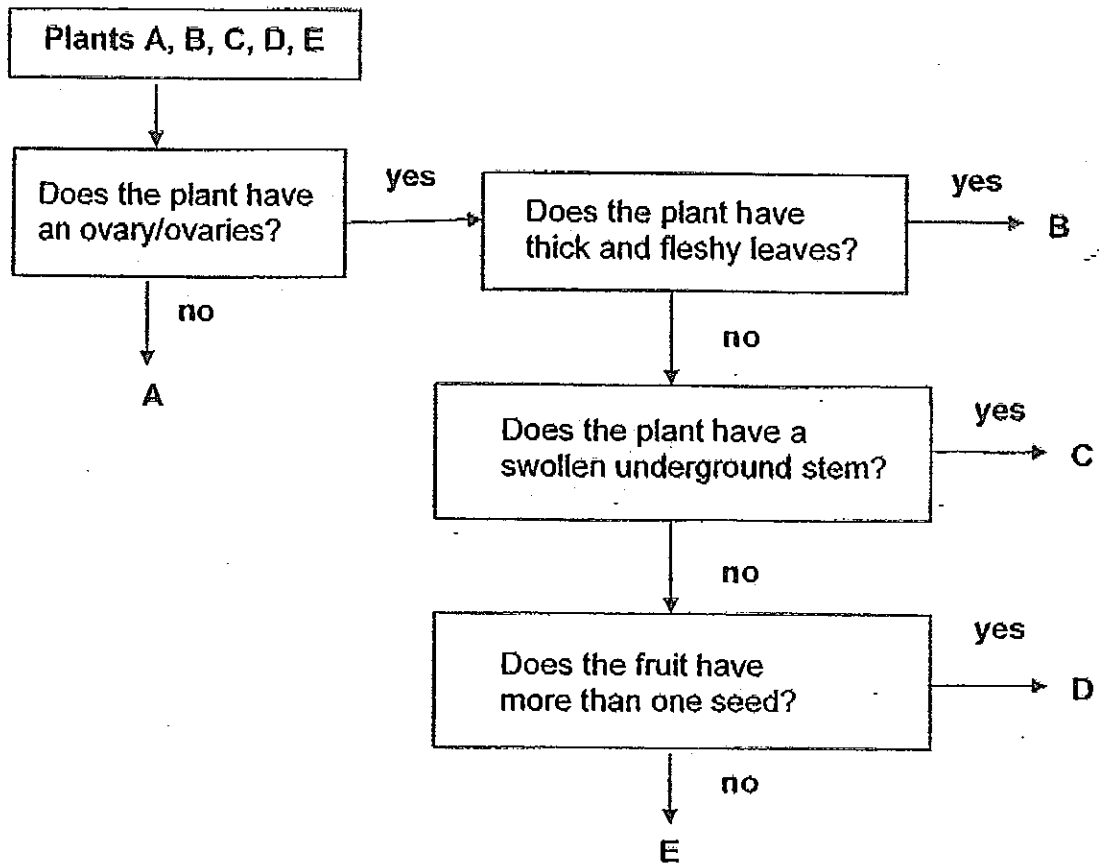
5. A student looked at plant cells on a slide, using a microscope. The cells are shown in the diagram below. Parts of the cell are labelled A to F.



Which of the following parts of the cell have been matched correctly to the information provided in the table?

	where the production of oxygen takes place	controls the entry of substances into the cell	where the plant gets its traits from	also found in animal cell
(X)	E	B	F	A, B, C
(X)	D	A	E, F	B, C, E
(X)	E	C	F	A, C, F
(4)	A	D	E	D, E, F

6. Some plants are classified as shown in the diagram below.



Which one of the following sets best represents the Plants A, B, C, D and E?

	Plant A	Plant B	Plant C	Plant D	Plant E
(1)	staghorn fern	bryophyllum	ginger	heliconia	durian
(2)	bird's nest fern	Jew's ear	pineapple	tomato	rambutan
(3)	bryophyllum	begonia	onion	watermelon	balsam
(4)	maidenhair fern	African Violet	potato	papaya	mango

7. Jenny put 4 seeds, P, Q, R and S, of the lady's finger plant, under the conditions laid out in the table below.

A tick (✓) in the box indicates the condition that is provided for the seed.

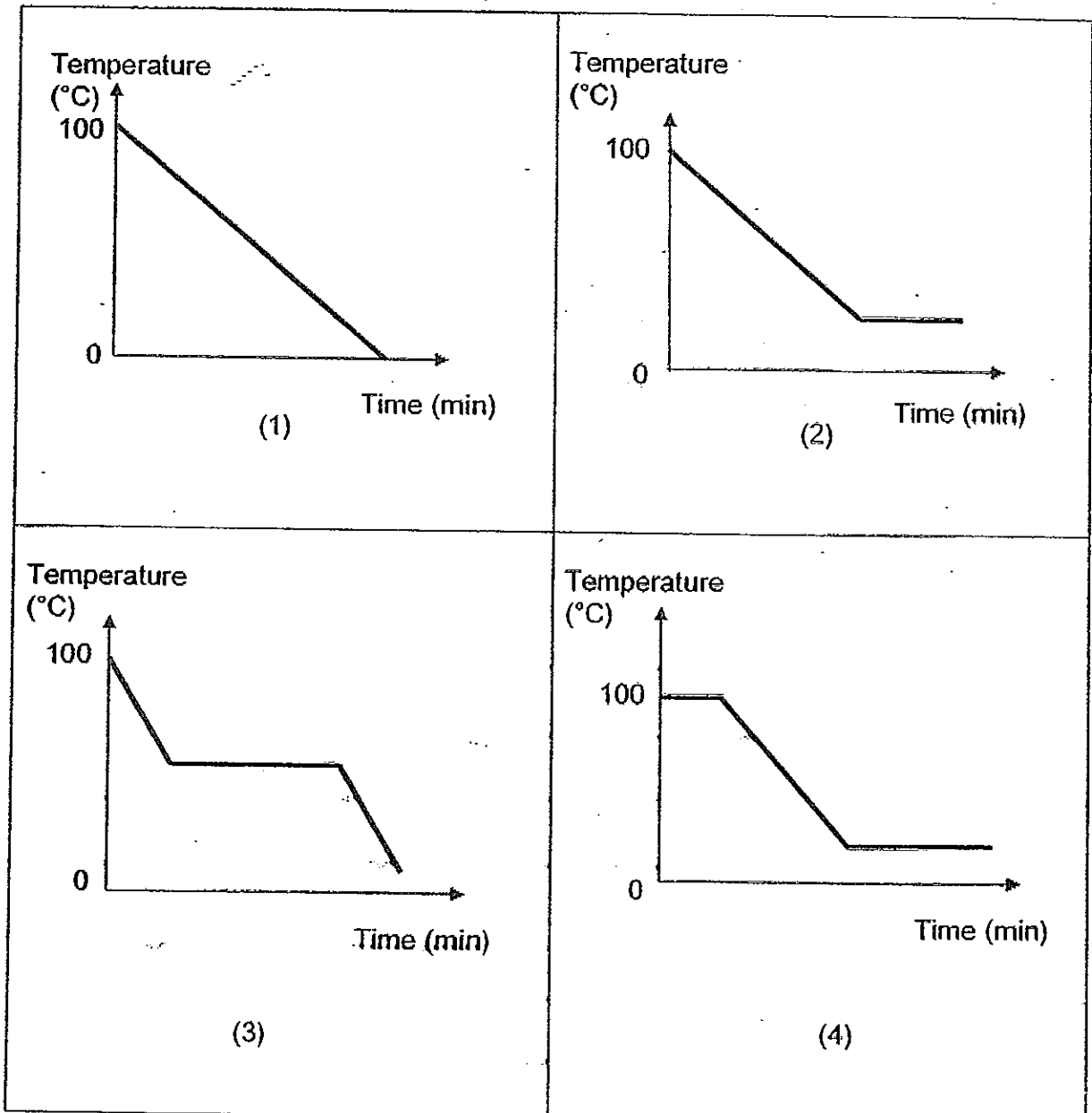
seed	conditions			temperature (°C)
	air	light	water	
P	✓		✓	31
Q	✓	✓		29
R		✓	✓	35
S	✓		✓	85

What is the most likely outcome of Jenny's experiment?

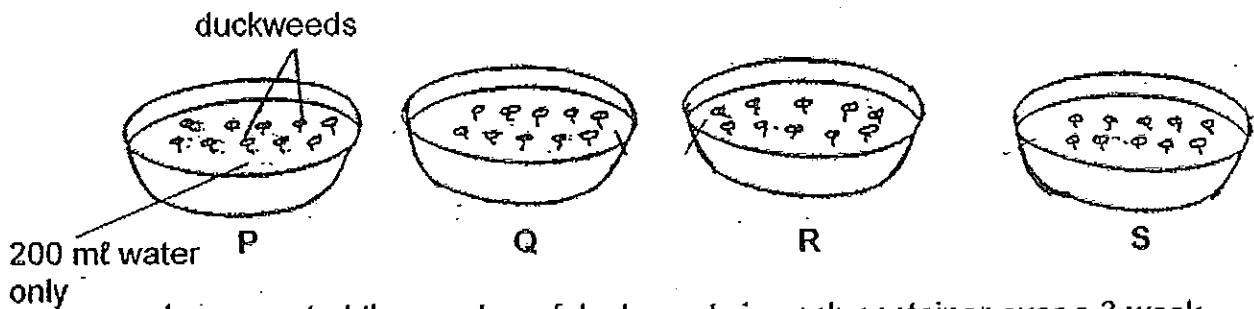
- (1) Only seed P will germinate.
- (2) Only seed R will germinate.
- (3) All the seeds will germinate.
- (4) None of the seeds will germinate.

8. Aishah left a beaker of boiling water on the table to cool. She recorded the temperature of the water in the beaker at regular intervals.

Which one of the graphs shown below represents correctly the change in the temperature of the water in the beaker?



- 9, Jean put 10 duckweeds and poured 100 ml of water into each of 4 similar containers, P, Q, R and S. She added 100 ml of each type of pollutant, X, Y and Z, only into containers, Q, R and S, respectively.



Jean counted the number of duckweeds in each container over a 3-week period. She recorded her findings in the table below.

container	pollutant	appearance of water	number of duckweeds			
			at the beginning	after 1 week	after 2 weeks	after 3 weeks
P	none added	clear	10	12	16	20
Q	X	clear	10	12	20	38
R	Y	cloudy with mud	10	9	8	6
S	Z	clear	10	13	17	19

She drew the following conclusions after studying the table.

- A Pollutant X did not have a negative effect on the survival of duckweeds.
- B Pollutant Y had a less damaging effect on the survival of duckweeds than Pollutant X.
- C Pollutant Y did not affect the rate of growth of the duckweeds.
- D Pollutant X and Z contained plant nutrients for the duckweeds.

Which of Jean's conclusions was/ were accurately made?

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

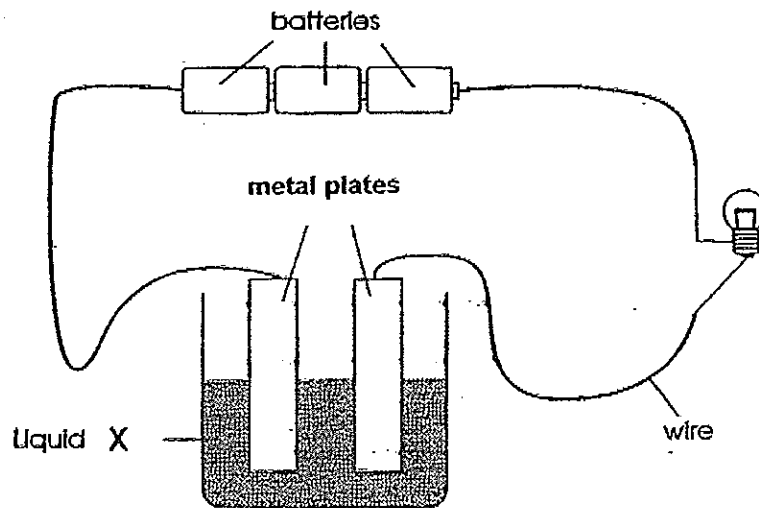
10. The following statements are about global warming and its effects.

- A Harmful greenhouse gases are released to the environment
- B Temperature of Earth increases
- C Sea levels rise
- D Increased burning of fossil fuels and deforestation
- E Gases trap Sun's heat and prevent it from escaping into space
- F Polar ice caps melt

Which one of the following shows the correct sequence of events that takes place during global warming?

- (1) A, D, B, E, C, F
- (2) A, E, B, D, F, C
- (3) D, A, E, B, F, C
- (4) E, D, A, B, F, C

11. The bulb lights up in the experimental set-up as shown below.

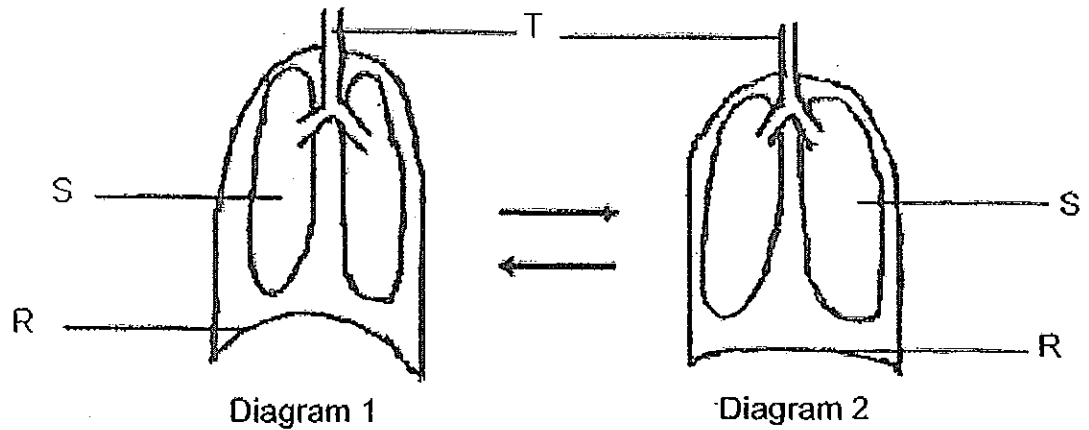


Based on observations of the above experiment, which of the following statements about liquid X is/ are correct?

- A X can produce electricity.
- B X can conduct electricity.
- C X is an insulator of electricity.

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

12. The diagrams below show two processes taking place continuously in the same human body.

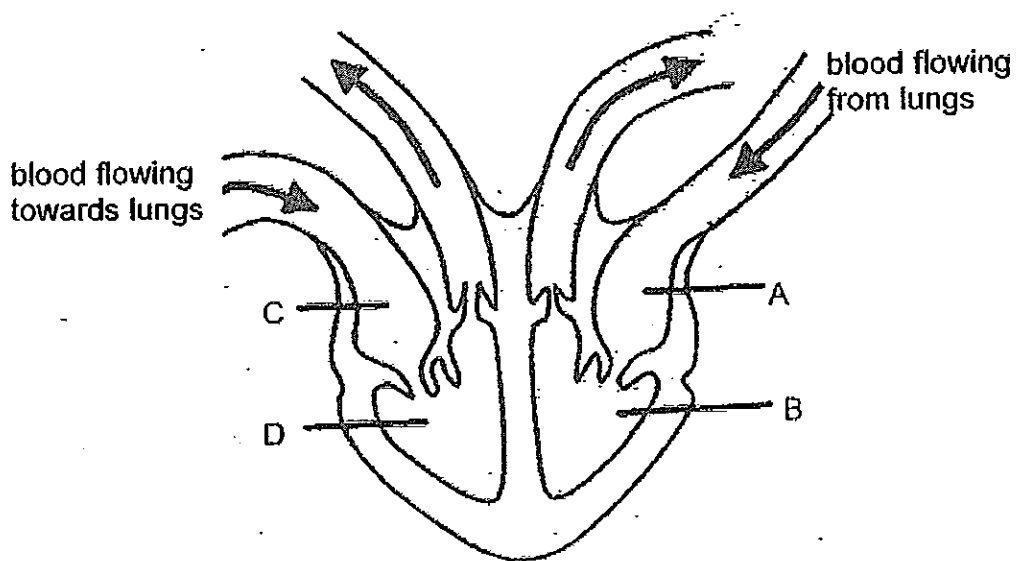


Based on observations made of the above diagrams, which of the following inferences is/ are correct?

- A In Diagram 2, air is moving into S.
- B Exchange of gases takes place at S.
- C In Diagram 1, the upward movement of R helps air to enter S.
- D Air at T in Diagram 1 is more moist than air at T in Diagram 2.

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

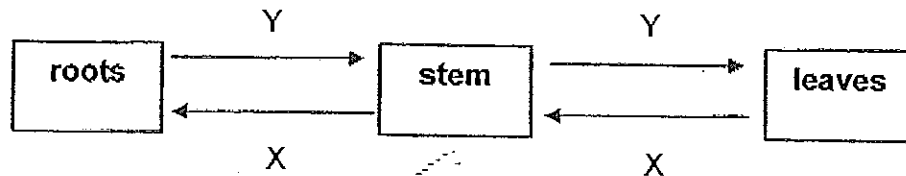
13. The diagram below shows the cross-section of a human heart and the movement of blood within it. The arrows show the direction of blood flow. Blood from the lungs flows to part A and then to part B. Blood that flows towards the lungs flows to part C and then to part D.



Based on the information above, which one of the following is true about the blood found in parts A, B, C and D within the heart?

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

14. The diagram below shows how substances X and Y are transported in a plant.



Based on the diagram, what are substances X and Y?

	X	Y
(1)	water	nutrients
(2)	water	glucose
(3)	glucose	dissolved mineral salts
(4)	dissolved mineral salts	water

15. Tom poured cooking oil and honey separately into two identical glass beakers.

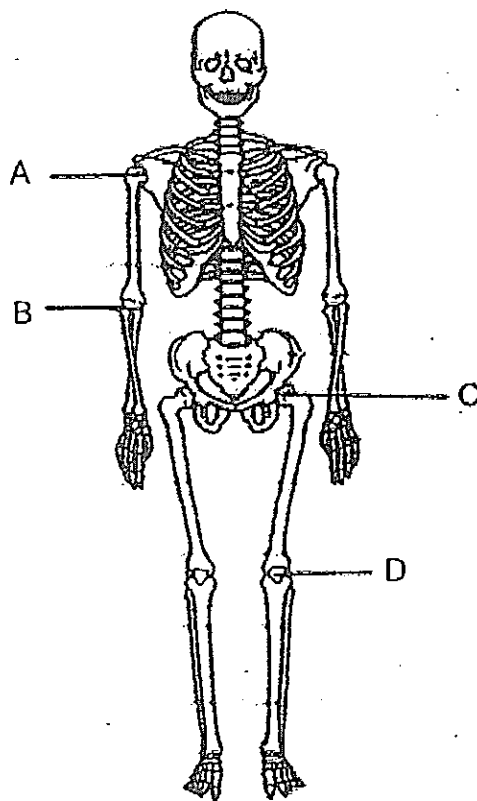
Tom asked Sam to identify the liquids in each beaker. The two liquids have the same appearance.

Which of the following actions can help Sam to identify the liquids?

- A Smell each liquid.
- B Look at each liquid.
- C Rub a small droplet of each liquid onto his finger.
- D Put a small droplet of each liquid in a glass of water.

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

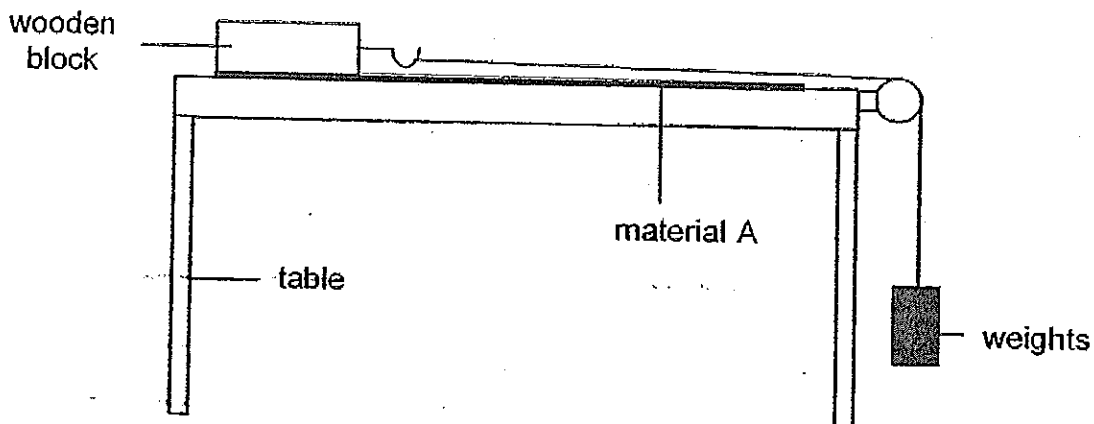
16. The diagram below shows the human skeletal system with joints A, B, C and D.



Which one of the following shows the correct classification of these joints?

		types of movement	
		in all directions	in one direction
(1)		A,C	B,D
(2)		A, B, C	D
(3)		A,B	C, D
(4)		A,C, D	B

17. Paul set up an experiment as shown below.



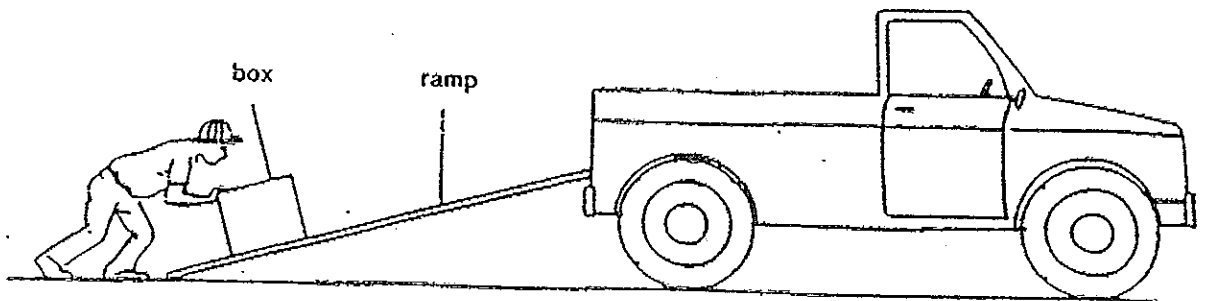
Paul stopped adding the weights once the wooden block began to move over material A.

He repeated the experiment by replacing material A with other materials, B, C and D, ONE at a time.

His results are shown in the table below.

material	A	B	C	D
weights required (g)	190	135	170	160

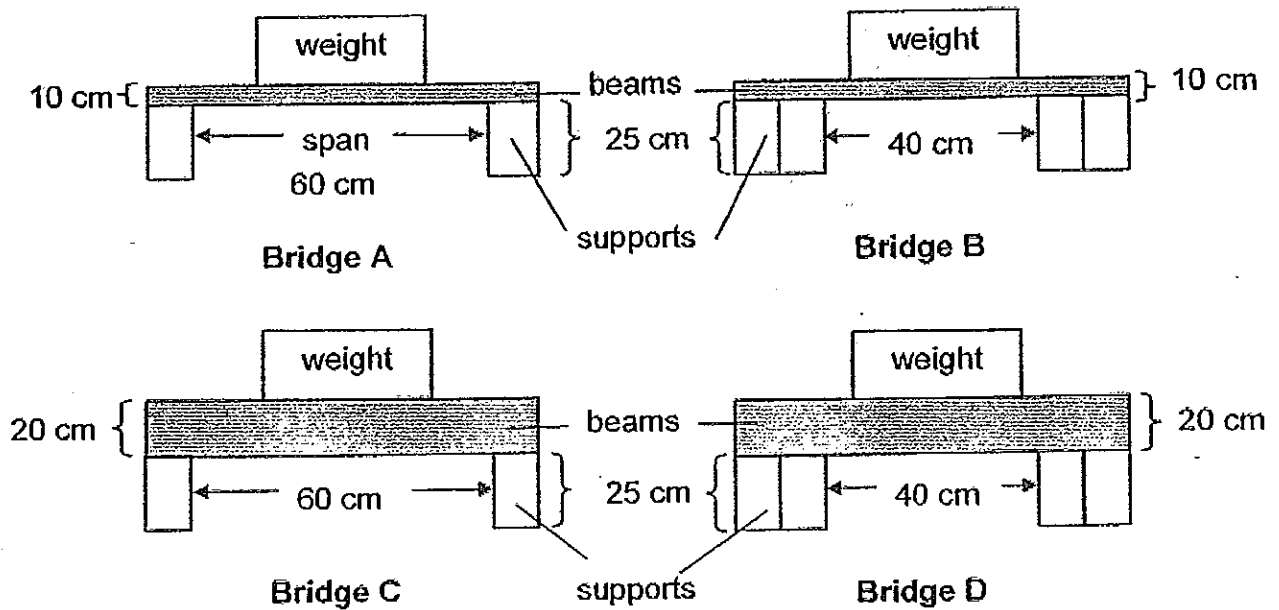
Paul wanted to use a suitable material to place on the surface of a ramp to load his cartons up to his truck as shown below.



Based on the information above, which material should Paul choose to make his work easier?

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

18. Mary built four model bridges as shown below to investigate how strong they were. Weights were added until cracks started to appear in the beam.

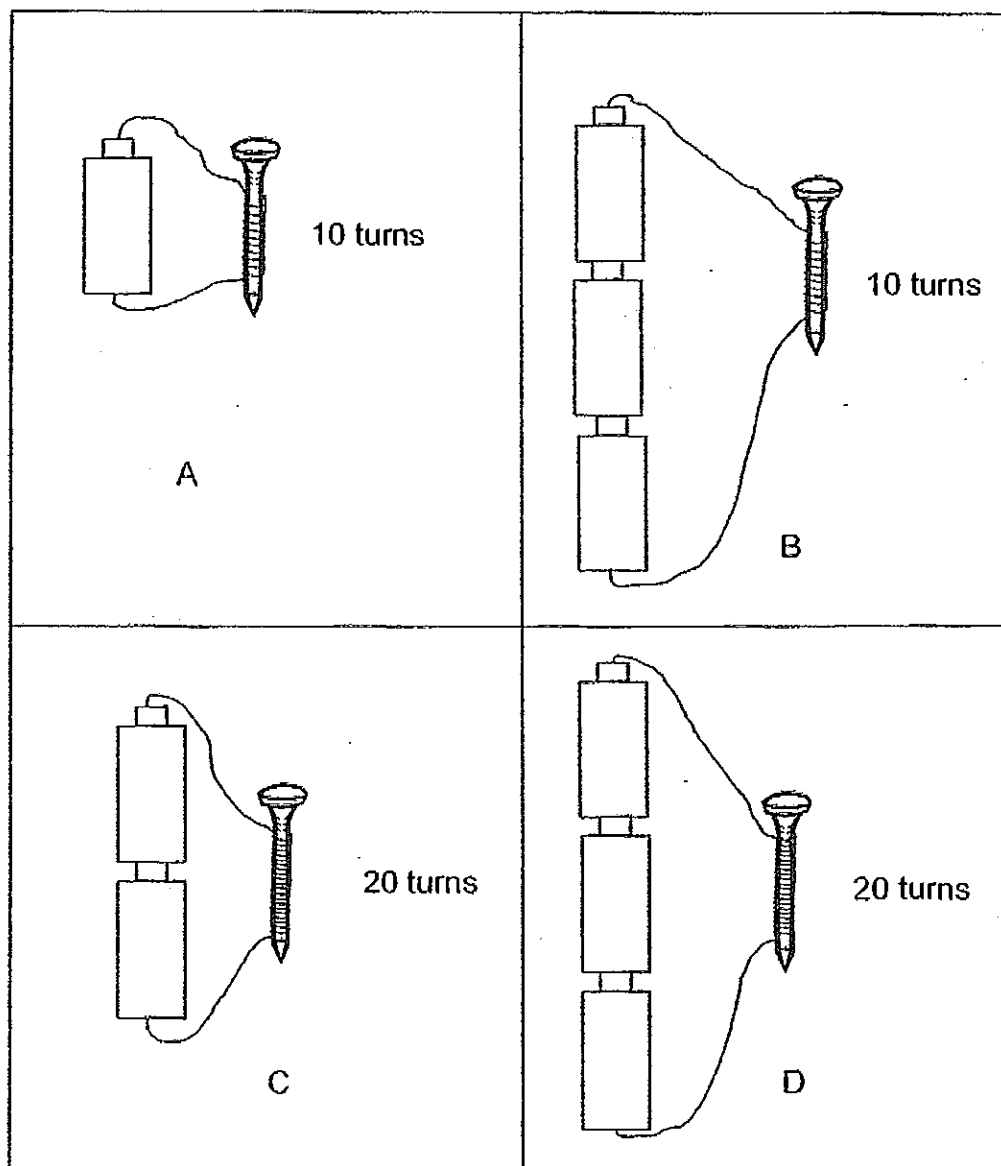


Which two variables did Mary change to see how they affected the strength of the bridge?

- (1) the length of the beam and the length of the span
- (2) the size of the weight and the height of the supports
- (3) the thickness of the beam and the length of the span
- (4) the thickness of the beam and the length of the beam

19. An iron nail becomes a magnet when it is placed in a coil of wire joined to a battery/ some batteries.

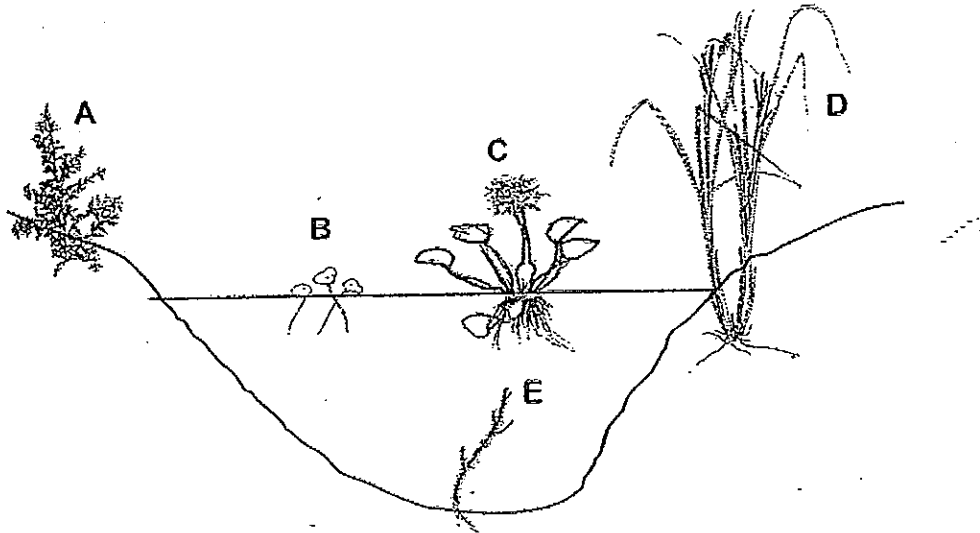
Ali wants to find out whether the number of turns of the coil of wires affects the strength of a magnet. He sets up two arrangements. For each arrangement, he tests the strength of the magnet by counting the number of steel paper clips it can pick up.



Which two arrangements should Ali set up to conduct a fair test?

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

20. The diagram below shows five plants, A, B, C, D and E, growing in and near a pond.

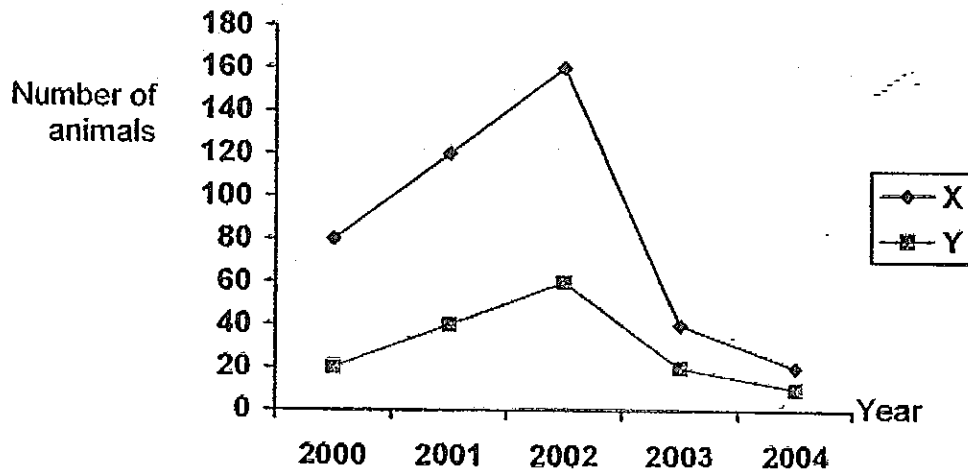


Which of the plants shown above, A, B, D or E, would **NOT** grow well if plant C multiplied rapidly?

- | | |
|------------------|------------------|
| (1) A only | (2) B only |
| (3) B and E only | (4) D and E only |

21. A study was conducted by a group of students on 2 types of animals, X and Y, in a community.

They recorded the number of each animal every year for 5 years. The results are shown below:



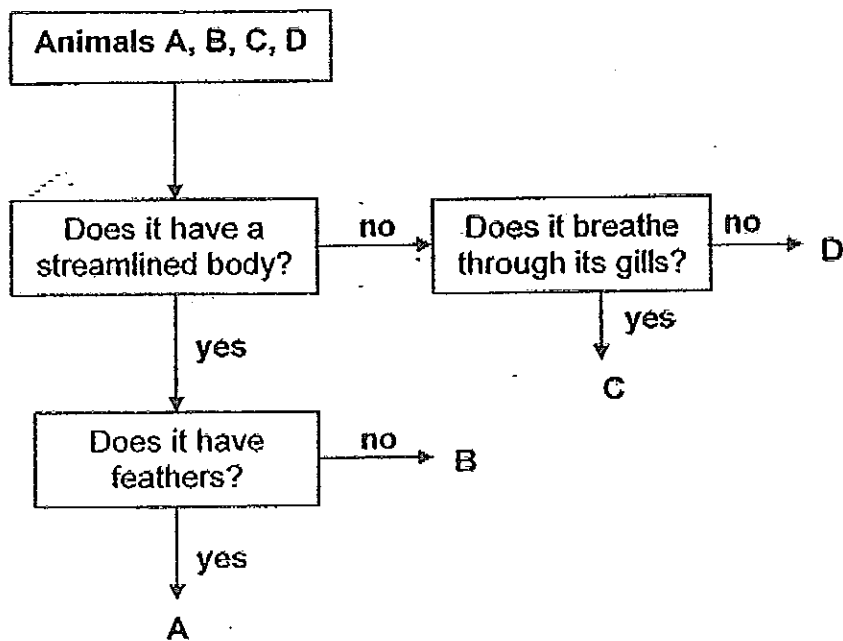
Based on the information above, the group of students made the following statements:

student	statement
A	The number of X increased at a rate faster than the number of Y between 2000 and 2002.
B	The number of X and Y was the highest in 2002.
C	The sudden drop in the number of X and Y in 2003 could be due to an introduction of a prey into the community.
D	The fall in the number of X and Y from 2002 to 2004 was due to X preying on Y.

Which of the students have made the correct statements?

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

22. The diagram below shows how some animals are classified.

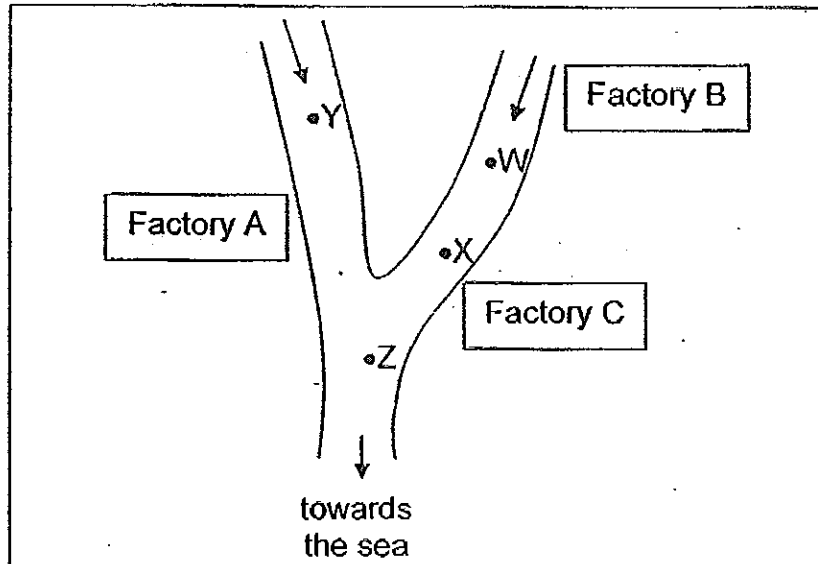


Which one of the following identifies the animals A, B, C and D correctly?

	A	B	C	D
(1)	penguin	guppy	mudskipper	bear
(2)	eagle	shark	seal	crab
(3)	turkey	sea turtle	water stick insect	dolphin
(4)	duck	tadpole	frog	mosquito pupa

23. The diagram below shows the path of water flowing downstream towards the sea.

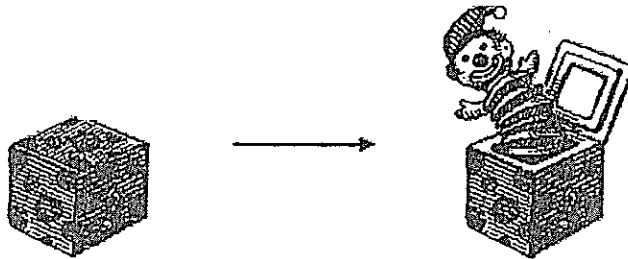
Situated near the water are three factories, A, B and C, which discharge the same type and same amount of chemical waste into the water daily.



Which one of the following parts of the water would be least polluted?

- (1) W
 - (2) X
 - (3) Y
 - (4) Z
24. Which of the following examples are produced with the help of microorganisms?
- A bread
 - B cheese
 - C yoghurt
 - D soya sauce
- (1) A and B only
 - (2) C and D only
 - (3) A, B and C only
 - (4) A, B, C and D

25. The diagram below shows a Jack-in-the-box when the lid is closed and when the lid is opened.

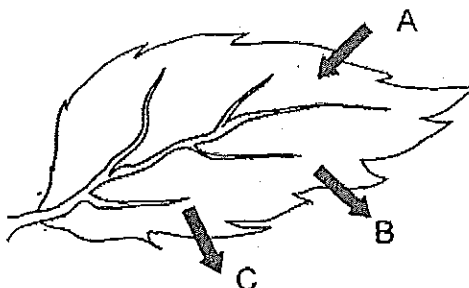


Which one of the following best describes the energy conversion as shown in the diagram above?

- (1) elastic potential energy \rightarrow kinetic energy + sound energy
 - (2) electrical energy \rightarrow elastic potential energy + kinetic energy
 - (3) kinetic energy \rightarrow gravitational potential energy + heat energy
 - (4) gravitational potential energy \rightarrow electrical energy + sound energy
26. Which of the following energy sources have been correctly grouped?

	renewable	non-renewable
(1)	coal, wind	petroleum, running water
(2)	natural gas, petroleum	coal, wind
(3)	running water, wind	natural gas, petroleum
(4)	wind, natural gas	coal, petroleum

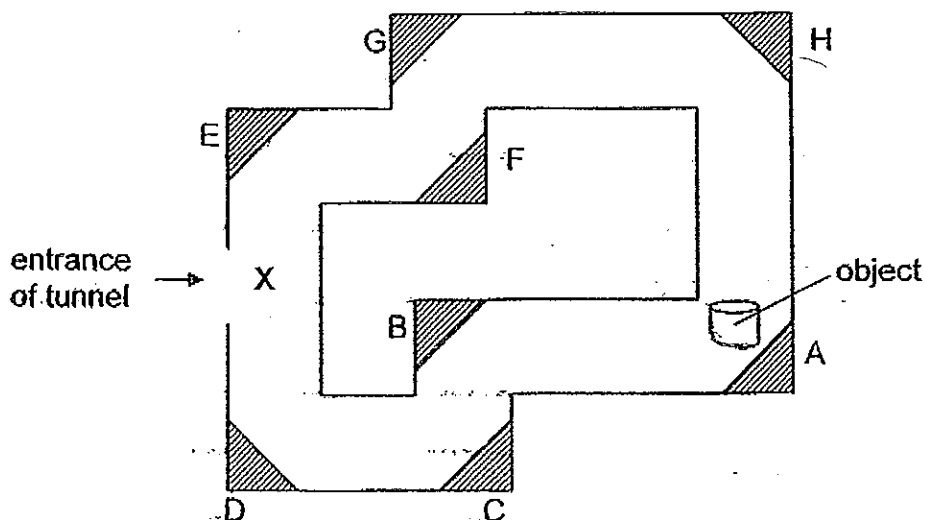
27. The diagram below shows the movement of gases in and out of a leaf, which is growing on a potted plant left in a dark room.



Which of the following shows correctly the gases indicated by the arrows?

	A	B	C
(1)	water vapour	oxygen	carbon dioxide
(2)	oxygen	carbon dioxide	water vapour
(3)	carbon dioxide	water vapour	oxygen
(4)	carbon dioxide	nitrogen	water vapour

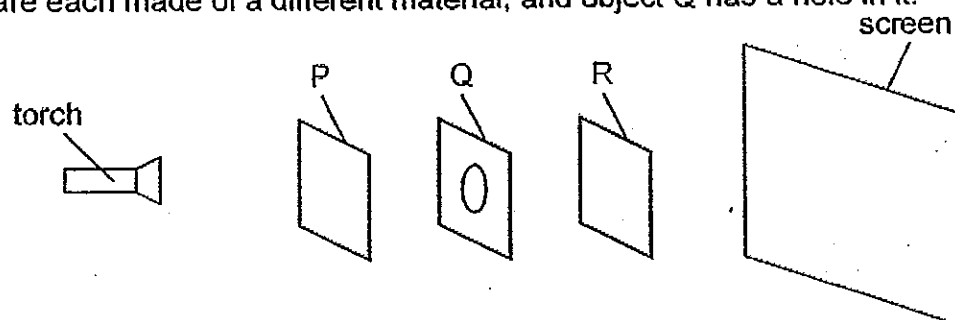
28. The diagram below shows a top view of an underground tunnel.



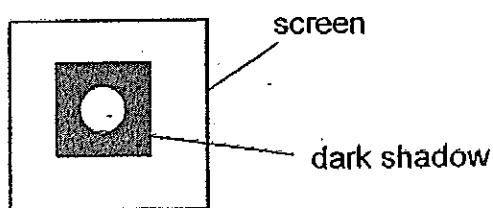
Where should the mirrors be placed in order for a person standing at point X to see the object in the tunnel?

- (1) A, B and C only
- (2) D, E and G only
- (3) A, B, G and H only
- (4) E, F, G and H only

29. The experiment shown below was carried out in a dark room. Objects P, Q and R are each made of a different material, and object Q has a hole in it.



When the torch was switched on, a shadow, as shown below, was formed on the screen.

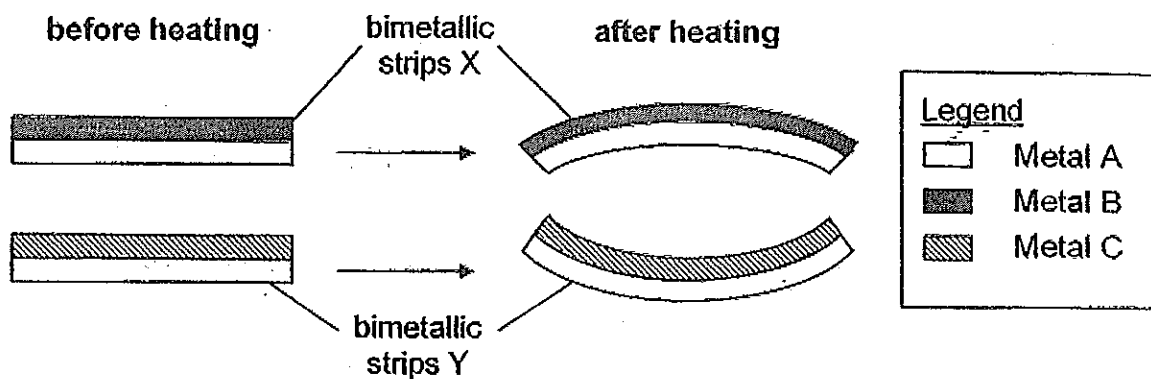


Which one of the following shows correctly the material that each object, P, Q and R, is most likely to be made of?

	object P	object Q	object R
(1)	frosted glass	tracing paper	clear plastics
(2)	clear plastics	cardboard	clear glass
(3)	wood	clear glass	tracing paper
(4)	clear glass	tracing paper	cardboard

30. A bimetallic strip is made of two different metals joined together at the centre.

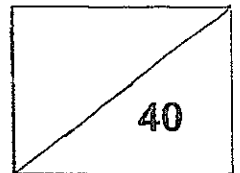
The diagram below shows how two bimetallic strips, X and Y, look like before heating and after heating for five minutes.



Which one of the following conclusions about metals A, B and C is definitely true?

- (1) Metal A expands the least.
- (2) Metal B expands the most.
- (3) Metal B and C have the same rate of expansion.
- (4) Metal A expands less than metal C but more than B.

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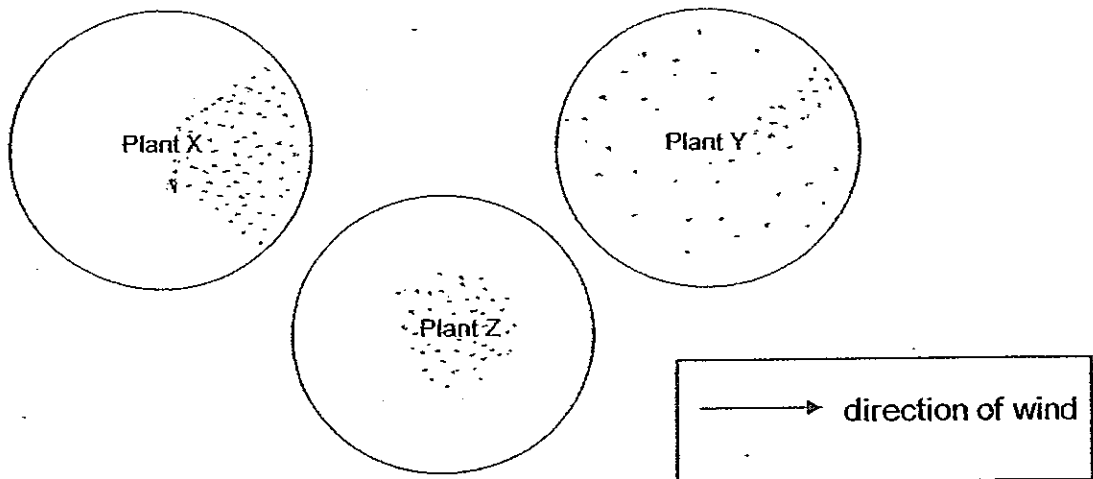
SECTION B (40 marks)

For questions 31 to 46, write your answers clearly in the spaces provided.

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

- 31 The figure shows the patterns of fruit dispersal around three plants, X, Y and Z, each within a similar circular area.

Each dot represents one fruit. The fruit of each plant are dispersed differently.

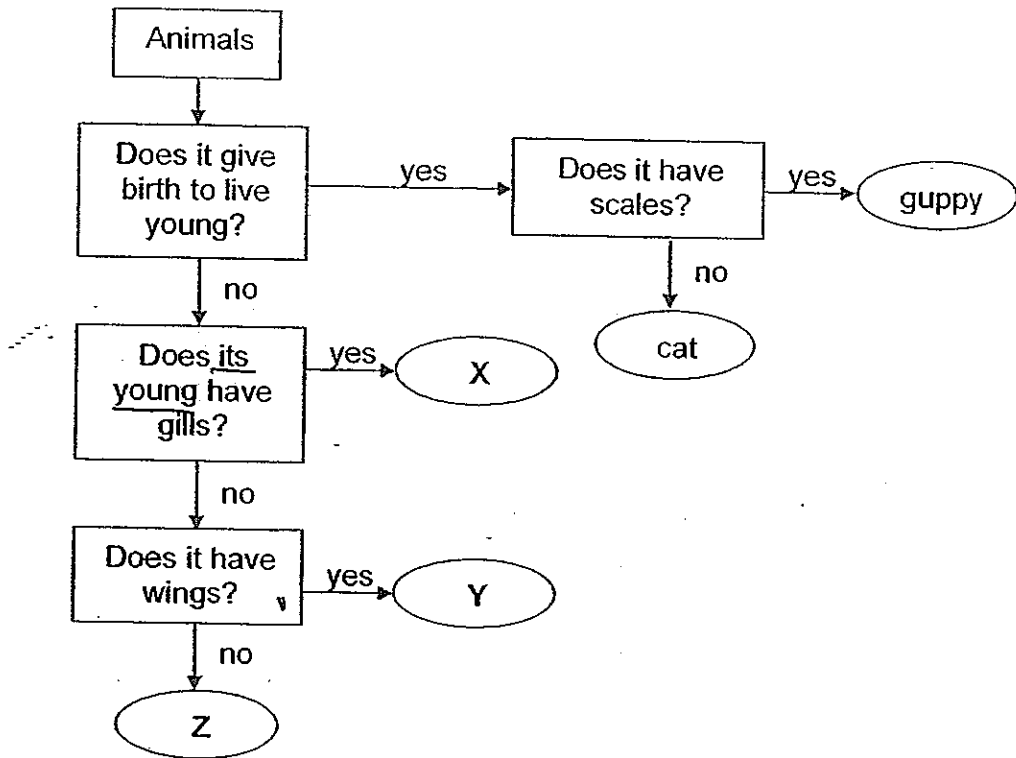


- (a) Based on the patterns shown, suggest the method of dispersal for each of the fruit of the following plants in the table below. [1]

	fruit of plant	method of dispersal
(i)	X	
(ii)	Y	
(iii)	Z	

- (b) By inferring from the patterns above, explain the difference in the methods of dispersal between fruits of Plant X and Plant Z. [2]

32. The chart below shows the characteristics of some animals.



(a) Based on the information above, identify the characteristic(s) that is / are common for both the cat and the guppy.

[1]

(b) Which letter, X, Y or Z, best represents the following animals?

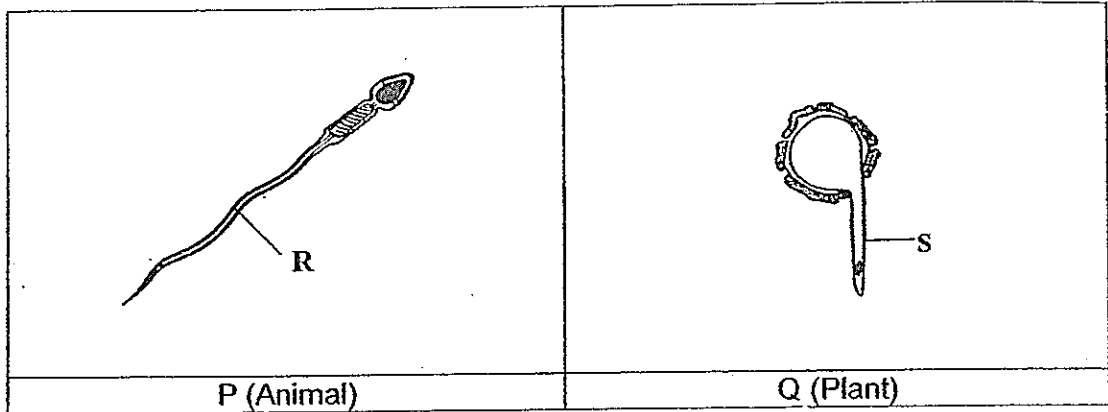
[1]

(i) frog : _____

(ii) spiny anteater : _____

33

P and Q show structures, (NOT drawn to scale) produced by the male reproductive organs of an animal and a plant respectively.



(a) Complete the table below with the correct information about the structures shown in the diagrams. [2]

Structure	Name of Structure	Male organ which produces the structure
P	(i) _____	testes
Q	pollen	(ii) _____

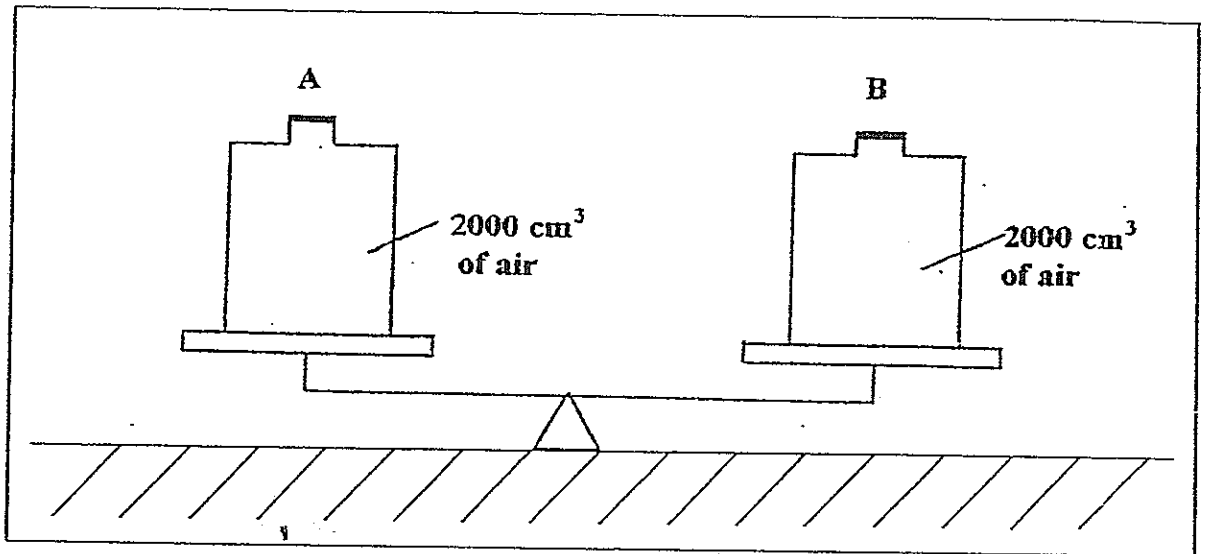
(b) R is a tail and S is the pollen tube. They are important structures.

Explain how R and S enable reproduction to take place in each of these organisms, P and Q respectively. [2]

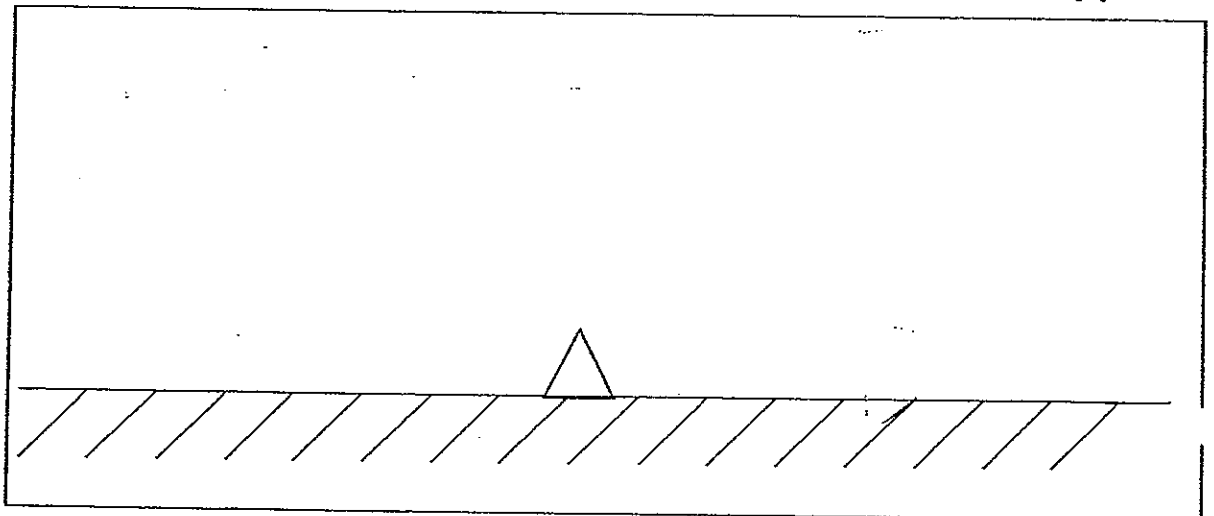
(i) R: _____

(ii) S: _____

34. Judy filled up two identical containers of equal capacity, A and B, with 2000 cm^3 of air each and placed them on a balance as shown in the diagram below.

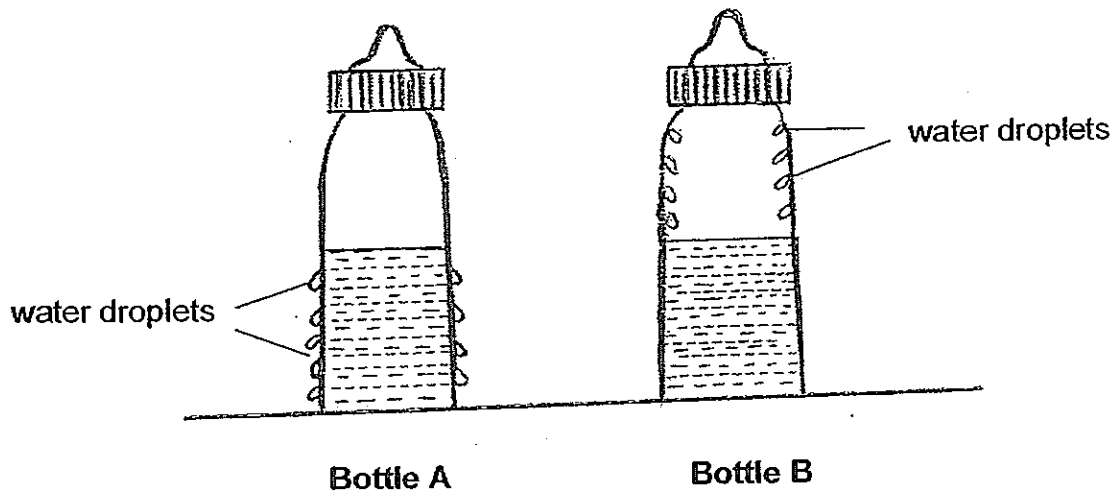


- (a) In the space below, **DRAW** and **LABEL** what Judy would observe of the balance and the containers when she pumped in **ANOTHER** 1500 cm^3 of air into container A. [1]



- (b) What would the volume of air in A be after Judy had pumped in 1500 cm^3 of air into container A? Explain your answer. [2]

35. The figure below shows two milk bottles, one containing ice water and the other containing hot water.



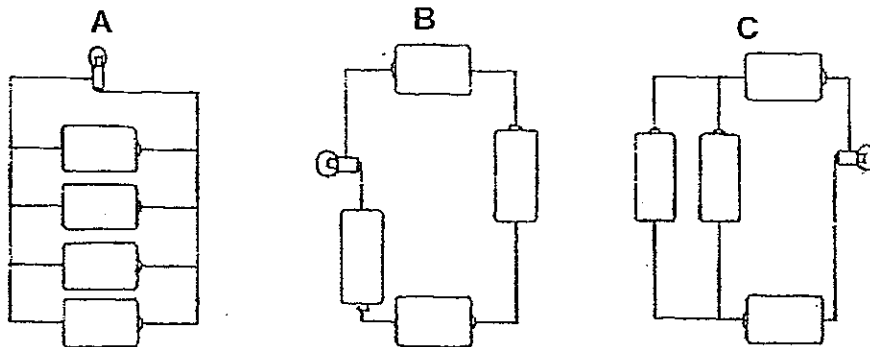
- (a) It was noticed that water droplets were formed on both bottles but at different parts of the bottle.

In the table below, indicate with a tick (✓) against each bottle to show which one contained the ice water and the hot water respectively. [1]

bottle	ice water	hot water
A		
B		

- (b) Explain the difference in the formation of the water droplets at the different parts of the two bottles. [2]

36. (a) There are 3 electrical circuit set-ups, A, B and C, as shown below.



All the batteries in the circuit have the same voltage and identical bulbs are used in the electrical circuit.

- (i) Arrange the set-ups, A, B and C, in order of brightness of each bulb, starting with the dimmest bulb and ending with the brightest bulb. Fill in the boxes with the correct letters. [1]

dimmest brightest

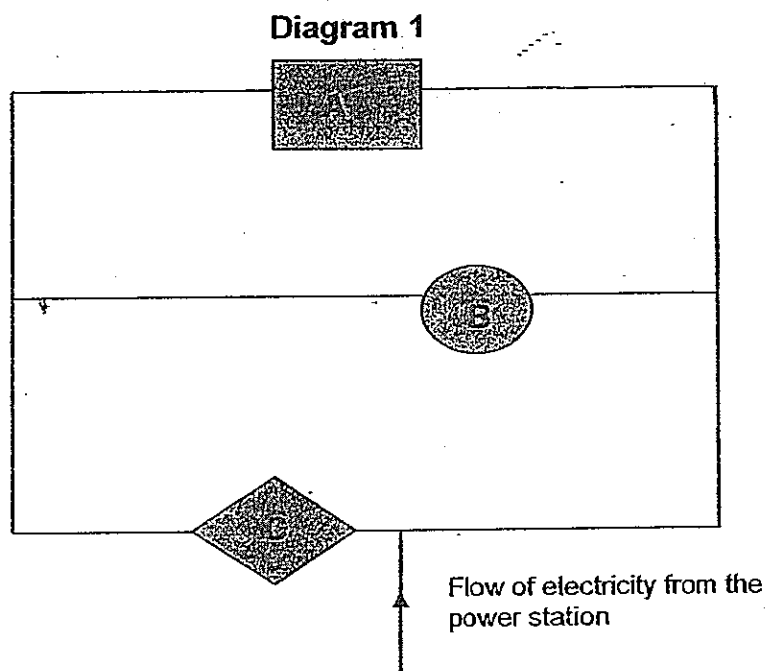
- (ii) Describe the brightness of the bulb in set-up B when one battery is removed from set-up B. [1]

(b) In the diagrams below, A, B and C represent household appliances that are connected in two different ways in a household circuit.

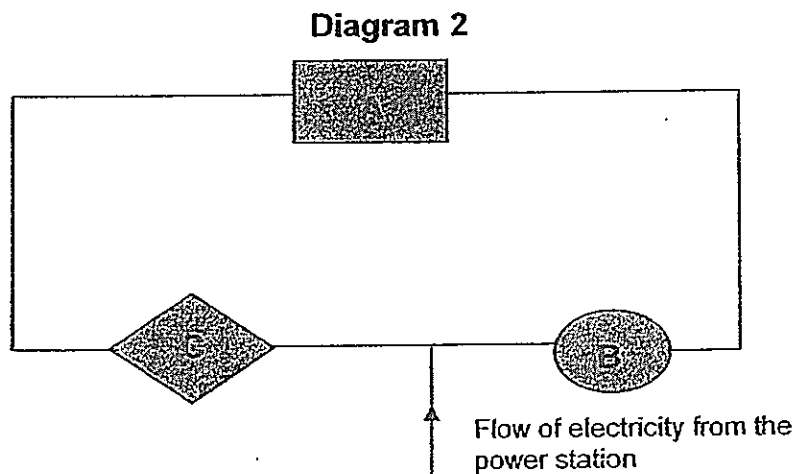
(i) **MARK** a cross, "X", on the electrical circuit in **Diagram 1** to show the position of a switch that makes **ONLY** appliance A stop working when it is turned off.

Do **NOT** draw the switch on any of the appliances.

[1]

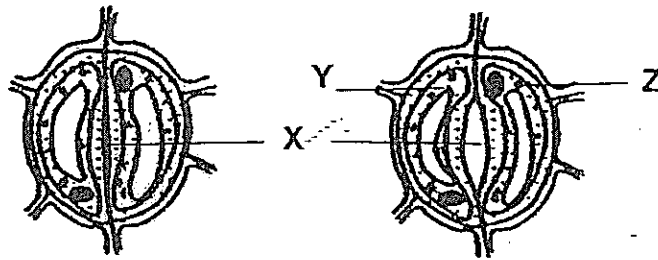


(ii) What is the disadvantage of connecting household appliances in the way shown in **Diagram 2**? [1]



37. The diagrams below show the changes happening to the same part found on a leaf surface. These changes can only be observed with a microscope.

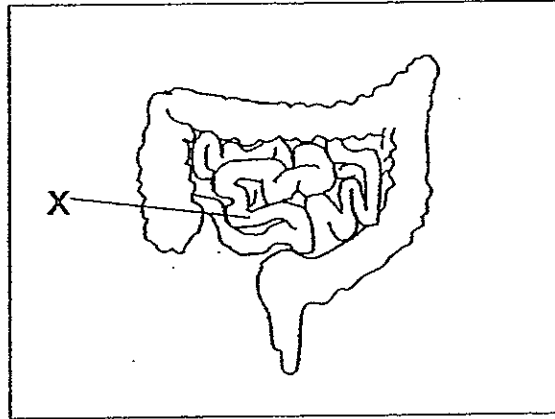
X is an opening which can change its size as shown below. Y and Z are plant cells that control the size of X. It is found that when there is more light, cells Y and Z make opening X larger to allow more gaseous exchange.



What will happen to the rate of photosynthesis when opening X becomes larger? Explain your answer.

[2]

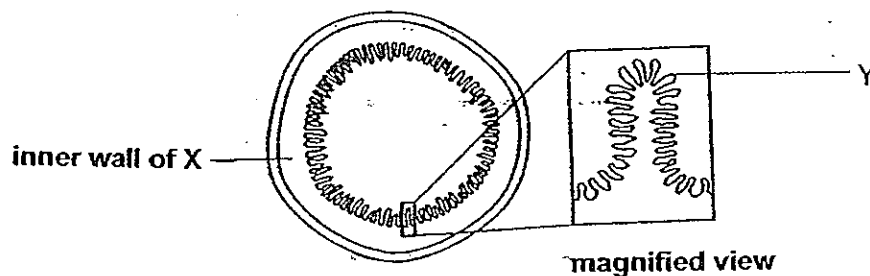
38. The diagram below shows parts of the human digestive system.



- (a) Name the part marked X.

[1]

- (b) The diagram below shows the magnified cross-section of X.

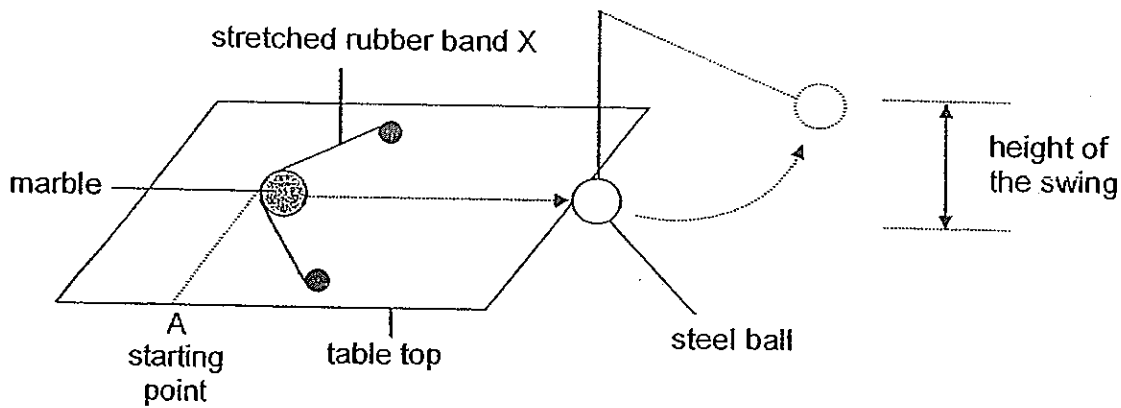


There are numerous tiny structures, Y, found within X. The presence of Y helps to increase the surface area of the inner wall of X. Y has a thin wall and contains blood capillaries.

Explain how such tiny structures, Y, help the body to absorb food better.

[1]

39. Muthu hung a steel ball at the edge of the table as shown below.



He stretched a rubber band, X, and placed a marble on it. He released the marble to hit the steel ball.

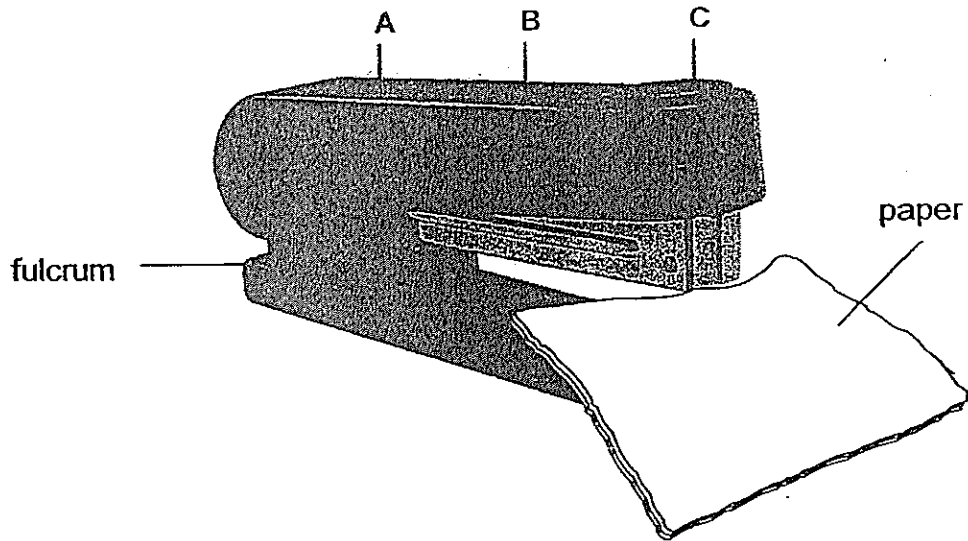
Muthu repeated the experiment with 2 other types of rubber bands, Y and Z, **ONE** at a time. He recorded the height of the swing reached by the steel ball when it swung away from the edge of the table.

Rubber band	X	Y	Z
Height of the swing (cm)	10	15	7

- (a) Which rubber band, X, Y or Z, when stretched to point A, has the most elastic spring force? Give a reason for your answer. [2]

- (b) Explain why Muthu had indicated the starting point, A, on the table top. [1]

40. The diagram below shows a stapler.



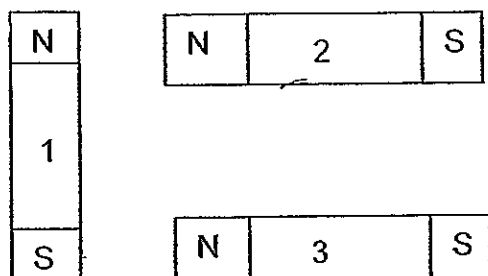
At which point of the stapler, A, B or C, will stapling of papers be made easiest?

Explain why.

[1]

41. A magnet has a S-pole (S) and a N-pole (N).

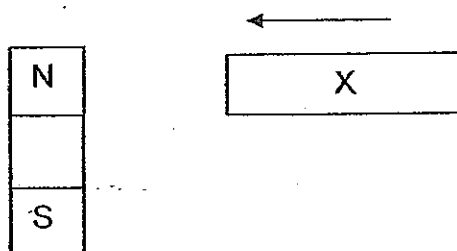
The diagram below shows three bar magnets, 1, 2 and 3. Magnets 2 and 3 are held in place and magnet 1 is brought near to them.



(a) How will magnet 1 move?

DRAW arrows on magnet 1, in the diagram above, to show how it will move. [1]

The diagram below shows a bar magnet and an object X. Three objects, X, Y and Z, are brought near the bar magnet, **ONE** at a time.



The table below shows the result of the experiment. A tick (✓) shows how each object moved when the bar magnet is brought near it.

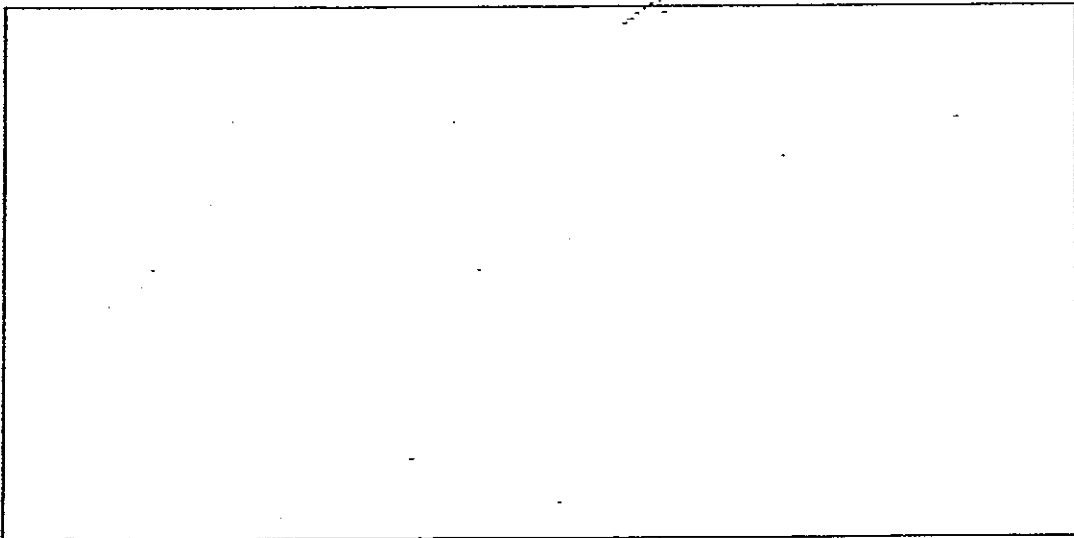
Object	X	Y	Z
attracted to magnet	✓		
repelled away		✓	
remained stationery			✓

(b) Kim Seng said that X is definitely a magnet. Do you agree with him? Explain why. [1]

42. In a garden community, there are 4 populations of organisms, A, B, C and D. The information about these populations is as follows.

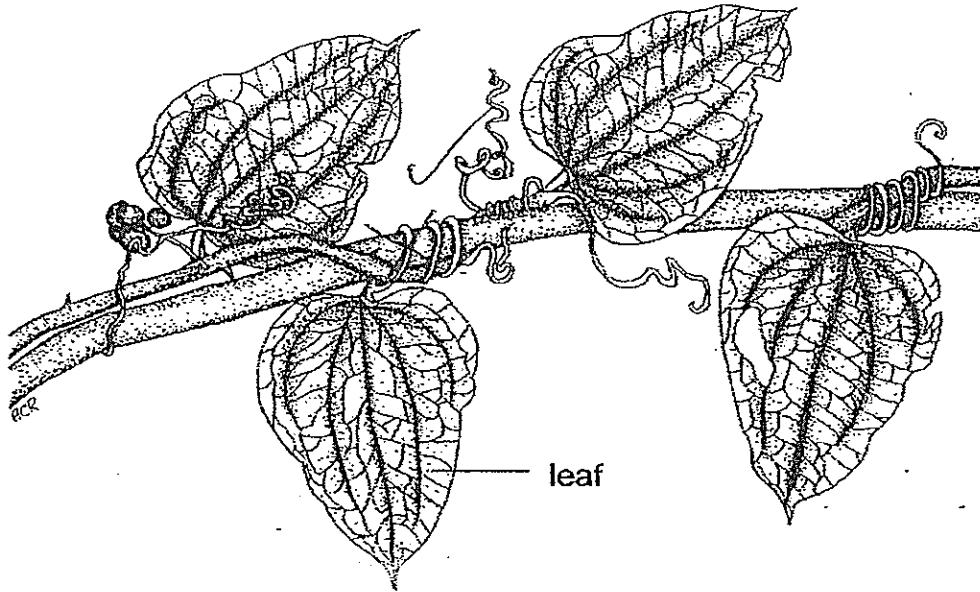
- B eats A and D.
- D is eaten by A.
- C is eaten by D and A.

(a) In the box below, DRAW a food web to show the food relationships among the 4 populations. [2]



(b) From the food web that you have constructed above, which organism, A, B, C or D, is both a prey and predator? [1]

43. The diagram below shows parts of a plant growing on a support.



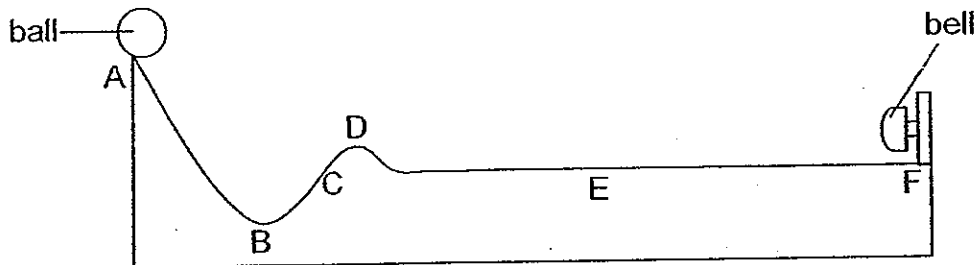
- (a) Beside the leaf, identify in the diagram above, the structural adaptation in which the plant uses to grow well.

LABEL it as X.

[1]

- (b) Explain how this structural adaptation allows the plant to grow well. [1]

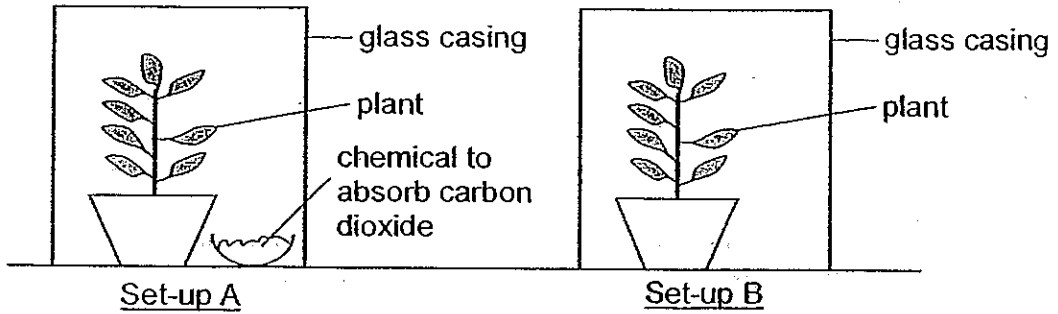
44. A metal ball was released from point A and it rolled from point A to F until it hit the bell.



- (a) At which point, A, B, C, D, E or F, on the slope does the ball have the least amount of gravitational potential energy? [1]
-
- (b) State the main energy conversion of the metal ball as it was rolling from point D to F. [1]
-

45. Sally kept two pots of plants in a dark room for 48 hours.

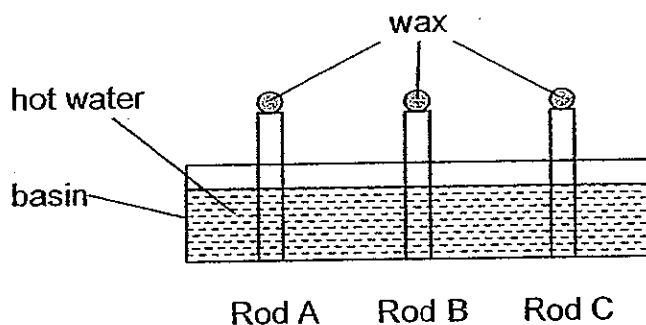
After that, she set up the following to find out whether carbon dioxide is needed for the plants to carry out photosynthesis. She placed the set-ups, A and B, near the window in the same room.



- (a) Besides finding out the changes in the composition of air in each set-up, describe what Sally must do to find out if the plant has carried out photosynthesis in each setup? [1]

- (b) State one variable that Sally should keep the same to conduct a fair test. [1]

46. Janice set up the following experiment to investigate the thermal properties of the rods, each made of a different material.



An equal amount of wax was placed at the top end of each of the three rods, A, B and C. The rods were then immersed in the basin of hot water at the same time.

Janice recorded the time taken for the wax on each rod to melt in the table below.

Rod	Time taken (seconds)
A	65
B	45
C	85

- (a) What can Janice conclude from her experiment?

[1]

- (b) Janice found another rod, D, in the Science laboratory. Her teacher told her that rod D is a better conductor of heat than A but a poorer conductor of heat than B.

Predict the time taken for the wax on Rod D to drop off.

[1]

END OF PAPER

RGS Primary School
Primary 6 Science SA2 (2008)

Answers Key

Qn no.	Ans
1	1
2	3
3	3
4	3
5	3
6	4
7	1
8	2
9	1
10	3

Qn no.	Ans
11	1
12	3
13	1
14	3
15	3
16	1
17	2
18	3
19	3
20	3

Qn no.	Ans
21	1
22	1
23	3
24	4
25	1
26	3
27	2
28	4
29	2
30	2

- 31a(i) By wind (ii) By Animals (iii) By splitting/self-explosive action
- 31b. The pattern of dispersal in X shows that the wind blew from a specific direction and scattered the seeds in that manner while the pattern in Z shows that the fruits were scattered close together.
- 32a. Both give birth to live young
32b. Frog - X ; spiny anteater - Z
- 33a(i). Sperm (ii) anther
33b(i) R enables the sperm to swim up the reproductive system to fuse with the egg.
33b(ii) S grows all the way into the ovary allows the male pollen cell to fuse with the ovule.
- 34a. Draw the balance with the container at A tilted to the left.
34b. 2000cm³. Air has no definite volume and hence can be compressed into Container A.
- 35a. Ice water – Bottle A, Hot water – Bottle B
35b. Bottle A contains cold water. When the surrounding water vapour comes in contact with the cool outer surface of the milk bottle, the water vapour condensed and formed water droplets on it.
Bottle B contains hot water. Hot water vapour evaporated and rose to the top of the bottle; it condensed and formed water droplets.
- 36a(i). A, C, B
(ii) Bulb B will be of the same brightness as Bulb C.
36b. When one of the appliances does not work, the remaining appliances will not work.
37. The rate of photosynthesis will increase. A larger X will allow more carbon dioxide to enter the plant.

38a. small intestine
38b. They increase the surface area for greater food absorption

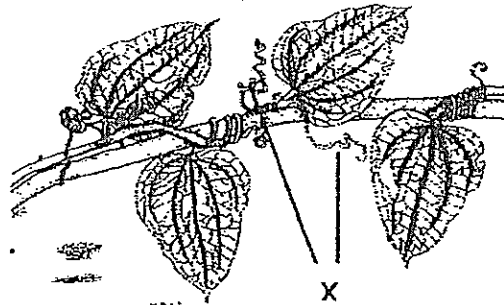
39a. Y. The height of the swing was the highest.
39b. He only wants to measure the elastic spring force of the rubber bands. To conduct a fair test, the distance travelled by the marble is a fixed variable.

40. C. The effort is applied furthest away from the fulcrum. Hence, effort used is the least.

41. No, Magnetic materials can also be attracted to magnets. Two objects are confirmed to be magnets only when like poles repel each other.

42a. Spring B. For the same mass, Spring B stretches less than Spring A.
42b. The greater the mass of an object, the longer the extension of the spring when the object is hung from it.

43a.



43b. It allows the plants to attach itself to other plants for support for its leaves to get enough sunlight.

44a. B
44b. Gravitational potential energy \longrightarrow kinetic energy \longrightarrow sound energy (+ heat energy)

45. Remove a leaf from each plant and use iodine solution to test for the presence of starch.

46a. Rod B is the best conductor of heat, followed by Rod A, then Rod C.
46b. 55 seconds.