



**RAFFLES GIRLS' PRIMARY SCHOOL
SEMESTRAL ASSESSMENT (1)
2010**

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

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

7 May 2010

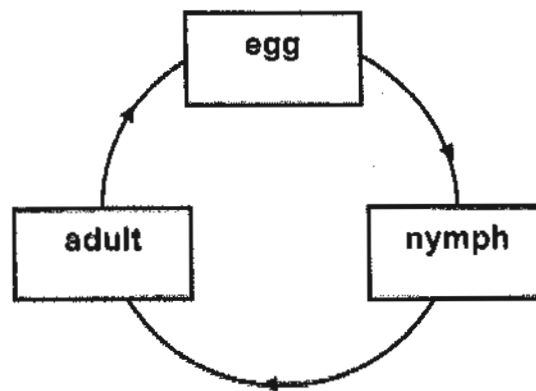
SCIENCE

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).

1. The diagram below shows the life cycle of an animal.

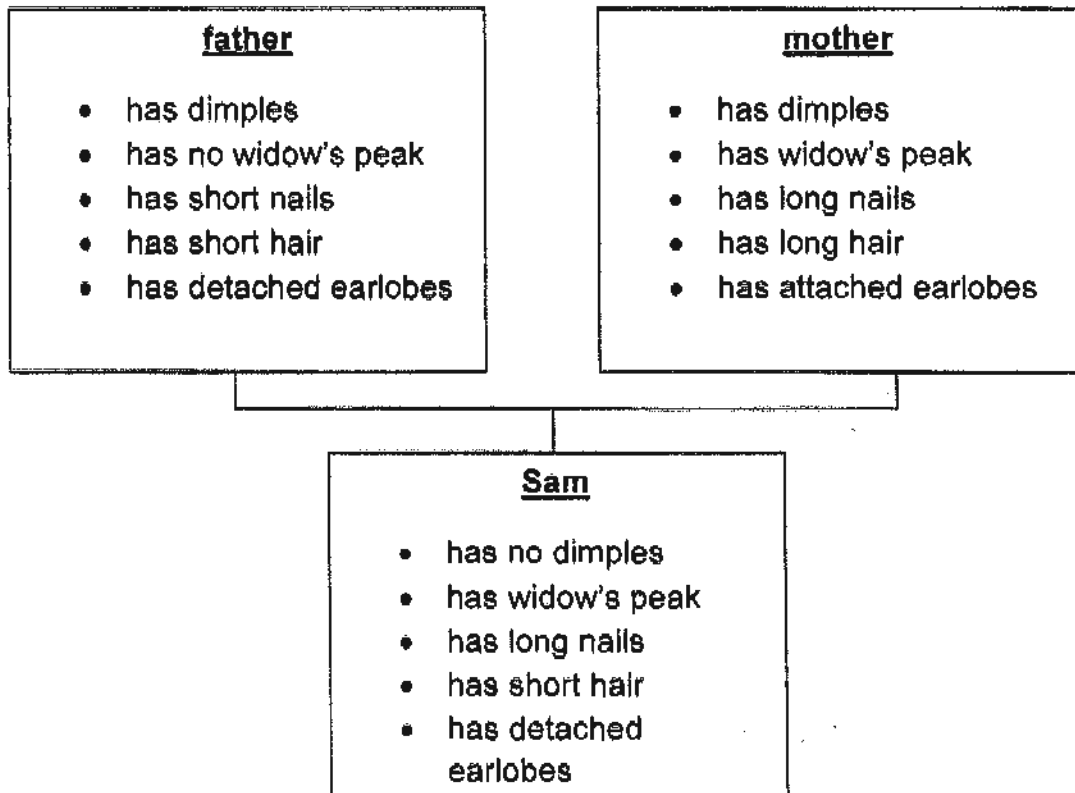


Which of the following animals go(es) through the life cycle as shown above?

- A frog
- B butterfly
- C mosquito
- D grasshopper

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

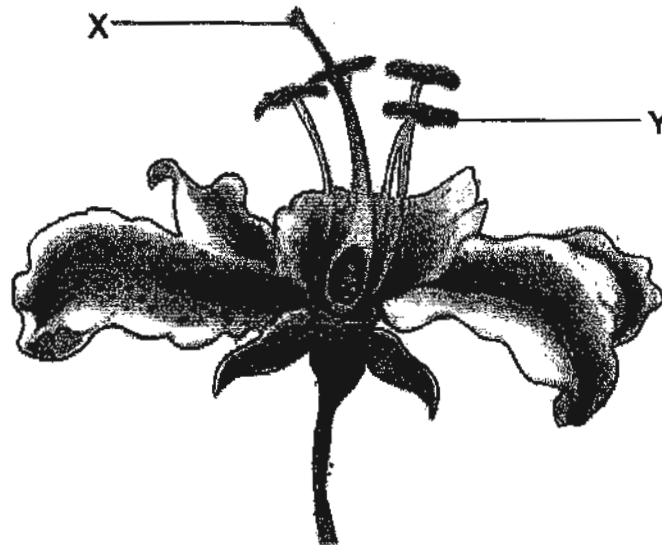
2. Sam described his father, mother and his physical characteristics below.



Which of the following traits did Sam inherit from his parents?

- (1) dimples and long nails
- (2) widow's peak and detached earlobes
- (3) widow's peak, short hair, detached earlobes
- (4) widow's peak, long nails, short hair and detached earlobes

3. Parts X and Y of a flower are shown in the diagram below.



Based on the diagram above, which one of the following pairs of statements about X and Y is true during the process of pollination?

	X	Y
(1)	male part of the flower where pollen grains are transferred to	female part of the flower where pollen grains are
(2)	male part of the flower where pollen grains are	female part of the flower where pollen grains are transferred to
(3)	female part of the flower where pollen grains are transferred to	male part of the flower where pollen grains are
(4)	female part of the flower where pollen grains are	male part of the flower where pollen grains are transferred to

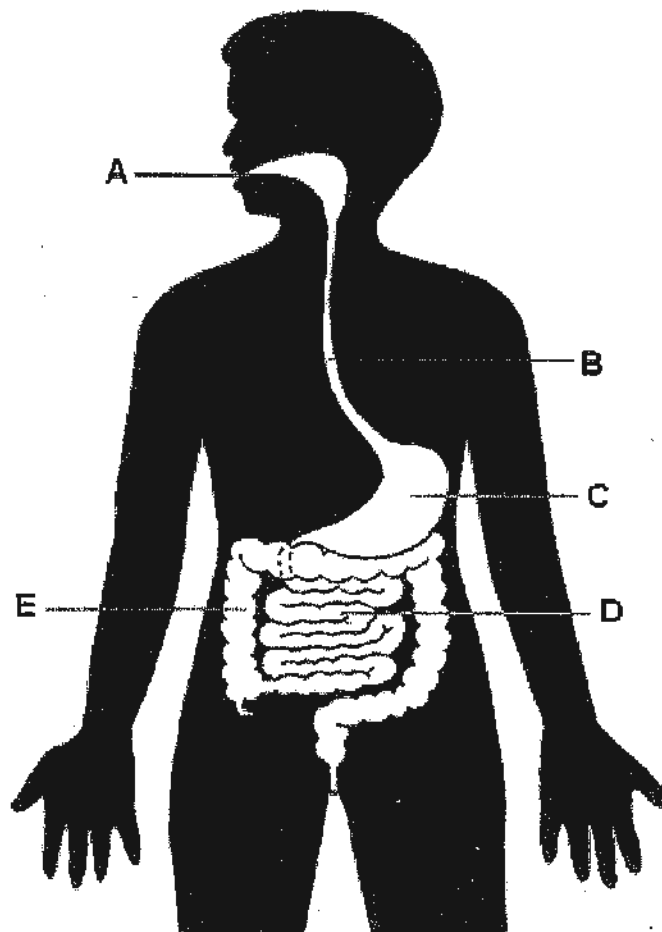
4. Sally carried out the following steps to find out how plants grow under certain conditions.

- Step 1 : She filled five flower pots made of the same material but of different sizes with the same amount of garden soil.
- Step 2 : She planted the same number of the same type of seeds in each pot.
- Step 3 : She placed the pots side by side in the garden.
- Step 4 : She watered each of the pots with the same amount of water daily.

Which one of the following could possibly be the aim of Sally's experiment?

- (1) Sunlight is necessary for photosynthesis.
- (2) Overcrowding affects healthy plant growth.
- (3) Water is necessary for healthy plant growth.
- (4) Garden soil is necessary for healthy plant growth.

5. The diagram below shows the human digestive system.



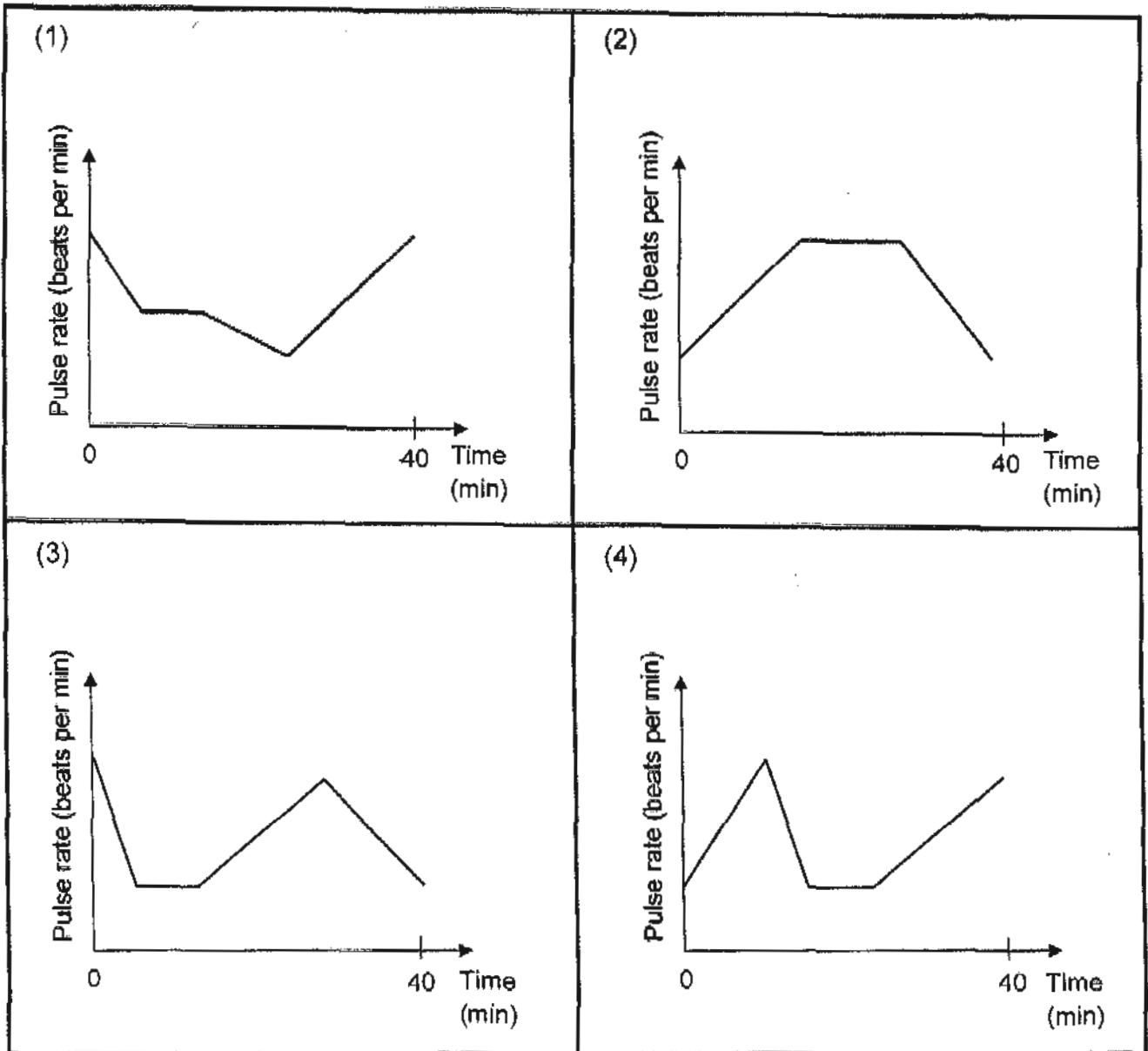
At which parts of the digestive system are digestive juices produced?

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

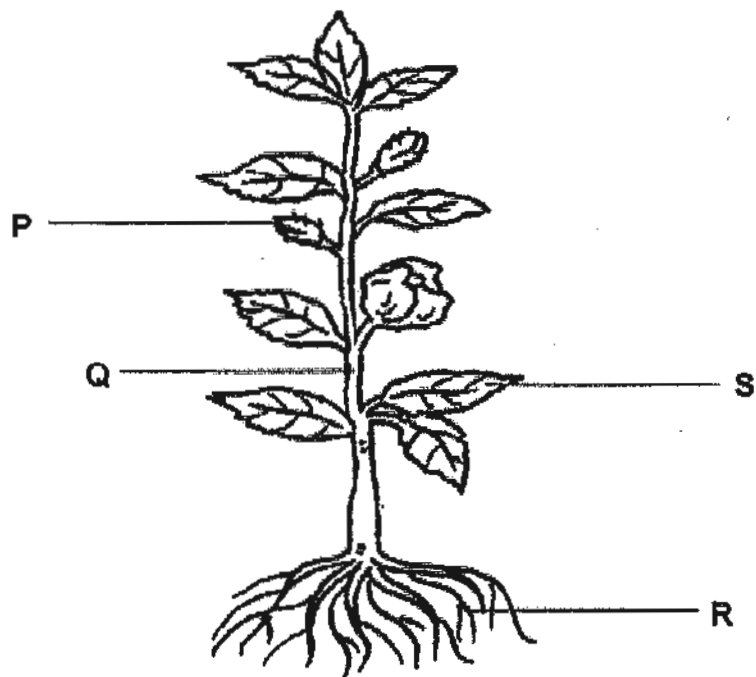
6. On a morning run, Henry ran up a hill, rested for 15 minutes at the top of the hill and ran down again.

He ran at a constant speed. The duration of his run lasted for 40 minutes.

Which one of the following graphs could possibly represent Henry's pulse rate during the 40 minutes?



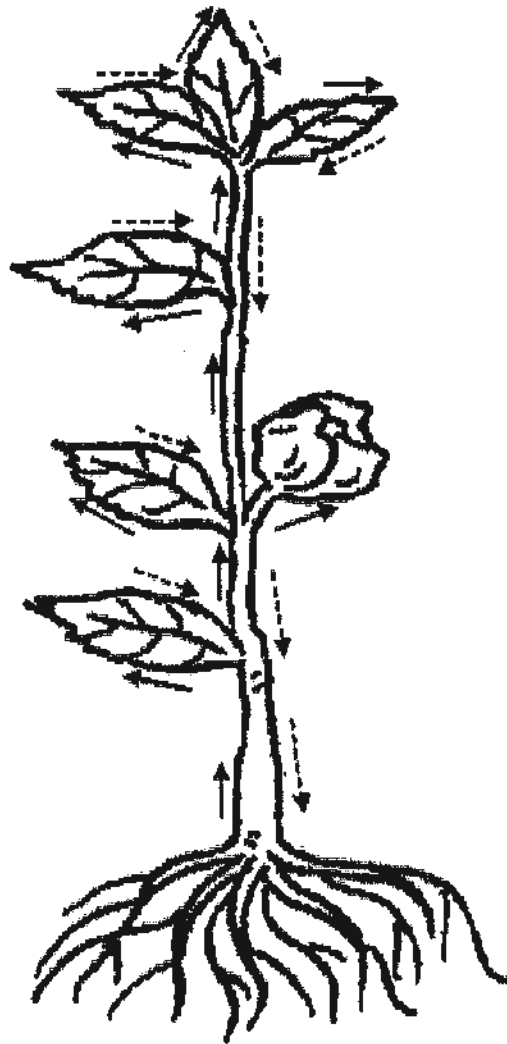
7. The diagram below shows parts of a plant.



Which one of the following gives the correct functions of the parts P, Q, R and S in the diagram above?

	P	Q	R	S
(1)	attracts animals to help in seed dispersal	transports food, water and mineral salts	holds plant firmly to the ground	takes in water and mineral salts
(2)	contains water and mineral salts	holds plant firmly to the ground	takes in water and mineral salts	contains small openings for the exchange of gases
(3)	takes in water and mineral salts	makes food	holds plant firmly to the ground	attracts animals to help in seed dispersal
(4)	contains seeds for reproduction	supports leaves	takes in water and mineral salts	allows gaseous exchange during photosynthesis

8. The diagram below shows the flow of substances, X and Y, within a plant.



Key

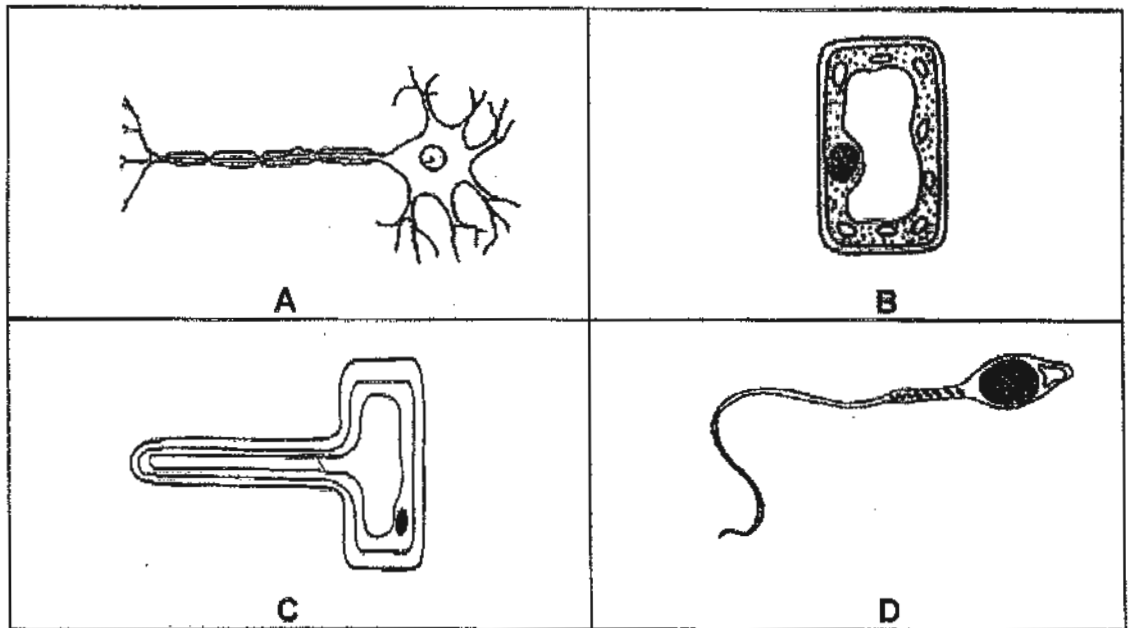
—————→ direction in which X moves

-----→ direction in which Y moves

Which one of the following pairs describes arrows correctly?

	—————→	-----→
(1)	shows the movement of food and mineral salts	shows the movement of air
(2)	shows the movement of food	shows the movement of water and mineral salts
(3)	shows the movement of air	shows the movement of food and mineral salts
(4)	shows the movement of water and mineral salts	shows the movement of food

9. The diagrams below show four different types of cells.

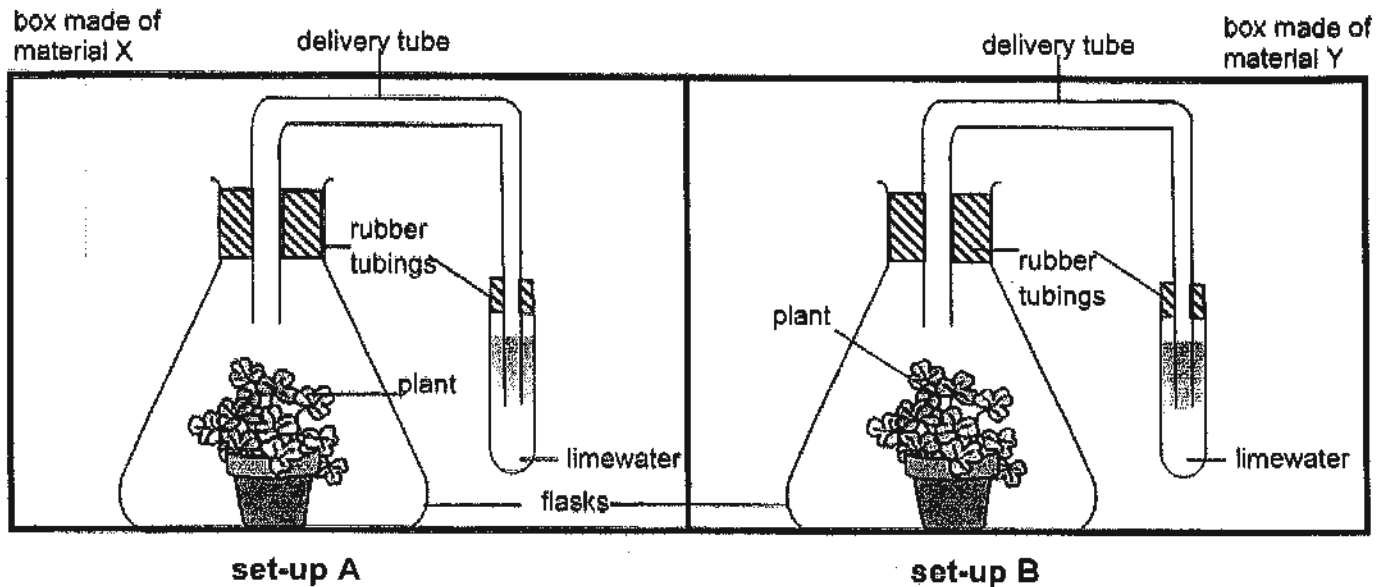


Based on the diagrams above, which one of the following is a correct classification of these cells?

	animal cells	plant cell(s)
(1)	A and D	B and C
(2)	B and C	A and D
(3)	C and D	A and B
(4)	A, B and C	D

10. Tom's teacher told him that limewater turned chalky in the presence of carbon dioxide.

Tom used two similar plants in different set-ups, A and B, as shown below, to find out what would happen to the limewater.



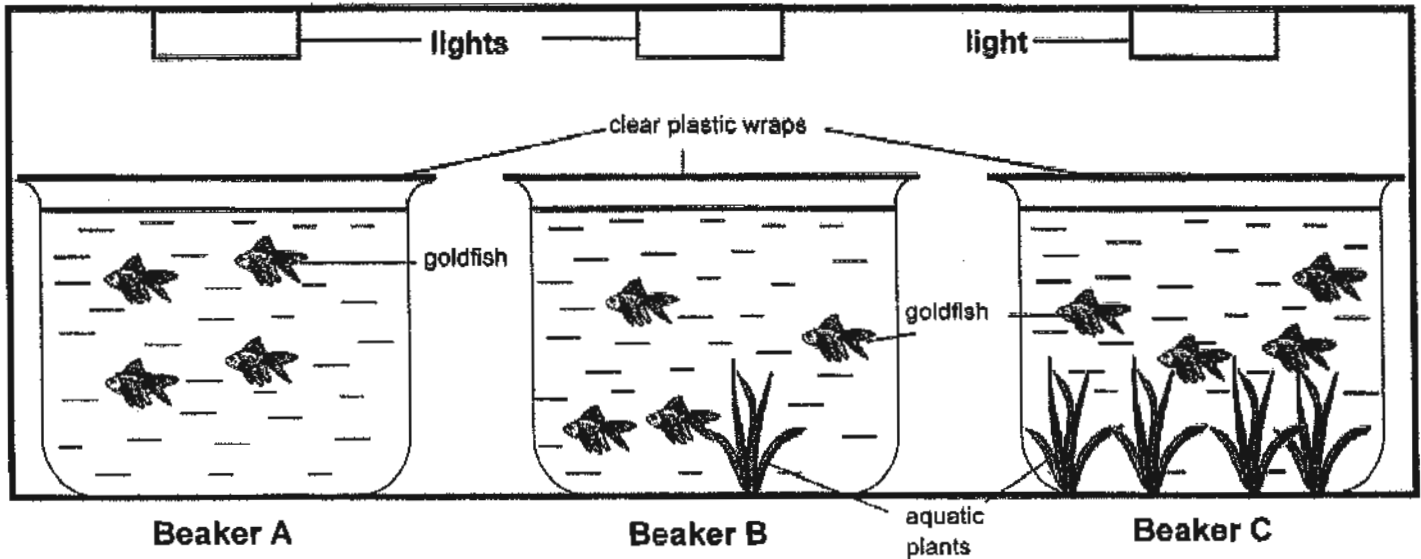
Tom placed both set-ups near an open window. After a day, he observed that the limewater in set-up A remained colourless while the limewater in set-up B had turned chalky.

What could possibly be the materials of X and Y?

	set-up A	set-up B
(1)	wood	cardboard
(2)	cardboard	frosted glass
(3)	wood	clear glass
(4)	clear glass	wood

11. Sandy set up an experiment using the apparatus and similar type of goldfish and aquatic plants.

She sealed each set-up with a clear plastic wrap and placed them in a room under lights as shown in the diagrams below.



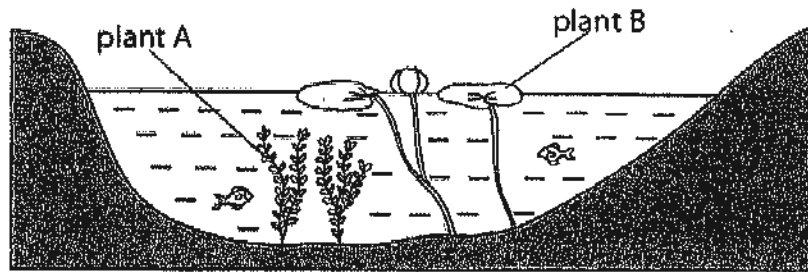
Sandy recorded her observations of each beaker as follows:

- Beaker A All the fish died on day 1.
Beaker B All the fish died on day 2.
Beaker C All the fish died on day 3.

Which of the following could be the likely reason(s) to explain why the fish in Beaker C died on day 3?

- A More space was available for the fish to take in oxygen.
B More water plants were available to provide oxygen for the fish.
C Rate of photosynthesis of plants was greater than rate of respiration of plants and fish.
D Rate of respiration of plants was greater than rate of respiration of plants and fish.
- (1) A and D only (2) B and C only
(3) C and D only (4) A, B and D only

12. The diagram below shows the types of plants, A and B, found in a pond.



A group of pupils found that as the number of plant B in the pond increased, the number of plant A growing at the bottom of the pond decreased.

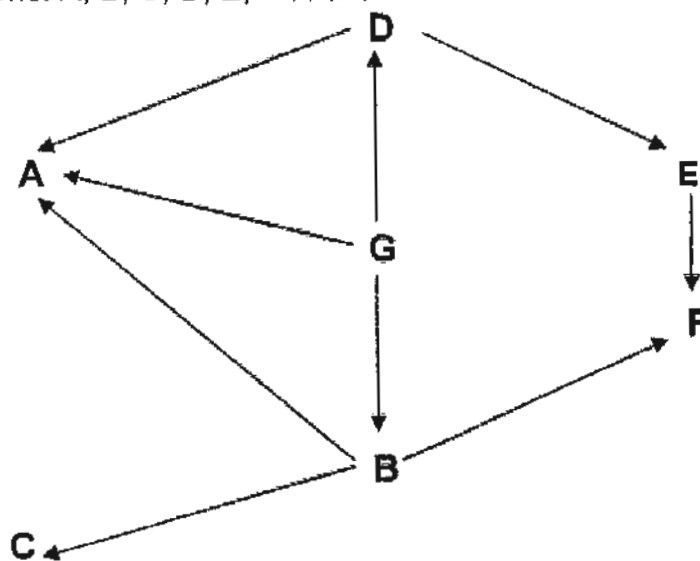
Based on the information above, each of these pupils gave his/ her explanation.

- Joshua : Dissolved oxygen cannot reach plant A.
- Jenny : Less light reaches the deeper parts of the pond.
- Mei Yin : Less nutrients are found in the deeper parts of the pond.
- Mustafa : Plant A competes for space in the deeper parts of the pond.

Which one of these pupils gave the most likely explanation(s)?

- (1) Jenny only
- (2) Joshua only
- (3) Mei Yin and Mustafa only
- (4) Joshua, Meiyin and Mustafa only

13. The following food web shows the food relationships among some organisms: A, B, C, D, E, F and G.



Which one of the following describes the roles of these organisms correctly?

	a food producer	a predator	a prey only	both a predator and prey
(1)	A	C	D	B
(2)	B	A	C	D
(3)	G	C	E	F
(4)	G	C, F	B, D	E

14. Which of the following statements is/ are true about decomposers?

- A They cause decay.
- B They feed on dead matter.
- C They are all microscopic organisms.

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

15. Fish have structural adaptations which help them to move in water.

Which of the following are structural adaptations which help the fish to move in water?

- A Their tail fins enable them to propel forward in water.
- B They move close to the water surface to take in oxygen.
- C Their gills help them to take in dissolved oxygen in the water.
- D They have streamlined bodies to overcome water resistance.

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

16. The table below provides some information on three different types of organisms, X, Y and Z.

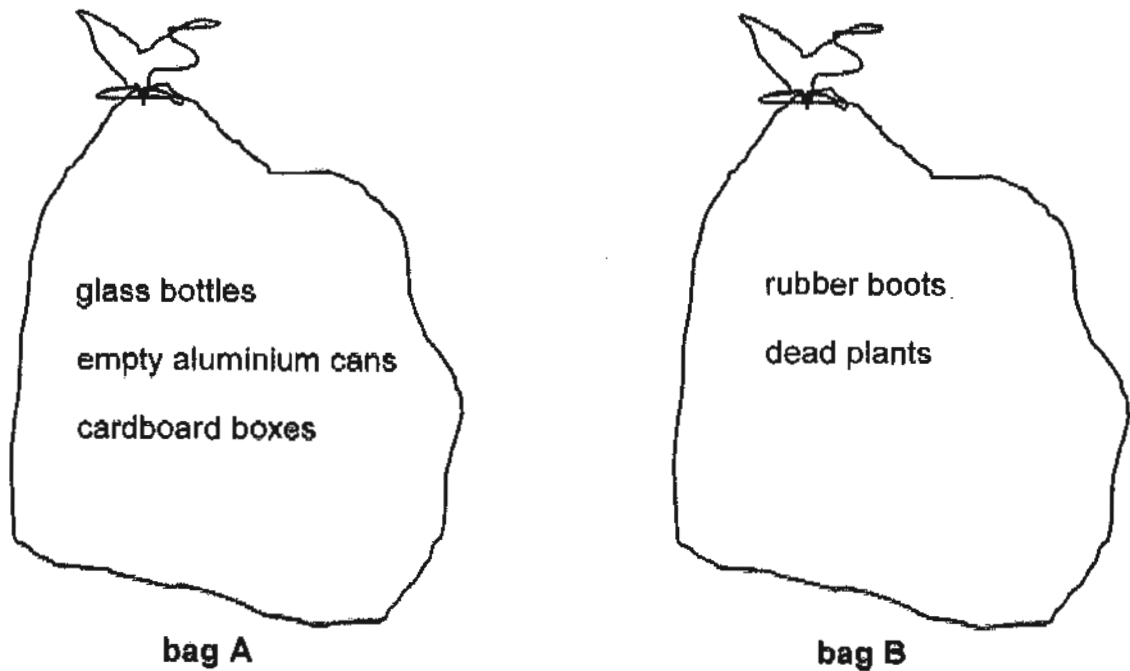
organism	information
X	<ul style="list-style-type: none"> • feeds only at night • feeds on small animals
Y	<ul style="list-style-type: none"> • has a weak stem • insects help to pollinate its flowers
Z	<ul style="list-style-type: none"> • lives in the hot desert • walks on sandy ground

Which one of the following shows the correct adaptations of these organisms, X, Y and Z?

	X	Y	Z
(1)	<ul style="list-style-type: none"> • has a curved beak • has hollow bones 	<ul style="list-style-type: none"> • has needle-like leaves • has a swollen stem 	<ul style="list-style-type: none"> • has padded feet • sweats very little
(2)	<ul style="list-style-type: none"> • has good night vision • has hollow bones 	<ul style="list-style-type: none"> • has thorns on its stem • has sweet-smelling flowers 	<ul style="list-style-type: none"> • has sharp claws • drinks a lot of water
(3)	<ul style="list-style-type: none"> • has sharp claws • has good night vision 	<ul style="list-style-type: none"> • has brightly coloured flowers • has tendrils 	<ul style="list-style-type: none"> • drinks and urinates very little • has padded feet
(4)	<ul style="list-style-type: none"> • has a streamlined body • has sharp claws 	<ul style="list-style-type: none"> • has small dull-coloured flowers • has tendrils 	<ul style="list-style-type: none"> • sweats very little • has webbed feet

18. A group of pupils during a beach clean-up event found lots of rubbish along the beach.

Rubbish was sorted into two separate trash bags as shown below.

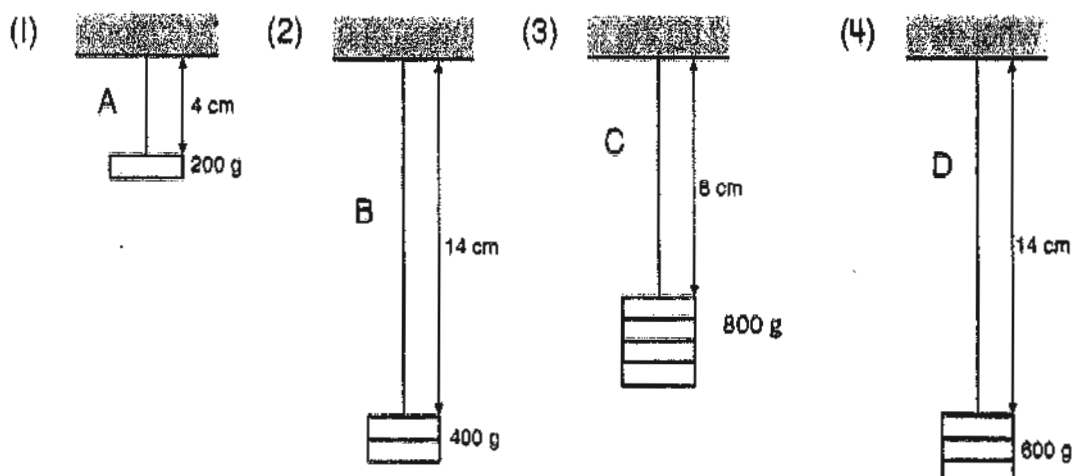


Which one of the following shows how these pupils sorted the rubbish?

	bag A	bag B
(1)	items that could be recycled	items that could not be recycled
(2)	items that could decompose	items that could not decompose
(3)	items that were biodegradable	items that were non-biodegradable
(4)	items that could cause land pollution	items that could not cause land pollution

19. David used four different types of strings of equal length and thickness for his experiment.

The diagrams below show David's observations of the effect of the different mass on each string.



The different mass attached on each string was the maximum weight that each string could bear before it snapped.

Which one of these strings is made of the strongest material?

- (1) String A
 - (2) String B
 - (3) String C
 - (4) String D
20. Substance H melts at 15 °C and boils at 110 °C.

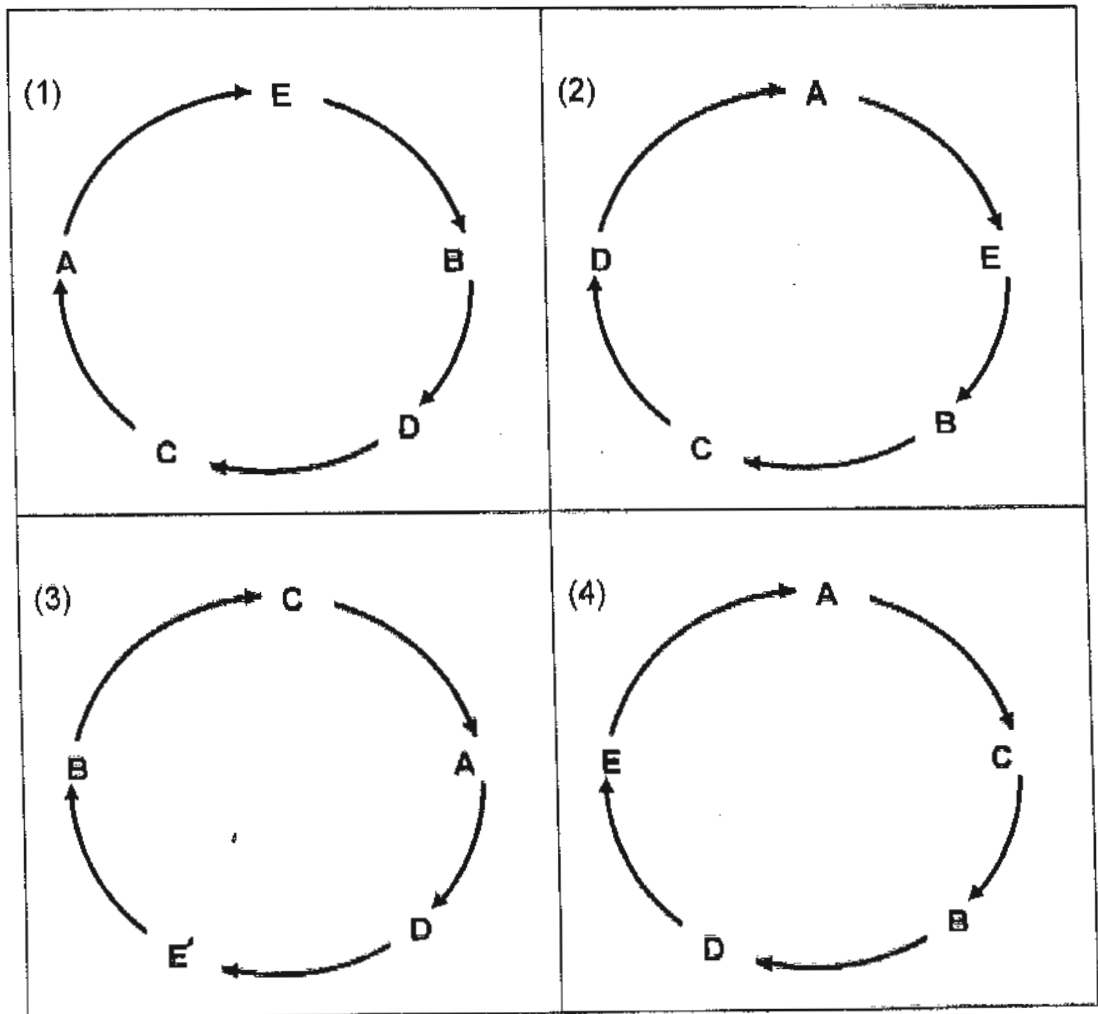
At which one of the following temperatures is substance H a solid?

- (1) 10 °C
- (2) 40 °C
- (3) 65 °C
- (4) 125 °C

21. The following statements show the different phases in the water cycle. However, they are **NOT** arranged in the correct sequence.

- A Water vapour rises and cools.
- B The clouds become heavier and heavier.
- C Rain falls to the earth.
- D Water evaporates from the seas, rivers and living things.
- E Water vapour condenses to form small droplets of water.

Which one of the following shows the correct sequence of the water cycle?



22. Diagram 1 and Diagram 2 below show a girl sitting near a tree at 2.00pm and noon respectively.

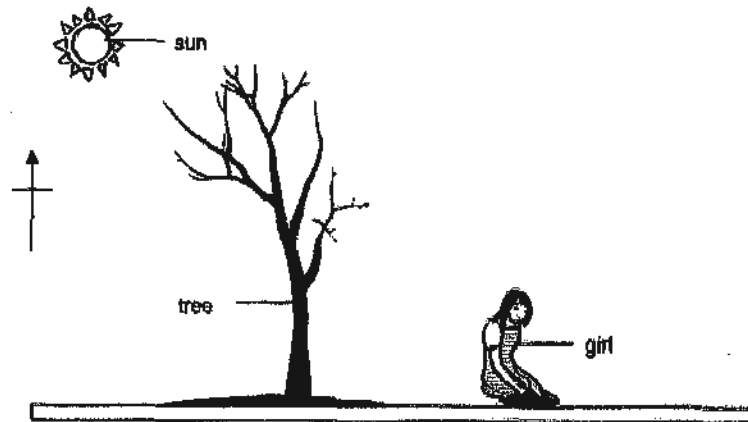


Diagram 1

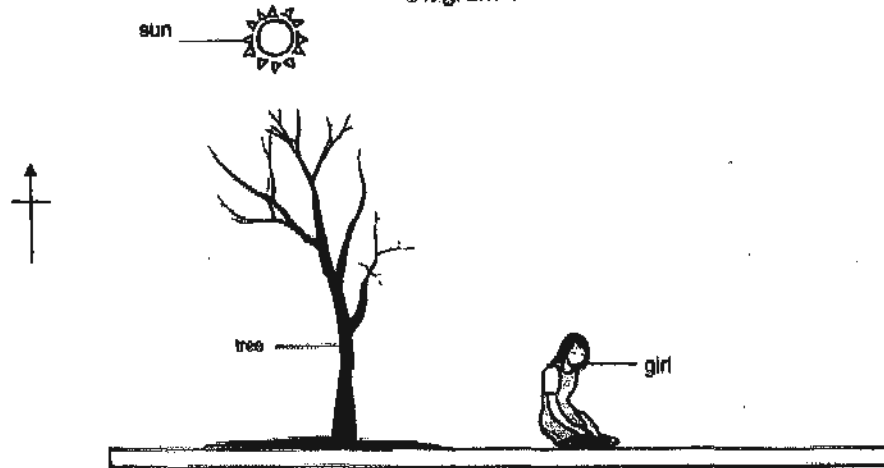
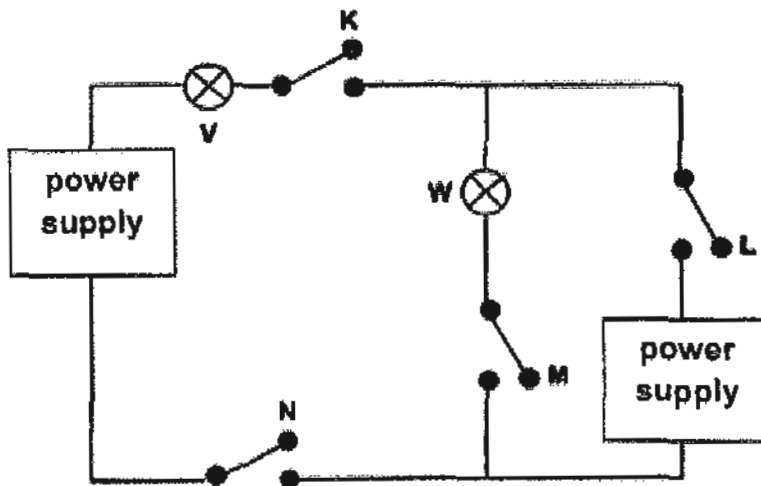


Diagram 2

Based on the diagrams above, which one of the following statements is **NOT** a correct inference about shadows?

- (1) Both the tree and the girl block the light rays and thus create shadows.
- (2) As the sun rises from morning to noon, the shadow of the tree gets shorter.
- (3) The length of the shadow of the tree is longer than the shadow of the girl at 2.00pm.
- (4) The shadow of the girl will not be formed as all the light rays from the sun is blocked by the tree.

24. The diagram below shows the various components of a circuit.



Which of the switches should be left open and which should be closed so that **ONLY** bulb **W** lights up?

	switch K	switch L	switch M	switch N
(1)	open	closed	open	open
(2)	open	closed	closed	closed
(3)	closed	open	closed	closed
(4)	closed	open	open	open

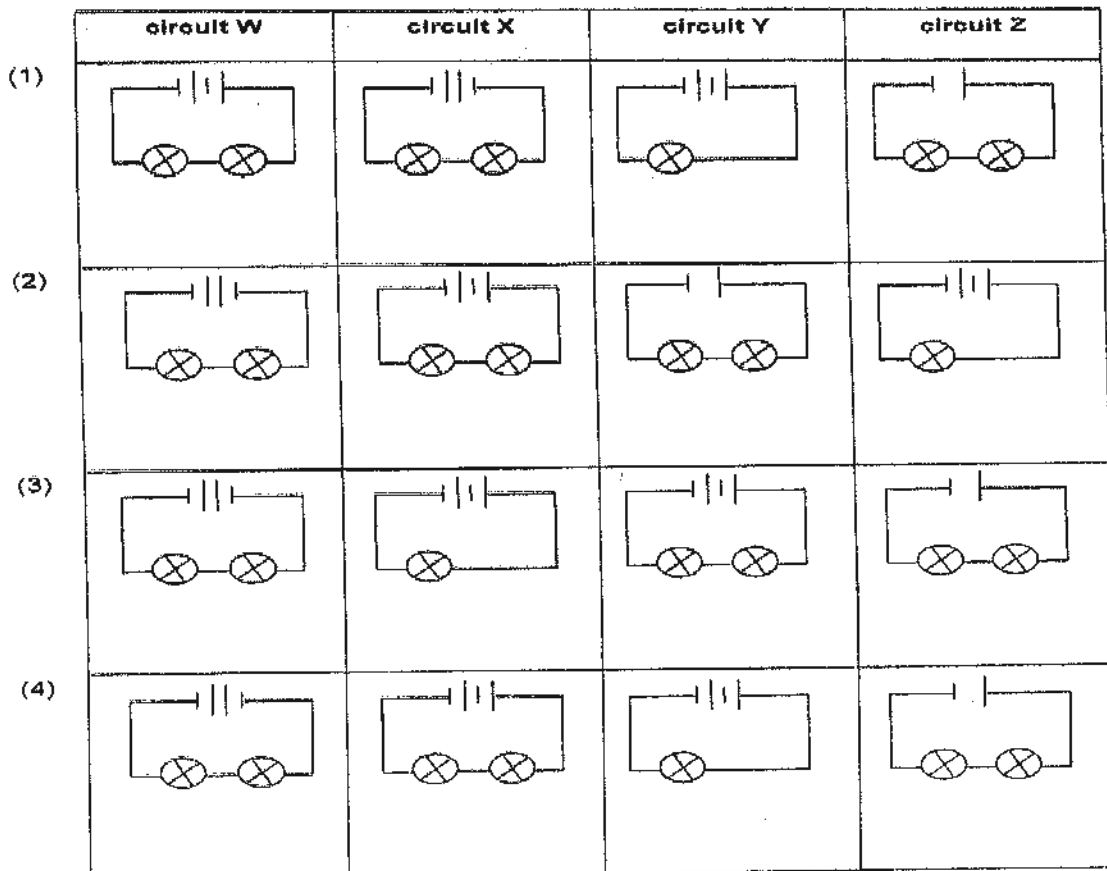
25. Diana connected four different circuits, W, X, Y and Z, using a combination of identical bulbs and batteries. She recorded her observations of the bulb(s) each time she closed a different circuit.

Her results are shown in the table below.

A tick (✓) in the box below shows the observations made of the bulb(s).

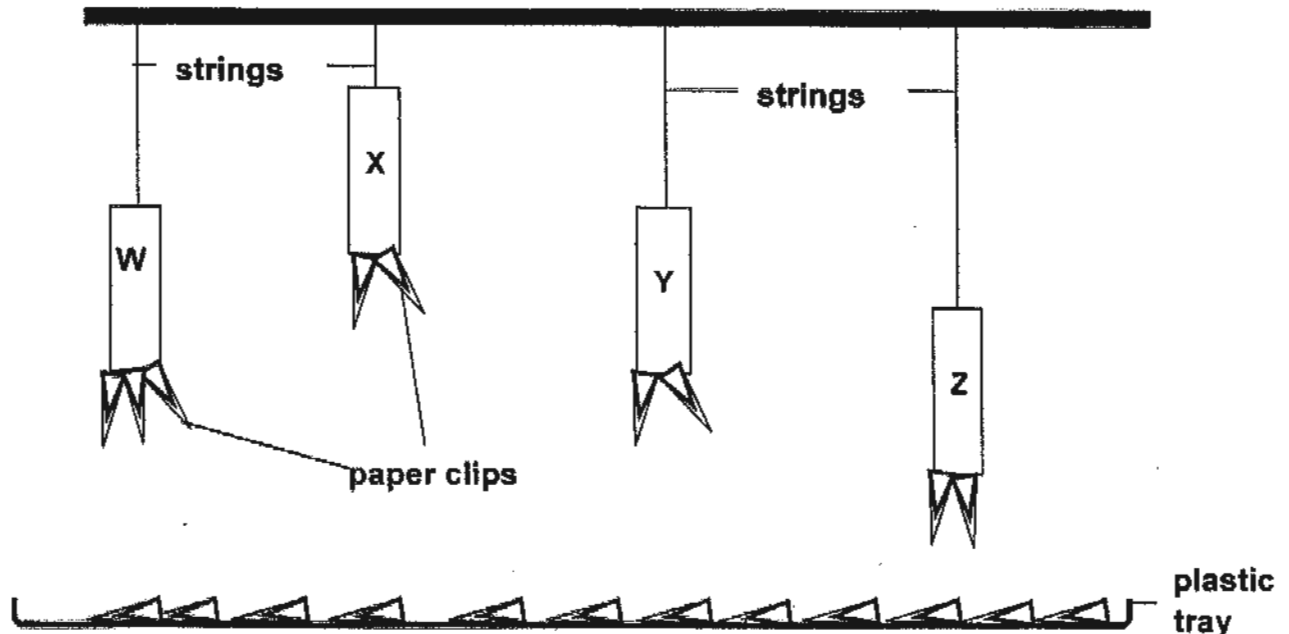
circuit	observations of the bulb(s)			
	not lighted	dim	bright	brightest
W	✓			
X			✓	
Y				✓
Z		✓		

Which one set of the circuit diagrams below shows the correct connections of each of these circuits W, X, Y and Z?



26. Tom had four magnets of the same size, W, X, Y, Z, which were hung by strings of three different lengths.

A plastic tray filled with evenly spread out iron paper clips was placed directly below the magnets as shown below.

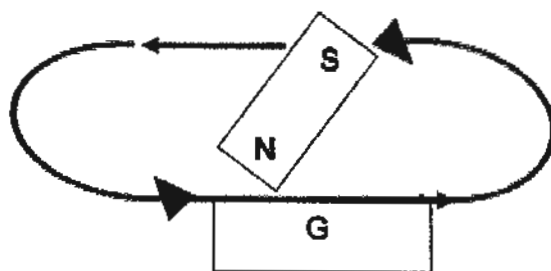


Tom observed that each magnet attracted a different number of paper clips.

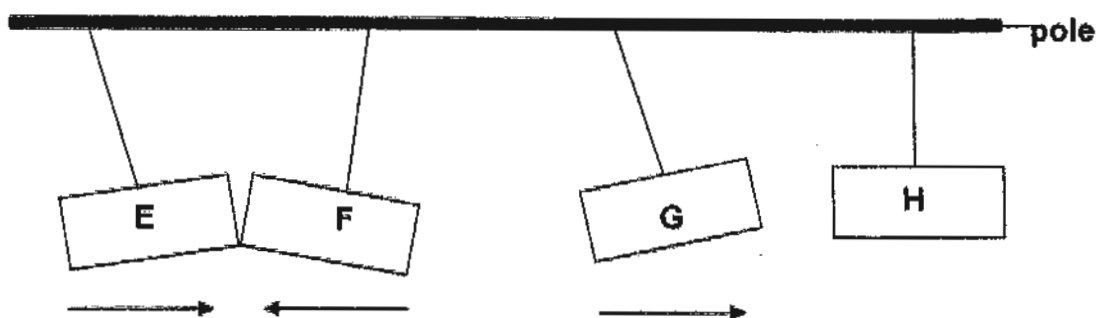
Which one of the following observations made by Tom is definitely true?

- (1) Magnet Y is the weakest.
- (2) Magnet X is as strong as magnet Y.
- (3) Magnet Y is stronger than magnet Z.
- (4) Magnet Z is stronger than magnet X.

27. An iron bar, G, became a temporary magnet after a permanent magnet had stroked it many times as shown in the diagram below.



The iron bar, G, was left to hang from a pole with some other bars, E, F and H, as shown below.



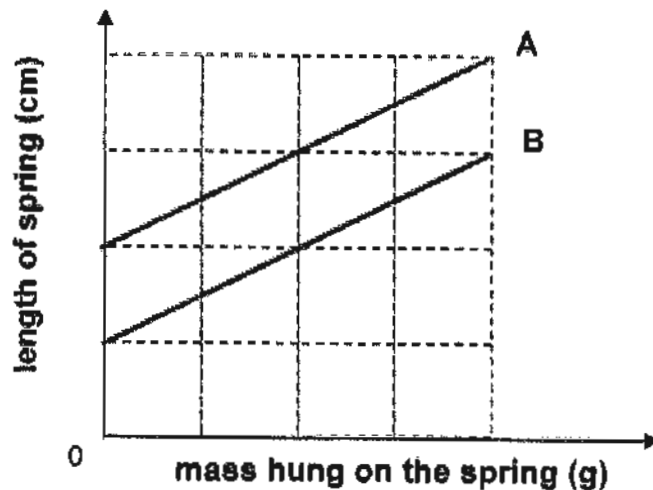
The arrow below each specified bar shows the direction in which it moved.

Which of these statements about the bars are definitely true?

- A Bar F is a magnet.
- B Bar E is made of a magnetic material.
- C The magnetic strength of Bar G is weak.
- D Bar H is made of a non-magnetic material.

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

28. The graph below shows how the lengths of two springs, A and B, are affected by the mass hung on each of them.



Which of the following statements about the graph is/are true?

- A The original length of spring A is longer than the original length of spring B.
- B For the same amount of mass hung on the spring, spring A extends more than spring B.
- C Gravity acts only on the mass hung on the springs but not on the springs.

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

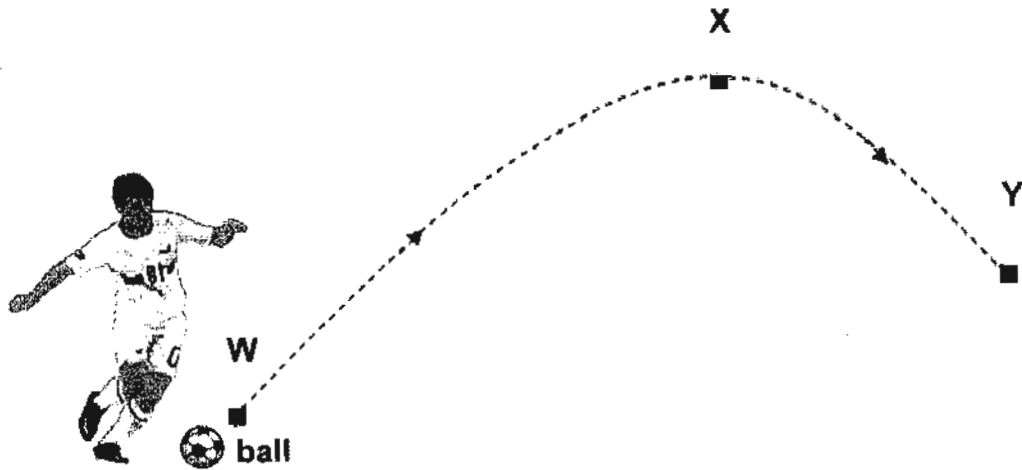
29. John threw a ball at the wall.

Which one of the following effects of force is illustrated when John threw the ball?

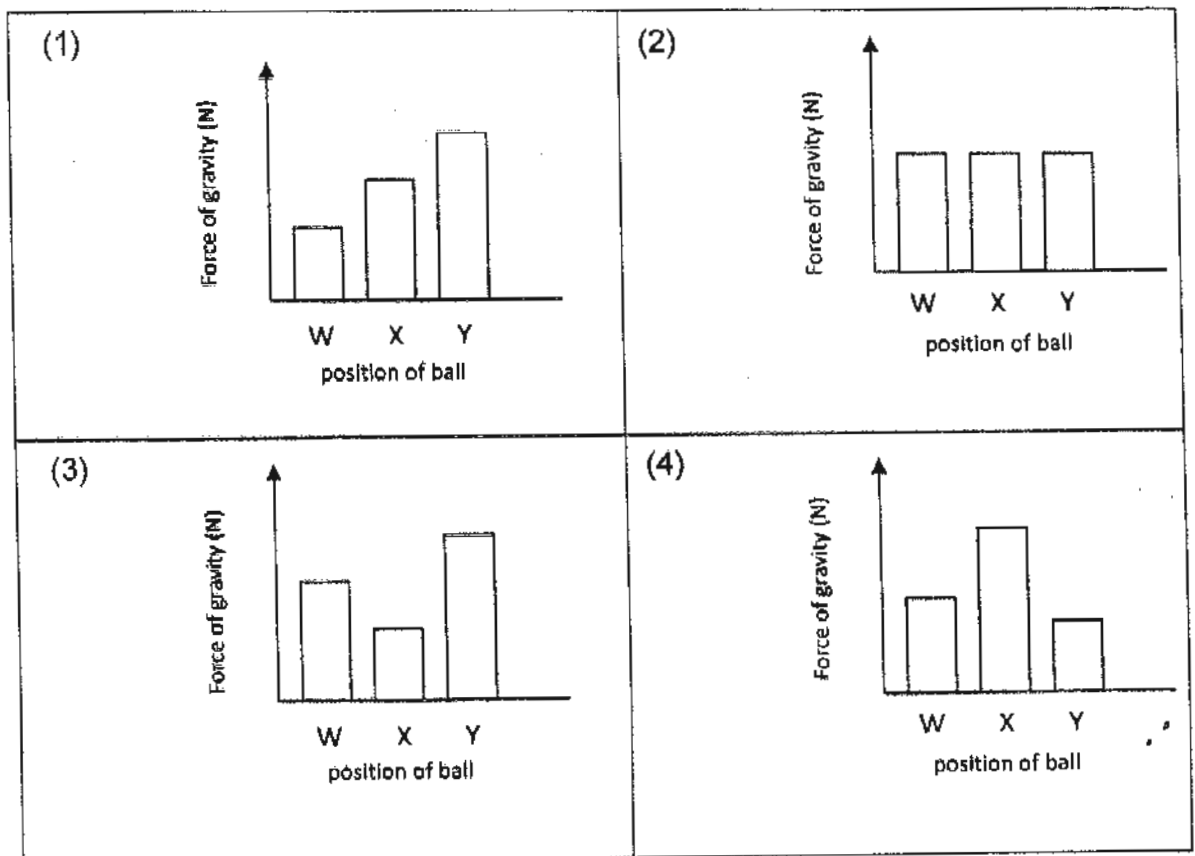
- (1) A force can stop a moving object.
- (2) A force can make a stationary object move.
- (3) A force can change the speed of a moving object.
- (4) A force can change the direction of a moving object.

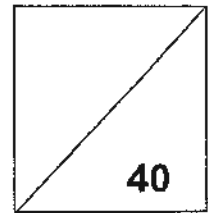
30. The diagram below shows the path of the ball travelled when it was kicked during a soccer game.

Points W, X and Y are the different positions along the path of the travelling ball.



Which one of the following graphs shows the correct amount of force of gravity acting on the ball at points W, X and Y?



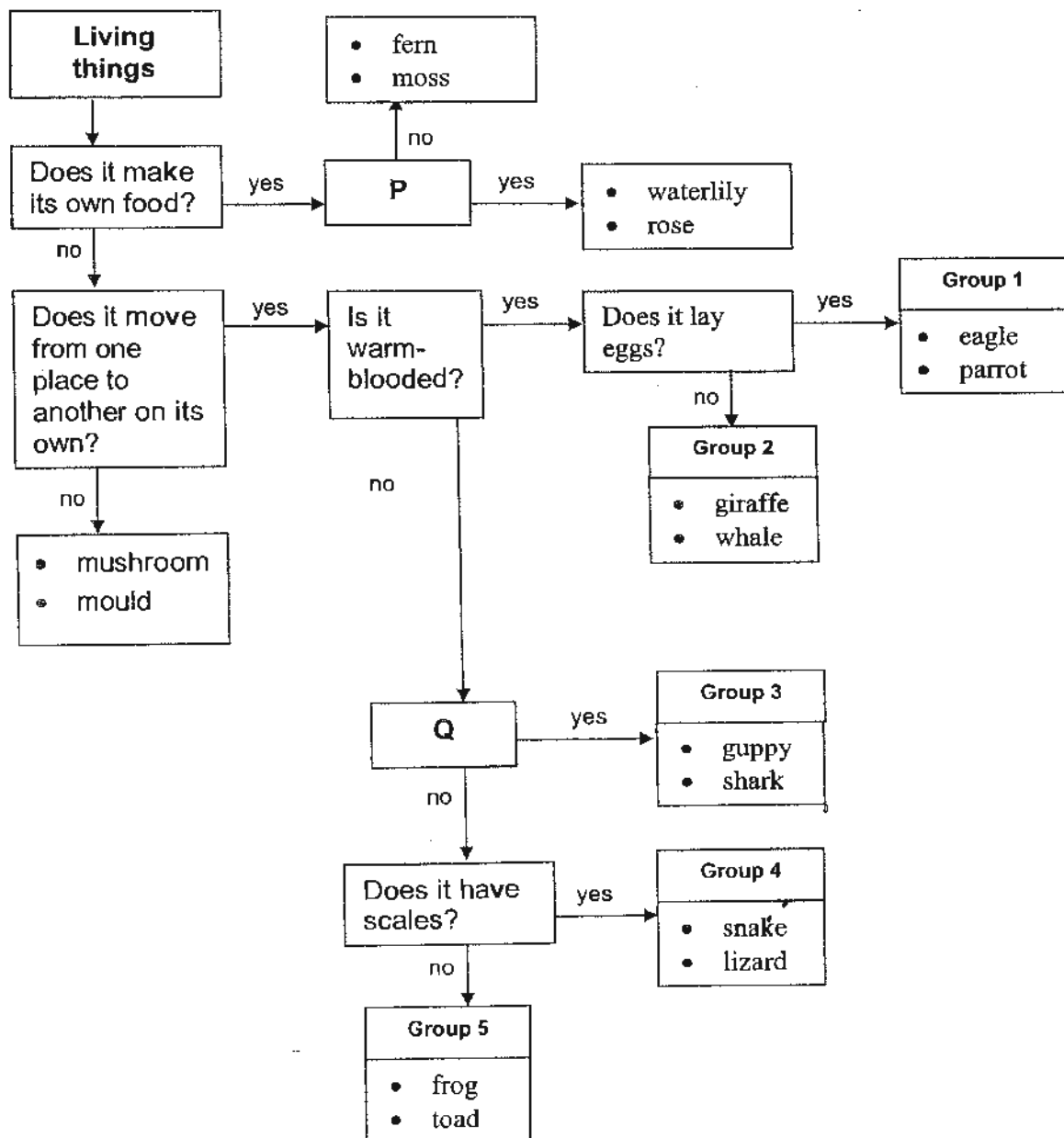


SECTION B (40 marks)

For questions 31 to 44, write your answers clearly in the spaces provided.

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

31. The classification chart below shows how some living things are being classified.



- (a) Based on the information on page 28, provide a suitable question for each of the following: [2]

	Question
P	
Q	

- (b) The platypus is described as an animal with the following characteristics:

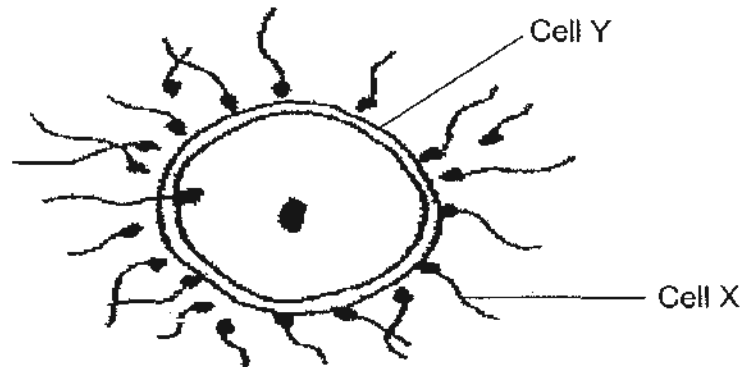
- is warm-blooded
- does not give birth to its young

Which group does the 'platypus' belong to?
Write number 1, 2, 3, 4 or 5 only.

[1]

Group _____

32. The diagram below shows two types of reproductive cells, Cell X and Cell Y.



(a) State the process as seen in the diagram above. [1]

(b) State the reproductive organs of human where Cell X and Cell Y are produced. [1]

reproductive organs of human	
Cell X	
Cell Y	

33. In year 2000, Helen discovered and noted the locations where three species of plants, X, Y and Z, were found on an island as shown in Diagram A. Helen returned to the same island in 2002 and noted the locations of the three species of plants again as shown in Diagram B.

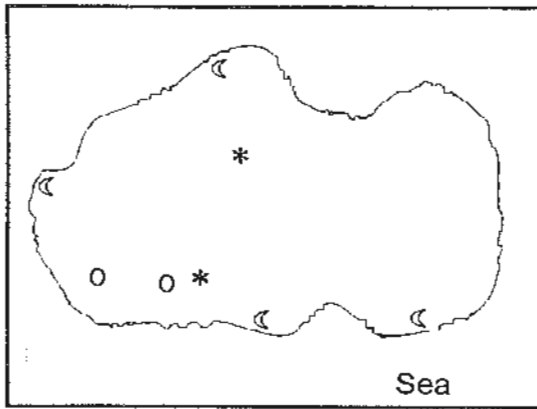


Diagram A

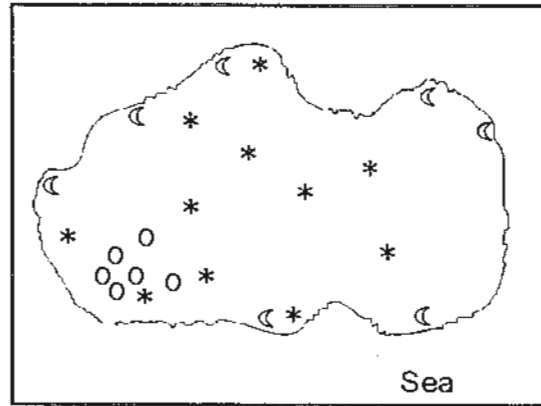
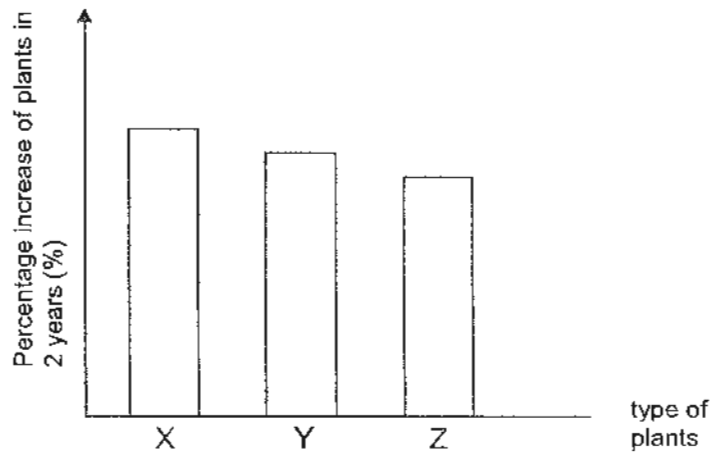
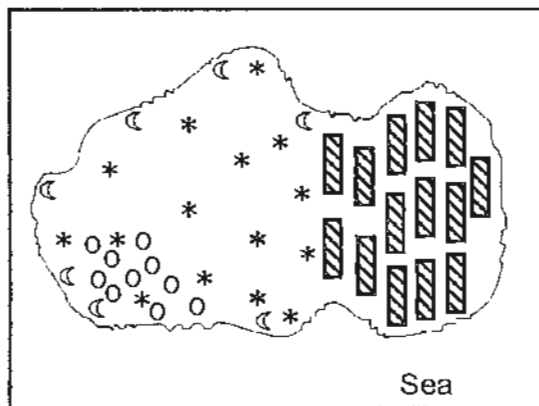


Diagram B

Helen calculated the percentage increase for each species of plants between 2000 to 2002 and recorded her findings in the graph below.



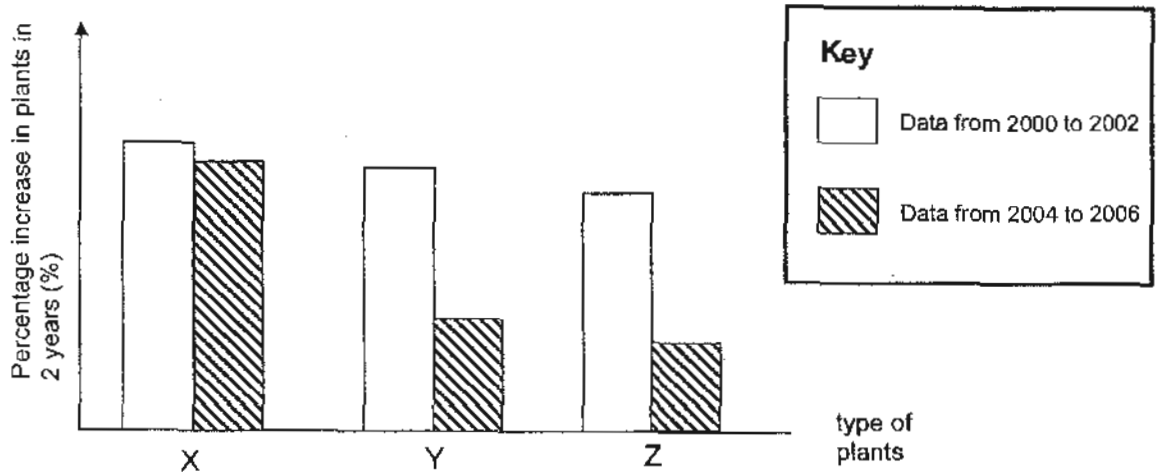
When Helen returned to the same island in 2004, tall buildings were built as shown below.



Key	
plant X	*
plant Y	O
plant Z	C
building	▨

Helen observed that there were more plants and they were growing nearer to each other.

Helen calculated the percentage increase for each plant species from 2004 to 2006 and made a comparison with the old data on the graph as shown below.



- (a) State the method of dispersal of fruit/ seed for each of the following plants: [1]

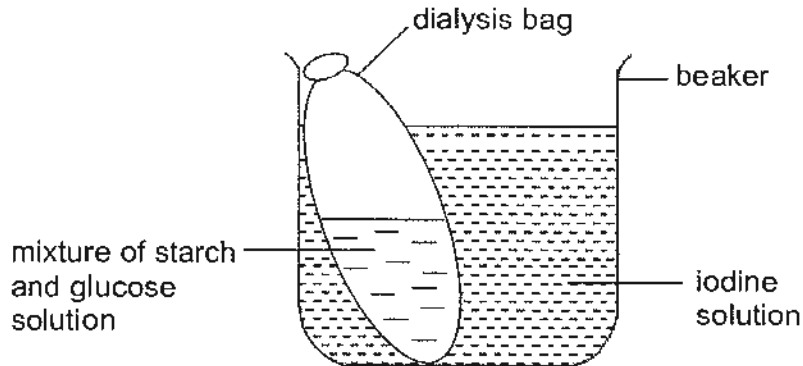
X	
Y	
Z	

- (b) Helen observed that Plant X had been reproducing much better than Plants Y and Z over the years of her observations and that observation was even more significant after the buildings were built on the island.

Explain how have the buildings on the island could have affected the rate of reproduction of Plants Y and Z on the island. [2]

34. Tom set up the experiment below using the apparatus as shown below.

NOTE: A dialysis bag only allows some substances to pass through it.



In his experiment, Tom observed the colours of the mixture solution in the dialysis bag and the iodine solution in the beaker. He used the iodine solution to test for the presence of starch. Brown iodine solution turns dark blue in the presence of starch.

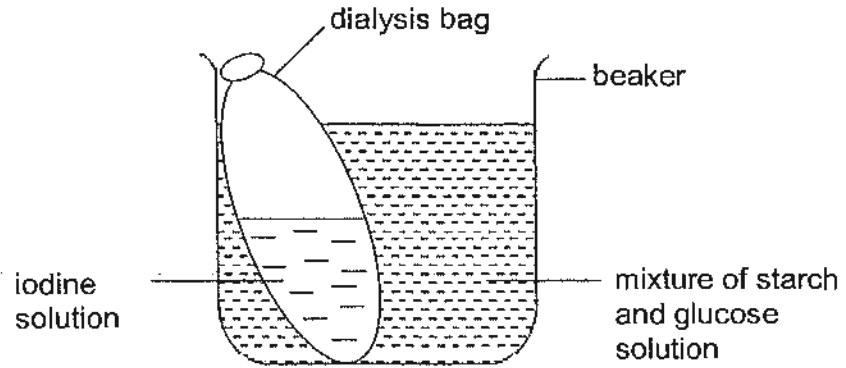
He also tested for the presence of glucose in the dialysis bag and the beaker at the start and at the end of the experiment. He recorded the results of his tests and observations in the tables below.

Table 1: Test for starch		
	colour of solution at the start of experiment	colour of solution an hour later
solution in dialysis bag	white	dark blue
solution in beaker	brown	brown

Table 2: Test for glucose		
	presence of glucose at the start of experiment	presence of glucose an hour later
solution in dialysis bag	present	present
solution in beaker	absent	present

(a) Which part of an animal cell has a similar function as the dialysis bag? [1]

Tom decided to place the iodine solution in the dialysis bag and the mixture of starch and glucose solution in the beaker as shown in the diagram below.

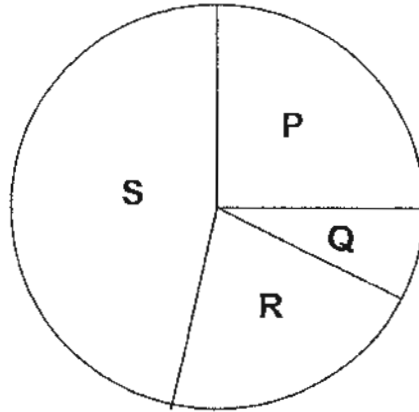


- (b) Predict the results of his test and observations in the tables below. [2]

Table 3: Test for starch		
	colour of solution at the start of experiment	colour of solution an hour later
solution in dialysis bag		
solution in beaker		

Table 4: Test for glucose		
	presence of glucose at the start of experiment	presence of glucose an hour later
solution in dialysis bag		
solution in beaker		

35. The pie chart below shows the population size of each organism, P, Q, R and S, in a certain community.



- (a) Write down a food relationship involving organisms P, Q, R and S. [1]

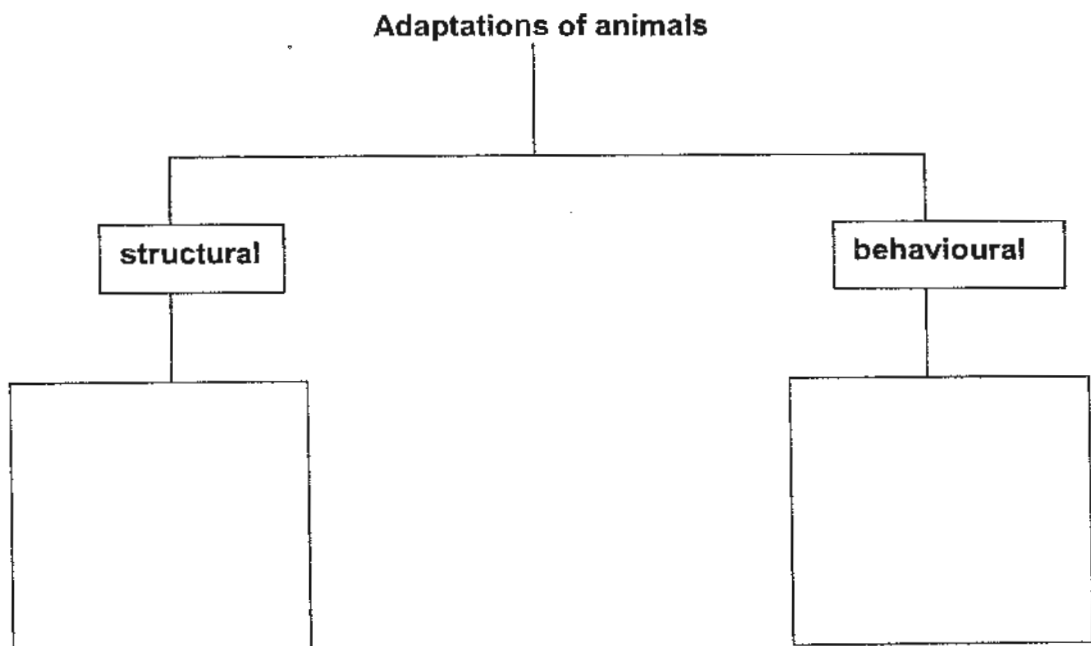
- (b) When the population of organism S was wiped out suddenly by a type of disease, state the effect(s) on each of the other organisms. [1]

36. The table below shows how some animals adapt to survive in their habitats.

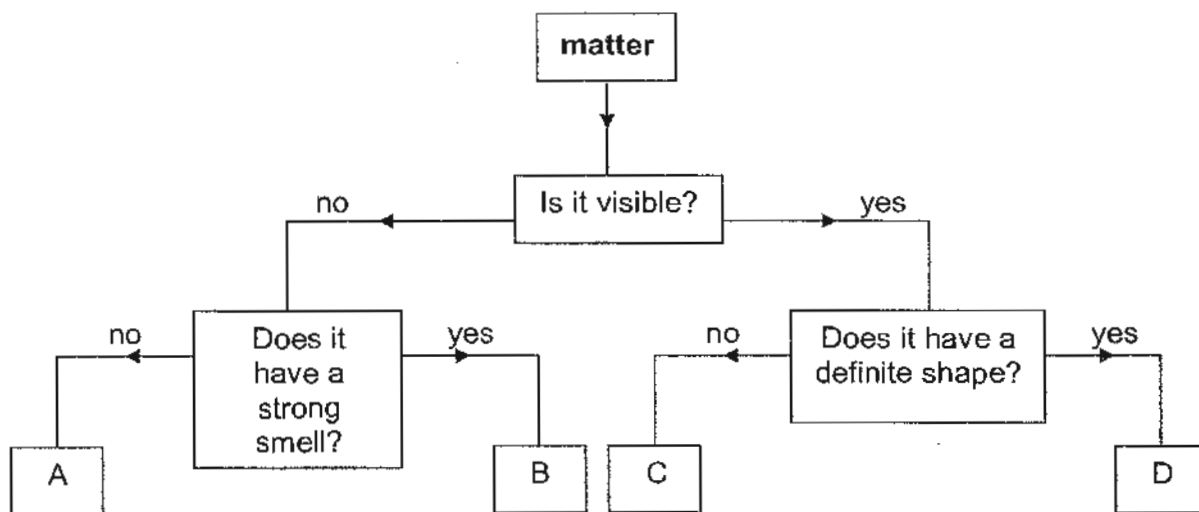
animal	adaptation	how adaptation enables animal to survive in its habitat
P	has a long neck	can eat leaves of tall trees
Q	flies south in winter	gives animal warmth
R	hibernates	can avoid food shortages in winter
S	has sharp, stiff quills	can defend itself against its enemies
T	can climb trees	can escape from its predators
U	produces very little sweat and urine	reduces water loss from its body

Based on the information above, classify the animals given using the diagram below.

Write letters *P, Q, R, S, T* and *U* in the correct boxes **ONCE** only. [3]



37. The following flow chart shows how some matter at room temperature are differentiated based on their properties.



Based on the information above, answer the following questions:

- (a) Identify each of the following matter. Write **A, B, C and D ONCE** only. [2]

(i) milk : _____

(ii) pebble : _____

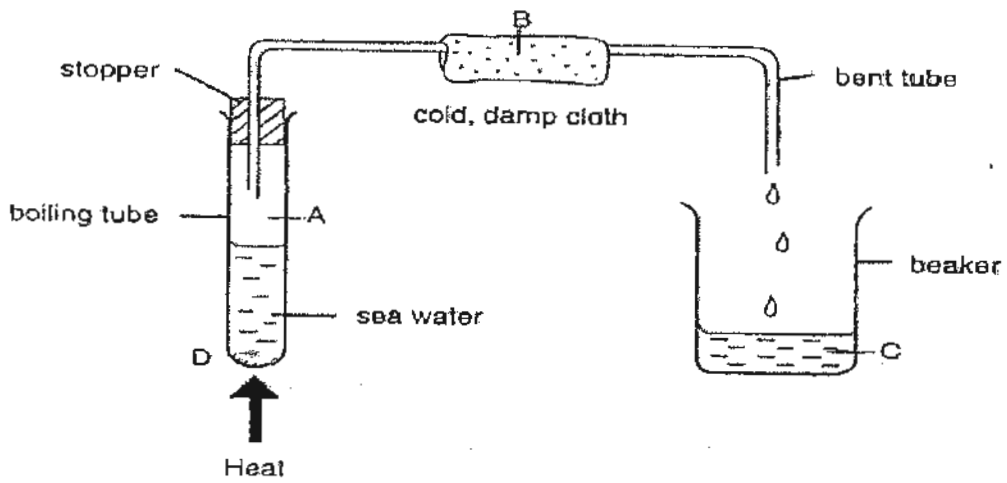
(iii) oxygen : _____

(iv) alcohol vapour : _____

- (b) A 1-litre bottle contains 900 cm^3 of matter A and 100 cm^3 of olive oil. Another 100 cm^3 of matter A is added to the same bottle. What is the volume of matter A in the bottle now? [1]

The new volume of matter A is _____ cm^3 .

38. The diagram below shows a model of how desalination is carried out.



- (a) In the table below, write down the process that is taking place at A and B. [2]

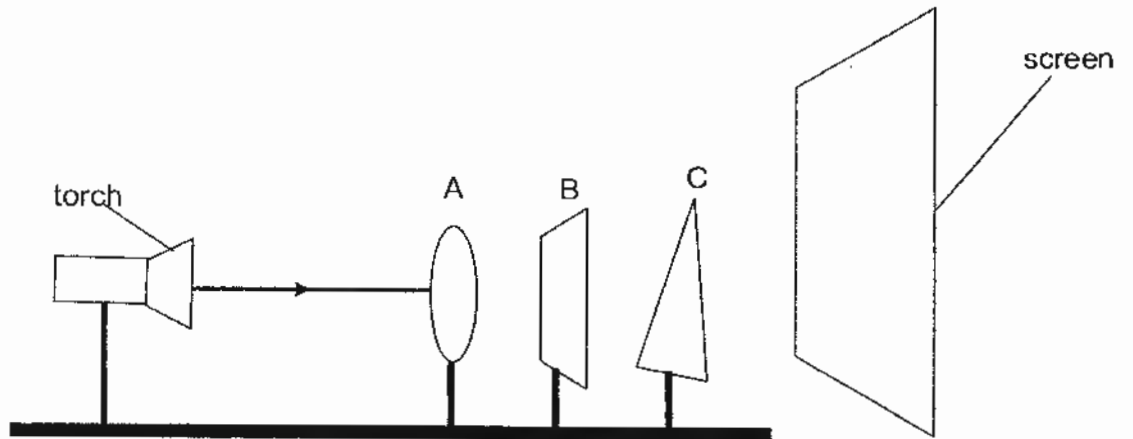
	process
A	
B	

- (b) Explain how the cold, damp cloth that covers the bent tube helps in the process of obtaining C in the beaker. [1]

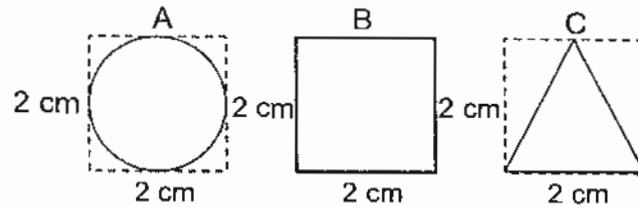
- (c) Identify the useful substances that are collected at the end of this desalination process. [2]

liquid C in beaker	
substance left in the boiling tube, D	

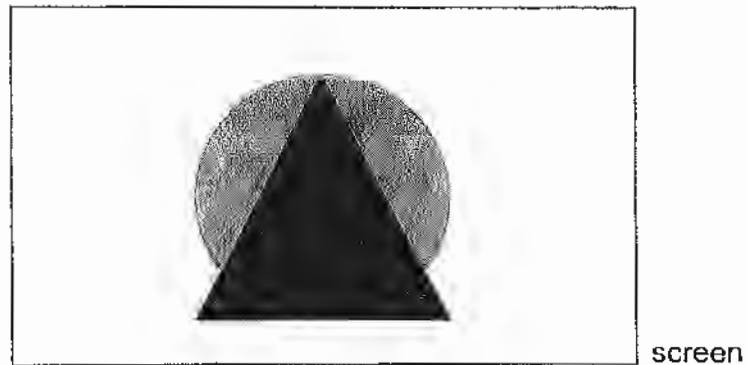
39. The diagram below shows three objects, (A, B and C) each made of a different material placed between a lighted torch and a screen.



The dimensions of the three objects are given below.



Tom turned on the torch and observed the shadows of the different objects formed on the screen as shown below.



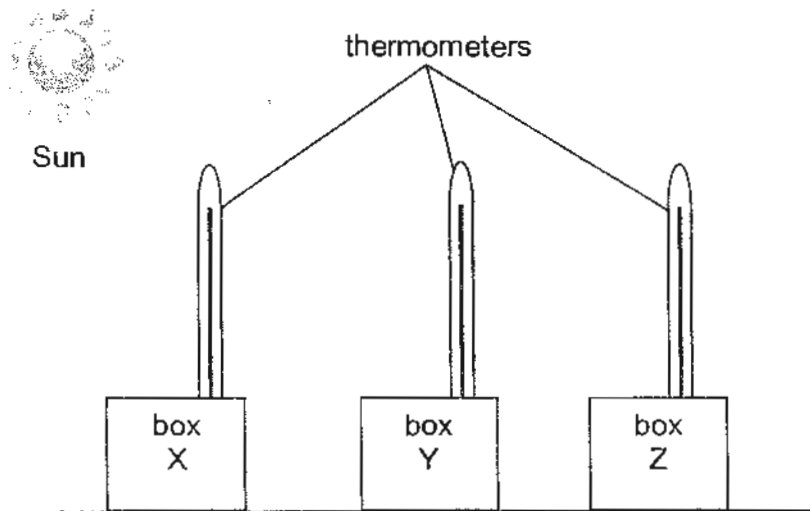
- (a) Tom used a datalogger to measure the amount of light passing through each of these objects A, B and C.

In the table below, identify the object that most likely matches to each of the following readings from the datalogger. [1]

reading from the datalogger (Lux)	object
2000	
13	
1280	

The diagram below shows three boxes, X, Y and Z, of the same size made of the same material, painted in three different colours: white, blue and black.

A thermometer was inserted into each box and all the boxes were placed under the sun for one hour.

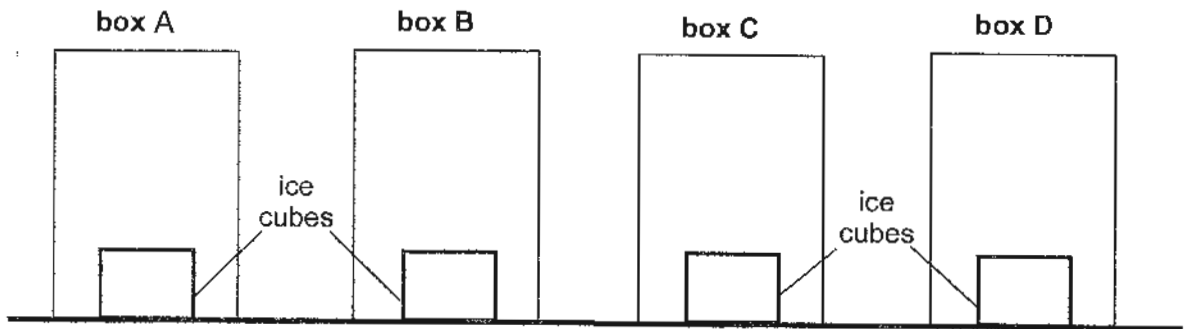


Tom recorded the temperature of each box in the table below.

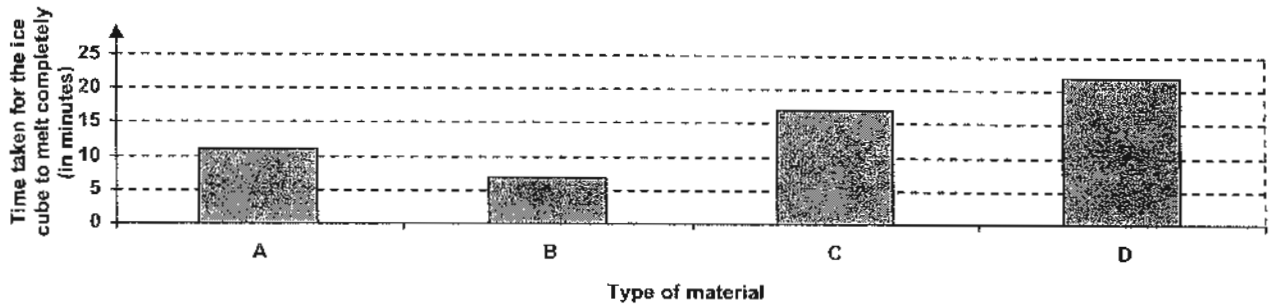
	box X	box Y	box Z
temperature of each box ($^{\circ}\text{C}$)	38	49	25

- (b) What was the most likely colour of box Y? Explain your answer based on the comparisons made with the other boxes. [2]

40. Identical ice cubes were each placed in sealed boxes (A, B, C and D) as shown in the set-ups below. Each box was made of a different material of the same thickness.



The bar graph below shows the time taken for each ice cube in each box to melt completely.



Based on the information above, answer the following questions:

Which one of these materials, A, B, C or D, is most suitable for storing ice-cream?

Explain your answer.

[2]

41. In the diagrams below, a ceiling fan, a florescent light and a water heater are connected in two different ways in a house.

(a) **MARK** a cross, (X), on the electrical circuit in **Diagram 1** to show the **position of a switch** that **only** causes water heater to stop working when it is turned off. (Do **NOT** draw the switch.)

[1]

Diagram 1

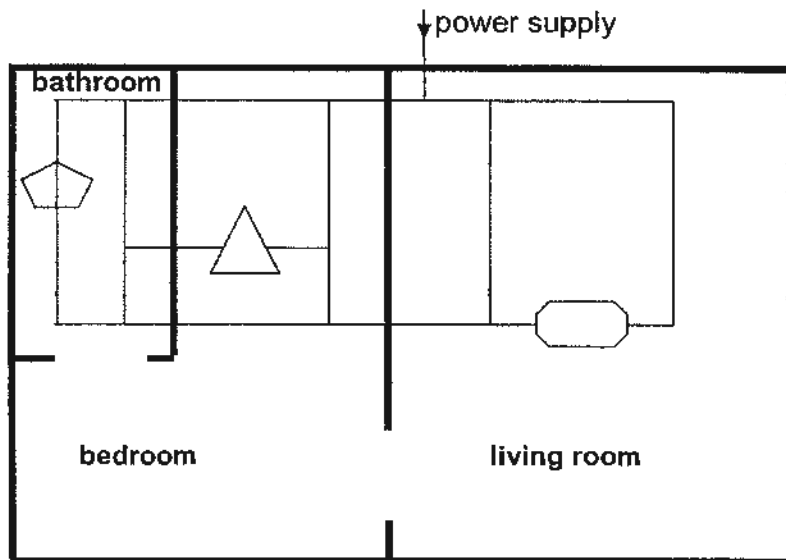
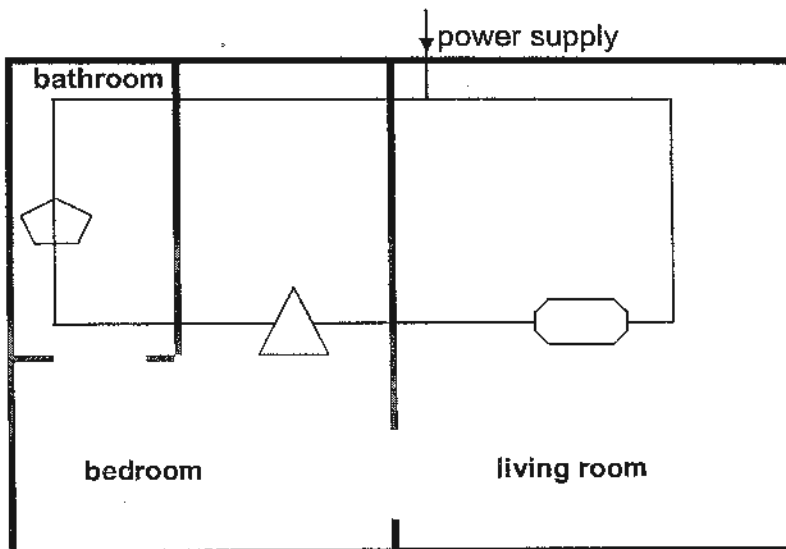





Diagram 2



Key

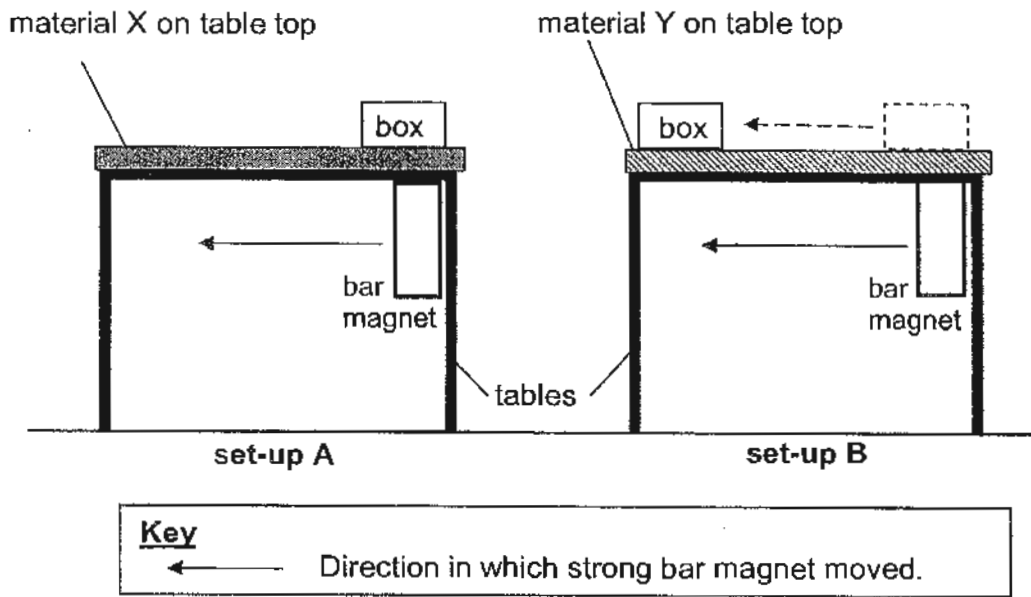
-  ceiling fan
-  florescent light
-  water heater

(b) Compare Diagrams 1 and 2.

Which is a better way to connect the florescent light, the ceiling fan and water heater in a house? Explain your answer. [2]

KS

42. Jesse set up her experiment as shown below.



Jesse used the same equipment in both set-ups A and B. Only the material put on each table top was different.

Jesse placed a strong bar magnet under each table, **ONE** at a time, and slid it in the direction indicated by the arrows.

She observed that only the box in set-up B moved while the box in set-up A remained in its original position.

Jesse knew one of the reasons for her observations made was that the box in set-up B was made of a magnetic material.

(a) What caused the main difference in Jesse's observations?

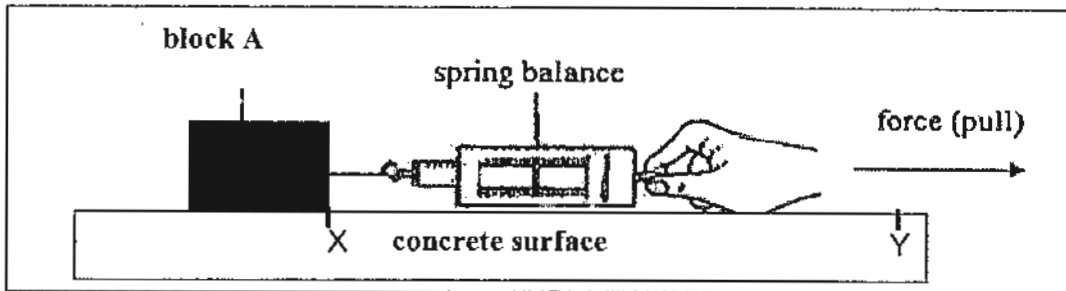
Explain your answer.

[2]

(b) Name a material that was used to make the boxes in both set-ups.

[1]

43. Five identical blocks each made of a different material were pulled across a concrete surface from Point X to Point Y, **ONE** at a time, as shown below.



The force needed to pull each block across the concrete surface was measured and recorded in the table below.

material of block	force needed to move each block (N)
A	15
B	25
C	13
D	22
E	19

- (a) Arrange in the correct order, the texture of the surface of the block in the boxes below.

Write the letter A, B, C, D and E **ONCE** only.

[1]

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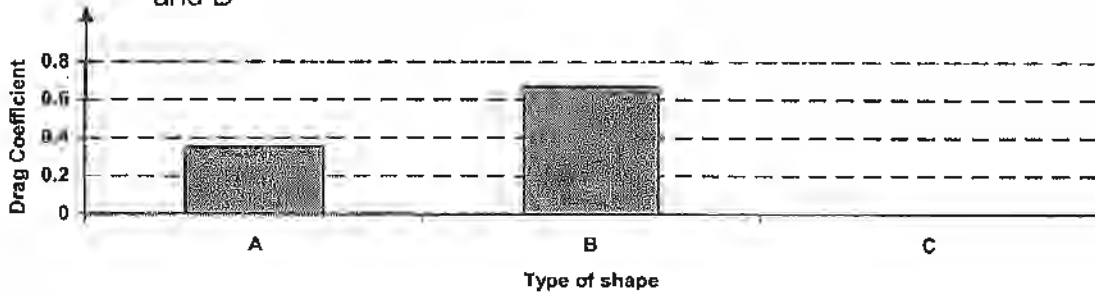


increasing smoothness

- (a) Based on the information above, which material is most suitable to be used in the construction of non-slip mats placed in the bathrooms? [1]

44. The drag coefficient measures how well a shape "cuts" through air resistance. The lower the drag coefficient, the faster an object can move against air resistance.

The graph below shows the drag coefficients of two different shapes, A and B



Based on the information above, answer the following questions:

- (a) Put a tick (✓) in the correct box below the car that best represents shape B. [1]



X



Y

- (b) **ANOTHER** car, Z, of shape C, moved faster than car X but slower than car Y. Suggest a possible drag coefficient of car Z and **DRAW** the column of shape C in the graph above. [1]
- (c) Name **TWO OTHER** forces which each car will experience when it moves along a road. [1]

– END OF PAPER –

Setters: Mr Vincent Chia, Mrs Martha John, Miss Lim Li Shan

ANSWER SHEET

EXAM PAPER 2010

SCHOOL : RAFFLES GIRL'S PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA1

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

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

31)a)Is it a flowering plant?

b)The animals in group 1 and 2 both are warm-blooded.

c)1

32)a)Fertilisation.

b)X: testes Y: ovaries

33)a)X: wind Y: splitting Z: water

b)Plant Y and plant Z is not reproducing as well as plant X.

The building occupied some space on the island, leaving less space for plants to be dispersed. The plants had to compete for nutrients, water and sunlight.

34)a)The cell membrane.

b)Table 3: brown, brown
white, dark blue

Table 4: absent, present
present, present

35)a)S→P→R→Q

b)All the other organism would reduce in numbers.

36)structural: P S U

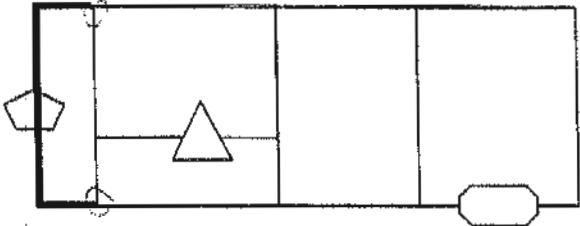
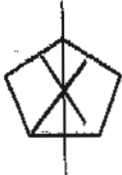
behavioural: Q R T

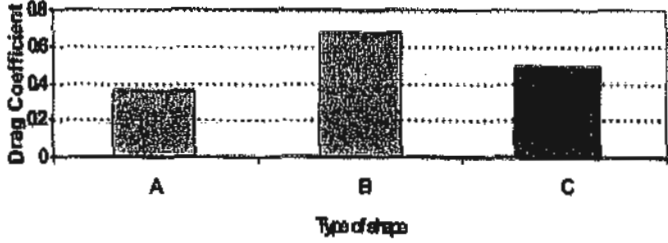
P6 SA1 Science Answer Key

Qus	Ans	Remarks
31a.	Accepted: Is it a flowering plant? or Does it reproduce by seeds? or Does it go through pollination/fertilization?	Not accepted: Does it have a nice smell?(Subjective) Does it have weak steam?
31b.	Does not make its own food or Can move from one place to another or Warm-blooded.	
31c.	Group 1	
32a.	Fertilisation / Fertilization	Minus [1/2] for wrong spelling Fusion [0]
32b.	Cell X – Testis / Testes Cell Y – Ovary / ovaries	Minus [1/2] for wrong spelling Note: Ovum is not accepted
33a.	X- wind/animal Y- splitting Z- water	
33b.	The buildings occupied some space on the island, leaving <u>less space</u> for plants to be dispersed. [1/2] The plants had to <u>compete</u> [1/2] for <u>nutrients, water and sunlight</u> . [1]	<ul style="list-style-type: none"> ➤ Did not mention explicitly about the building and there are less space for plants the plants [0] Eg. <ul style="list-style-type: none"> ▪ There is not enough space for the plants. [0] ▪ The buildings took up space, overcrowding occurs. [0] (Why?) ▪ The buildings prevent plants to reproduce there. [0] ➤ Need to mention: <u>nutrients, water and sunlight</u> <ul style="list-style-type: none"> • 2 factors mentioned [1/2] • 1 factor mentioned only [0] <p>Note: Did not mention about the</p>

		<p>building and space, mentioned overcrowding and competition for nutrients, water and sunlight <i>only</i> is 0 marks.</p> <p>(Because need to have reference base on the data in this case to analyse the scenario. Overcrowding may not be significant if the buildings had not occupied the much needed space.)</p>																								
34a.	Cell membrane	-[1/2] for wrong spelling																								
34b.	<table border="1" data-bbox="268 600 1000 958"> <thead> <tr> <th colspan="3">Table 1: Test for starch</th> </tr> <tr> <th></th> <th>Colour of solution at the start of experiment</th> <th>Colour of solutions an hour later</th> </tr> </thead> <tbody> <tr> <td>Solution in dialysis bag</td> <td>Brown</td> <td>Brown</td> </tr> <tr> <td>Solution in beaker</td> <td>White</td> <td>Dark blue</td> </tr> </tbody> </table> <table border="1" data-bbox="268 1016 1000 1375"> <thead> <tr> <th colspan="3">Table 2: Test for glucose</th> </tr> <tr> <th></th> <th>Colour of solution at the start of experiment</th> <th>Colour of solutions an hour later</th> </tr> </thead> <tbody> <tr> <td>Solution in dialysis bag</td> <td>Absent</td> <td>Present</td> </tr> <tr> <td>Solution in beaker</td> <td>Present</td> <td>Present</td> </tr> </tbody> </table>	Table 1: Test for starch				Colour of solution at the start of experiment	Colour of solutions an hour later	Solution in dialysis bag	Brown	Brown	Solution in beaker	White	Dark blue	Table 2: Test for glucose				Colour of solution at the start of experiment	Colour of solutions an hour later	Solution in dialysis bag	Absent	Present	Solution in beaker	Present	Present	<p>Note :</p> <ul style="list-style-type: none"> > 1 mk for each table. > Either 1 or 0 <p>No partial mark</p>
Table 1: Test for starch																										
	Colour of solution at the start of experiment	Colour of solutions an hour later																								
Solution in dialysis bag	Brown	Brown																								
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Table 2: Test for glucose																										
	Colour of solution at the start of experiment	Colour of solutions an hour later																								
Solution in dialysis bag	Absent	Present																								
Solution in beaker	Present	Present																								
35a.	<p>S → P → R → Q</p> <p><i>Any written form of the above food chain. (Eg. S is eaten by P, P is eaten by R, etc)</i></p>																									
35b.	<p>All the other organisms would reduce/decrease in numbers (1m)</p> <p>All the other organisms would eventually die out/ die off/be wiped out (1m)</p> <p>All other organisms would soon die out (1m)</p> <p><i>Award 1 m if the reduction/decrease in numbers is shown in relationship form</i></p> <p><i>Eg. P would decrease, followed by R, etc) → But must make sure that the relationship is written correctly.</i></p>	<p>All the other organisms would soon die. (1/2m)</p> <p>All the other organisms would move way to favourable condition (1/2m).</p> <p><i>If part (a) is wrong and the relationship portrayed in part (b) is in relation to part (a) → 0 marks</i></p> <p><i>If part (a) is wrong, but pupils show an understanding in part (b) that is <u>not related to part a</u> → can award marks 1 or ½ mark accordingly.</i></p>																								

36.	Structural: P, S, U [1/2] each Behavioural: Q, R, T [1/2] each									
37a.	(i) C (ii) D (iii) A (iv) B									
37b.	900									
38a.	A-evaporation, B-condensation	-[1/2] for wrong spelling								
38b.	Water vapour condenses [1/2] on the cool surface of the tube [1/2] to form tiny water droplets.									
38c.	C-water/distilled water/pure water D-salt/salt crystals									
39a.	<table border="1" data-bbox="231 548 702 779"> <thead> <tr> <th>Reading on light sensor for each shape</th> <th>Matching Object</th> </tr> </thead> <tbody> <tr> <td>2000 Lux</td> <td>B</td> </tr> <tr> <td>13 Lux</td> <td>C</td> </tr> <tr> <td>1280 Lux</td> <td>A</td> </tr> </tbody> </table>	Reading on light sensor for each shape	Matching Object	2000 Lux	B	13 Lux	C	1280 Lux	A	
Reading on light sensor for each shape	Matching Object									
2000 Lux	B									
13 Lux	C									
1280 Lux	A									
39b.	<p>Black</p> <p>Explanation: Black absorbs the <u>most heat</u> [1], causing the temperature in the box to <u>rise the fastest</u> [1]</p> <p>Award [1] Black</p> <ul style="list-style-type: none"> • gains heat the fastest • traps heat the most • retains the most heat • absorbs heat most quickly • takes the fastest amount of time to gain heat • absorbs heat faster than white and blue 	<p>Award [½] Black absorbs heat very quickly</p> <p>Dark colours absorb more heat than lighter colours.</p> <p>[0] Temperature [of box Y] is the highest</p>								
40.	<p>Material D</p> <p><u>Part 1 of the answer</u> The ice cube in (material) D took the longest to melt / took the longest time to melt [1/2]</p> <p>or</p> <p>The ice cube in D is the slowest to melt [1/2]</p> <p>or</p> <p>The ice cube in D took a longer time to melt as compared to A, B and C. [1/2]</p> <p><u>Part 2 of the answer</u> [With reference to material D] It is the poorest conductor of heat [1/2]</p>	<p><u>Part 1 of answer</u> Material D, it took the longest time to melt [0] - the it in the sentence is referring to D and not the ice cube.</p> <p>Material D took the longest to melt [0].</p> <p>Remark: For part 1 of the answer, longer time is only accepted if comparison is made with reference to material A, B and C. No mark is awarded if they use ice-cream instead of ice cube.</p>								

	<p>It is the best insulator of heat [1/2]</p> <p>It is a poorer conductor of heat compared to A, B and C. [1/2]</p> <p><u>Part 3 of the answer</u> (With reference to material D)</p> <p>It gained heat slowly [1] Heat does not pass through it easily [1]</p>	<p><u>Part 2 of answer</u></p> <p>It is a poor conductor / insulator of heat [0] - no comparison given</p> <p>Remark: Poor conductors are called insulators of heat. Therefore if there are different types of poor conductors, there are different types of heat insulators.</p> <p><u>Part 3 of answer</u></p> <p>Able to retain heat / most heat [0]- this fact has no relation to the explanation) Able to conduct heat away easily [0]- wrong concept</p>
41a.		<p>Remark: Mark an X along any point on the bold line</p> <p>Accept X if it is on the heater like this:</p> 
41b.	<p>Diagram 1. The appliances in diagram 1 are arranged in parallel, so it uses less electricity. The appliances in 2 are arranged in series, so it uses more electricity. [1]</p> <p>Diagram 1. In diagram 1, the appliances are arranged in parallel, so when one breaks down, the others can still work. [1]</p> <p>Diagram 1. In diagram 1, when one appliance stops functioning/ is switched off, the rest can still operate. In diagram 2, when one appliance stops functioning/ is switched off, the rest will also stop working (as the circuit is open. [2]</p>	
42a	<p>Material on table top in set-up B is non-magnetic [1/2] but the material on table top in set-up A is magnetic. [1/2]</p> <p>Explanation: Non-magnetic material in set-up B allows magnetism to pass through but magnetism cannot pass through the magnetic material in set-up A. [1]</p>	
42b	<p>Iron, Steel, Cobalt or any other known magnetic materials /Magnets [1/2 Mark for wrong spelling]</p>	<p>Magnetic material [1/2]</p> <p>Metal [0]</p>
43a	<p>B, D, E, A, C</p>	<p>No partial marks</p>

43b	Material B									
44a	Car X									
44b	 <p>A bar chart with the y-axis labeled 'Drag Coefficient' ranging from 0 to 0.8 in increments of 0.2. The x-axis is labeled 'Type of shape' with categories A, B, and C. Bar A has a height of approximately 0.35, bar B has a height of approximately 0.65, and bar C has a height of approximately 0.45.</p> <table border="1"><thead><tr><th>Type of shape</th><th>Drag Coefficient</th></tr></thead><tbody><tr><td>A</td><td>0.35</td></tr><tr><td>B</td><td>0.65</td></tr><tr><td>C</td><td>0.45</td></tr></tbody></table>	Type of shape	Drag Coefficient	A	0.35	B	0.65	C	0.45	
Type of shape	Drag Coefficient									
A	0.35									
B	0.65									
C	0.45									
44c	Friction, gravity or frictional force, gravitational force.									