Index No. _____ - _____

ANGLO-CHINESE SCHOOL (JUNIOR)
ANGLO-CHINESE SCHOOL (PRIMARY)

COMBINED PRELIMINARY EXAMINATION 2009
SCIENCE
BOOKLET A

NAME : _____( ) CLASS : P6. _____

DATE : 17th August 2009

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

INSTRUCTIONS TO PUPILS

DO NOT TURN OVER THE PAGES UNTIL YOU ARE TOLD TO DO SO

Follow all instructions carefully.

There are 30 questions in this booklet.

Answer **ALL** questions.

INFORMATION FOR PUPILS

The total marks for this booklet is 60.

The total time for Booklets A and B is 1 hour 45 minutes

This question paper consists of 18 printed pages. (Inclusive of cover page)

Section A (30 x 2 = 60 marks)

For each of the following questions 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 given.

1 Which one of the following animals is correctly matched to its behavioural adaptation?

	Animal	Behavioural Adaptation
(1)	Wolf	Hunts prey in packs
(2)	Camel	Hump to store water
(3)	Peacock	Having colourful feathers to attract mates
(4)	Duck	Having webbed feet for movement in water and on land

2 Mike observed two fruits in the Science laboratory as shown below.

Lalang fruit

Nipah fruit

He examined the fruits with a magnifying glass and recorded the following statements.

A The nipah fruit has wing-like structures.
B The lalang fruit has hooks that cling on an animal's fur.
C Both fruits have structural adaptations to aid dispersal.

Which of the above statement(s) is / are correct?

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

(Go on to the next page)

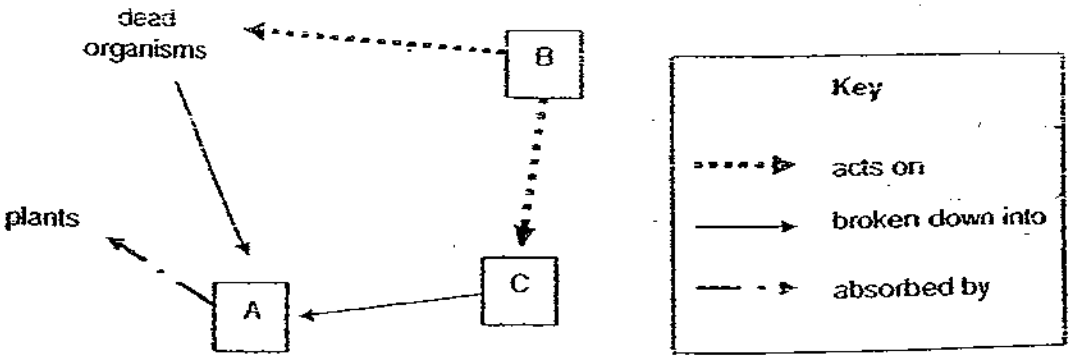
3

Some inventions imitate the adaptations of animals. The diagram above shows a man wearing snorkelling gears and flippers under water. Which of the following animals could flippers and snorkelling gears have been imitated from respectively?

A	Turtle
B	Great diving beetle
C	Dragonfly nymph
D	Water stick insect

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

4 Decomposers enrich the soil with nutrients for the plants. The diagram below shows how decomposers act on various organic matter and change them into simple substances.

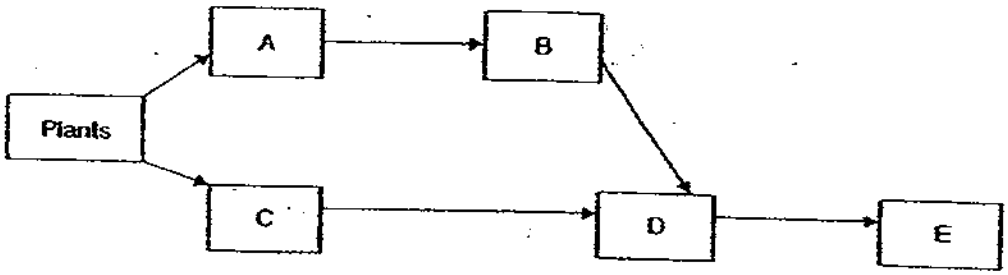


What do the letters A, B and C represent?

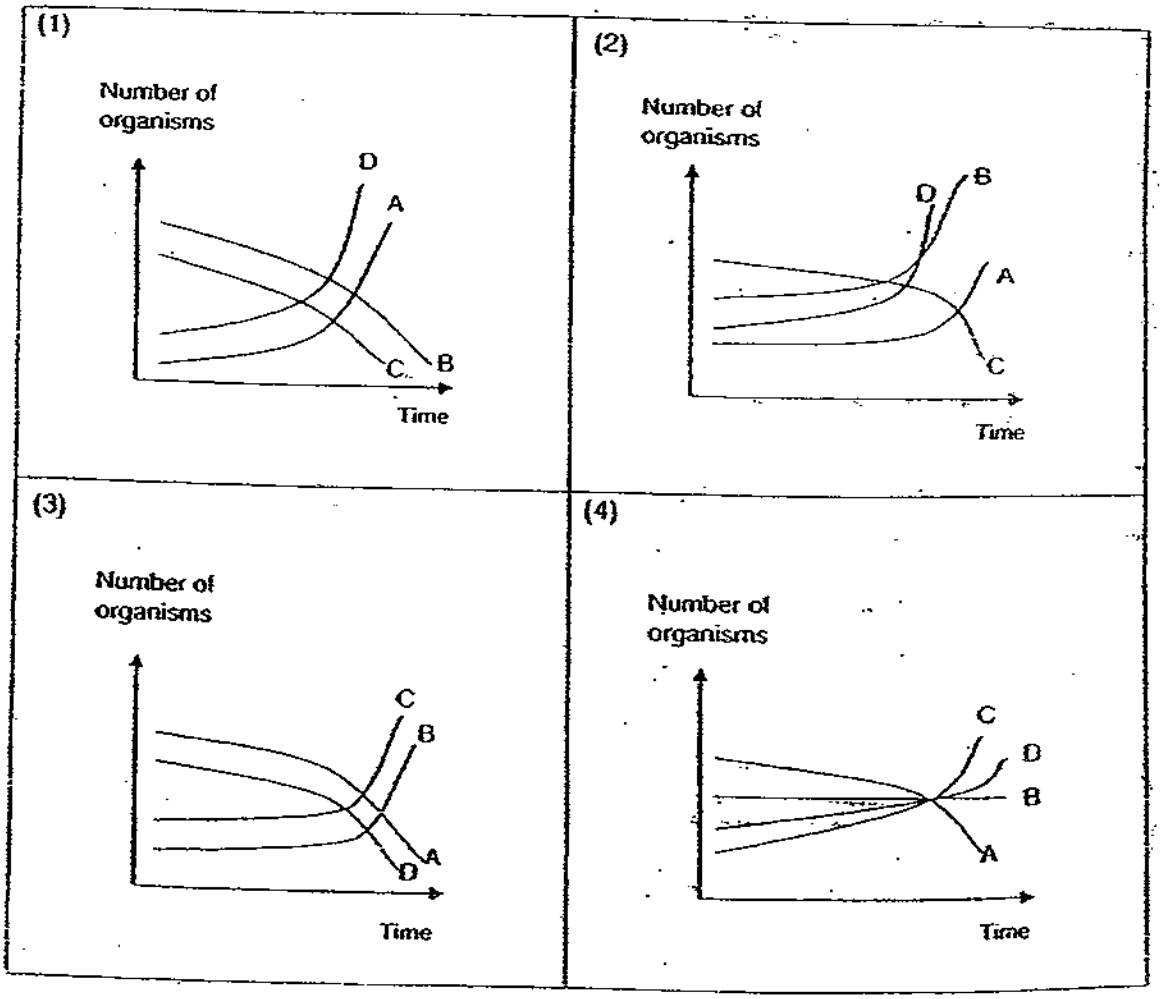
	A	B	C
(1)	carbon dioxide	predators	nutrients
(2)	carbon dioxide	fungi	nutrients
(3)	mineral salts	scavengers	waste matter
(4)	mineral salts	bacteria	waste matter

[Go on to the next page]

5 Study the food web below. A, B, C, D and E are animals living in a habitat.



Which one of the following graphs shows how the populations of A, B, C and D are likely to be affected if there is a mass migration of E out of this habitat?



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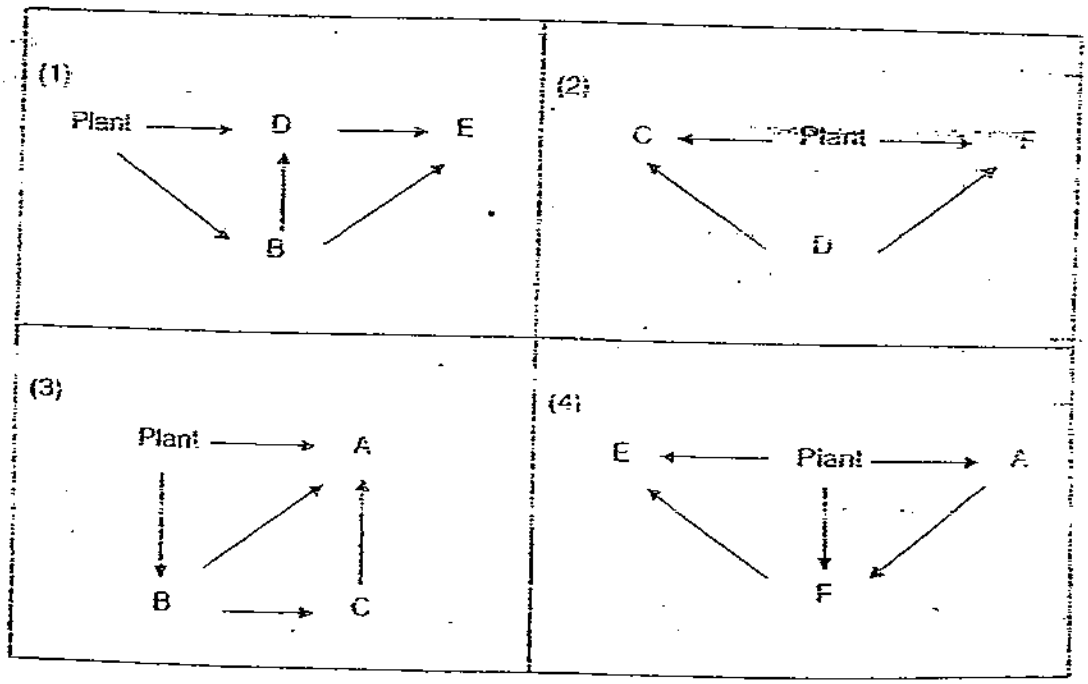
6 The table below groups 6 imaginary animals according to their diets.

Herbivores	Carnivores	Omnivores
A	C	E
B	D	F

Which one of the food webs is correct?



7 Which of the following are the consequences of acid rain?

A Plants dying.
B Ozone layer being depleted.
C Aquatic organisms being killed.
D Historical stone monuments wearing out.

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

(Go on to the next page)

8 Which of the following measures can help to reduce air pollution?

A Use of fossil fuels in power stations.
B Use of hydroelectric power stations.
C Use of windmills to generate electricity.
D Use of solar cells to generate electricity.

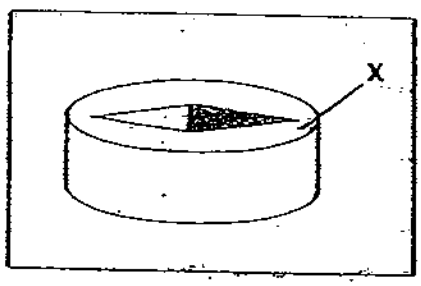
(1) B and C only
(2) A, C and D only
(3) B, C and D only
(4) A, B, C and D

9 Which of the following are negative effects of deforestation on the environment?

A Destruction of the ozone layer
B Erosion of the top layer of soil
C Increase in carbon dioxide level

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

10 The picture below shows a compass.



When choosing the material to make the compass lid labelled X, the <u>least</u> important property to consider would be _____.

(1) whether it is strong
(2) its heat conductivity
(3) whether it is waterproof
(4) its degree of transparency

(Go on to the next page)

11 Study the table below carefully.

Organism	Is it green in colour?	Does it make food on its own?	Does it move from place to place?	Does it grow well in dark and damp places?
A	Yes	No	Yes	No
B	No	No	Yes	Yes
C	No	No	No	Yes
D	Yes	Yes	No	No

Which one of the organisms, A, B, C or D, is mostly likely a fungus?

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

12 Which one of the following is <u>not</u> a source of energy?

(1) Sun
(2) Coal
(3) Wind
(4) Water

13 As a footballer kicks the ball, the (A) _____ energy of the footballer's leg is transferred to the (B)_____ energy of the ball.

	(A)	(B)
(1)	kinetic	kinetic
(2)	kinetic	potential
(3)	potential	kinetic
(4)	potential	potential

14 By crushing a piece of paper, we know that a force can _____.

(1) make a moving object stop
(2) change the shape of an object
(3) make a stationary object move
(4) change the direction of a moving object

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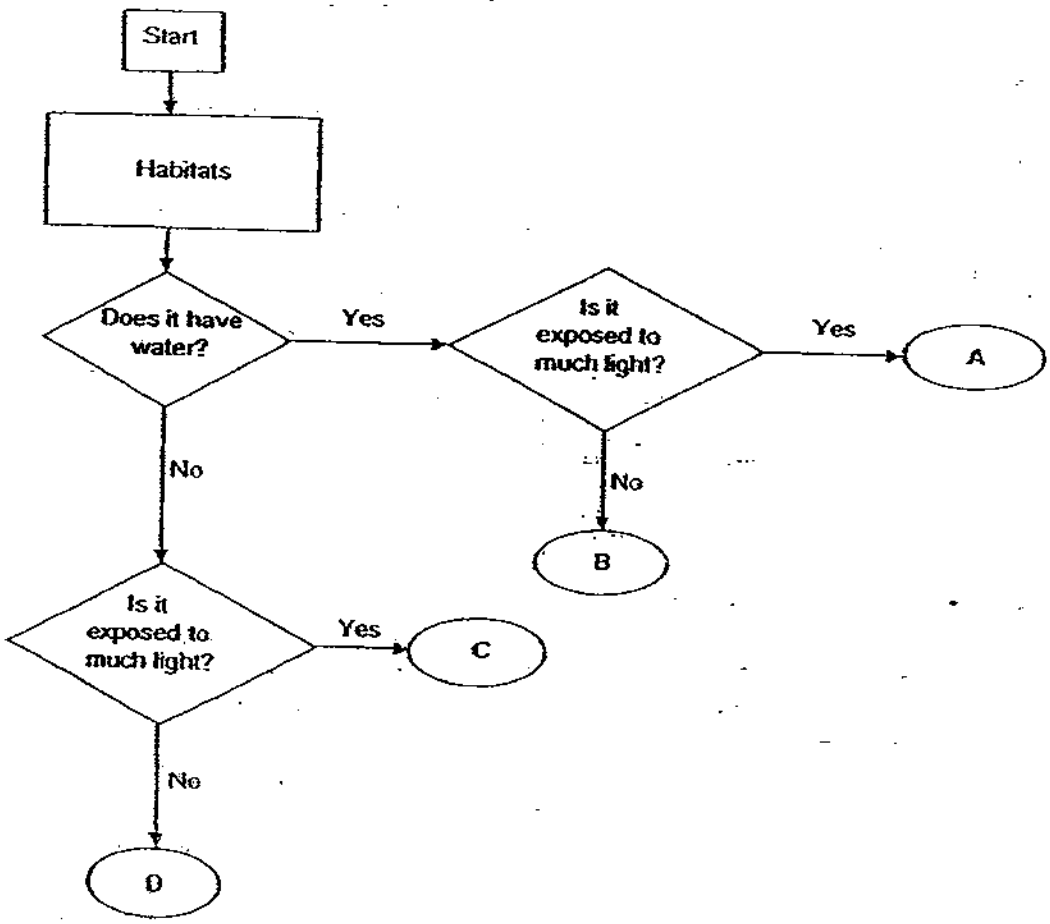
15 Study the flow chart below.



Which one of the following habitats is C most likely to be?

(1) Field
(2) Pond
(3) Swamp
(4) Leaf litter

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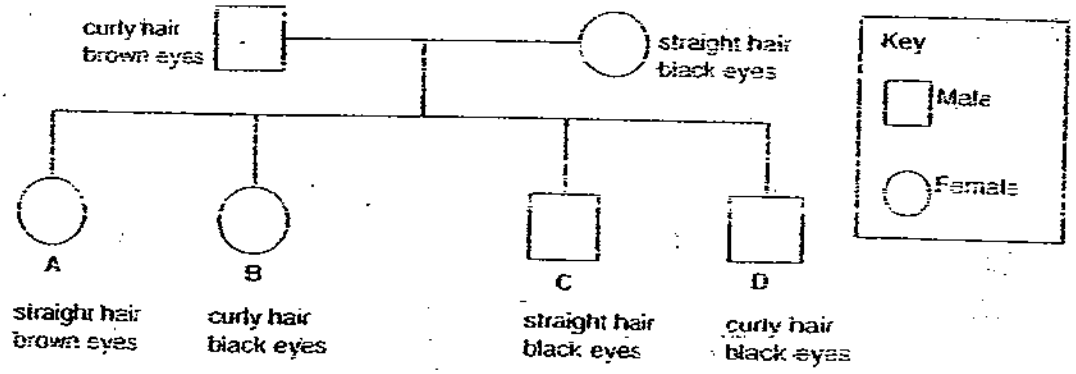
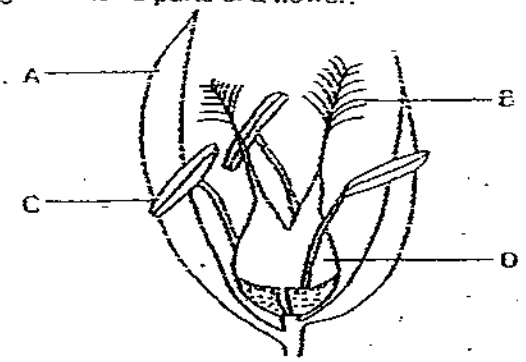
16 Study the family tree below.



Which children inherited only one feature from each parent?

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

17 The following diagram shows parts of a flower.

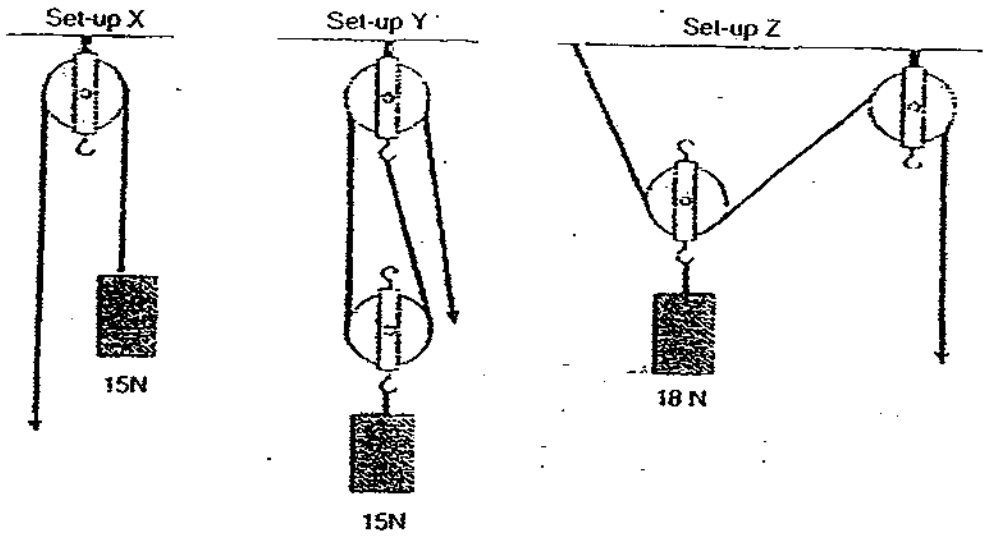


Which of the following flowers, K, L, M and N, after removal of certain parts are still able to develop into fruits?

Flower	Parts removed
K	A and C
L	B and D
M	C
N	C and D

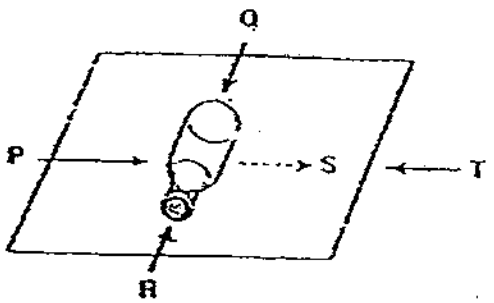
(1) K and L only
(2) K and M only
(3) L and N only
(4) M and N only

18 In which of the following set-up(s) would an effort of 10N be sufficient to lift the load?



(1) Y only
(2) X and Z only
(3) Y and Z only
(4) X, Y and Z

19 A bottle is rolling in the direction S. It is easiest to slow down the moving bottle if frictional force acts mostly from _____.



(1) P
(2) Q
(3) R
(4) T

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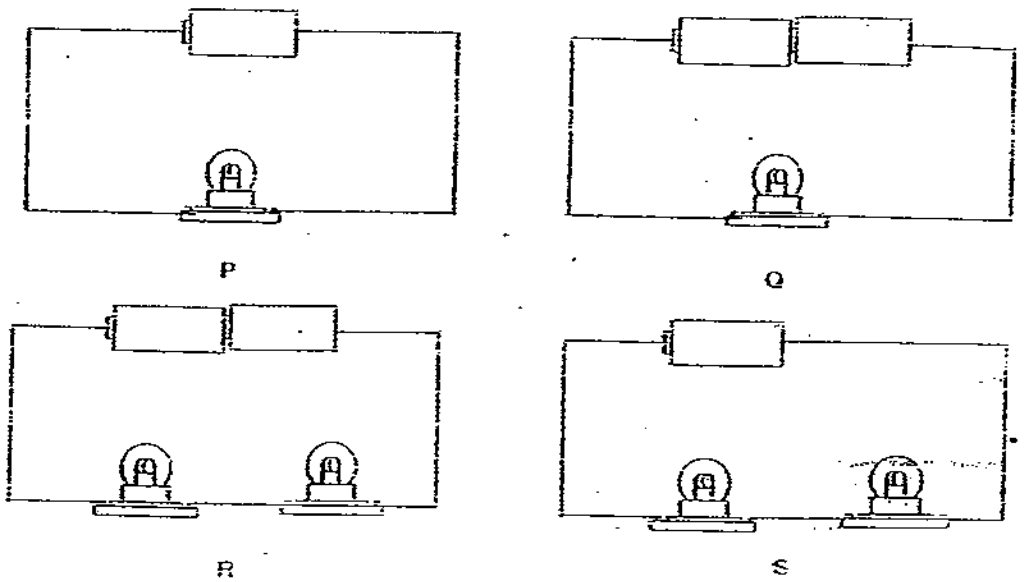
20 The diagram below shows four circuits with different arrangements of identical batteries and identical bulbs. The bulbs in all four circuits light up.



Which one of the following sets shows the correct brightness of the bulbs?

	Brightness of bulb		
	Low	Medium	High
(1)	S	P	Q
(2)	P	Q	R
(3)	Q	P	S
(4)	R	S	P

21 The table below shows the characteristics of 4 things (P, Q, R and S).

Things	Change in size	Make their own food	Reproduce	Move from one place to another
P	✓			✓
Q	✓	✓	✓	
R	✓			
S	✓		✓	✓

A tick (✓) indicates that the thing has the characteristic indicated.
Which of them is / are (a) living thing(s)?

(1) Q only
(2) P and S only
(3) Q and S only
(4) All of the above

22 Kah Yen was given the following data as shown below:

Planet	*Jupiter*	*Mars*	*Venus*	*Earth*
Average surface temperature (°C)	-110	-65	464	15

Substance	Mercury	Iodine
Boiling point (°C)	356.7	184.3
Melting point (°C)	-38.8	113.7

Based on the data given above, which one of the following statements is true for Mercury and <u>false for Iodine</u>?

(1) It is a solid on Mars.
(2) It is a gas on Venus.
(3) It is a liquid on Earth.
(4) It is a solid on Jupiter.

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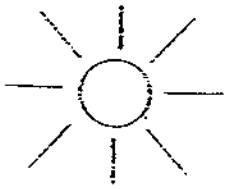
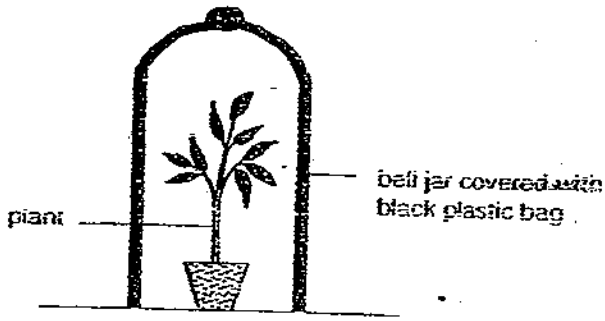
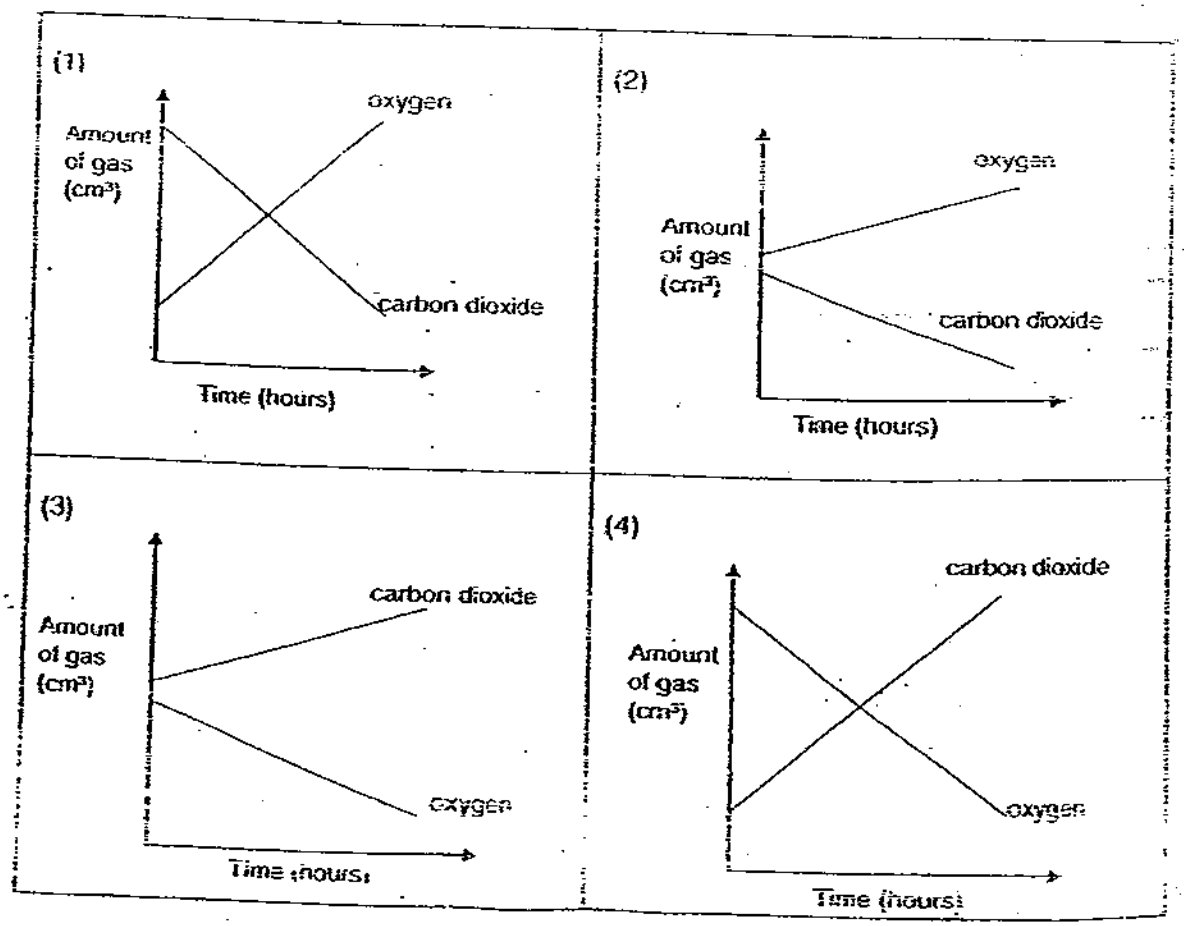
23 James put a well-watered plant into a bell- jar. He then covered the bell-jar with a black plastic bag. He placed his set-up under the sun for several hours.



sun



Which one of the following graphs below shows the changes in the amount of carbon dioxide and oxygen in the bell-jar during the period of time?



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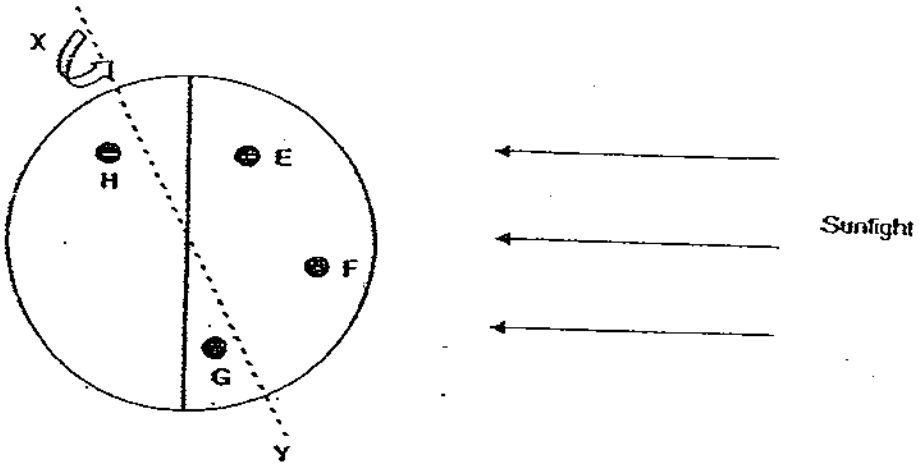
24 The diagram below shows the planet Earth rotating on its axis XY. Areas E, F, G and H are 4 places on Earth. Which area would be next to experience sunrise?



(1) E
(2) F
(3) G
(4) H

25 Andre wanted to find out how different factors affect germination. He listed the variables which he would use below.

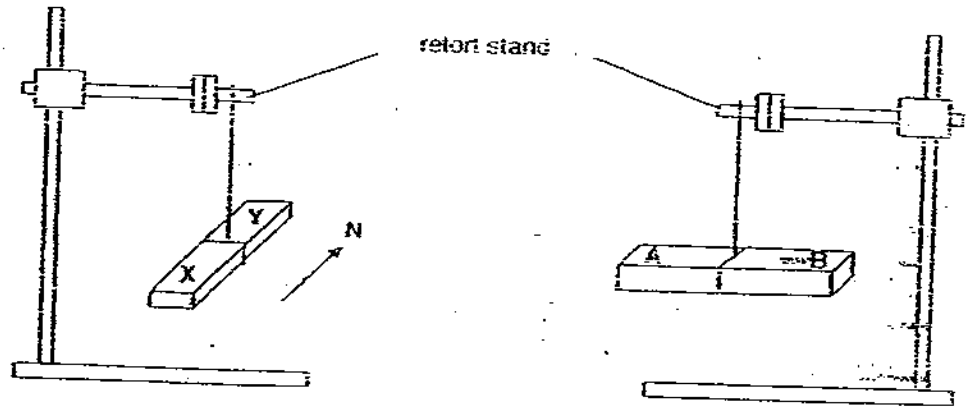
P Light
Q Water
R Number of green beans
S Temperature of the environment

He made a list of the experiments which he would like to conduct in the table below. Which one of the following experiments will enable him to conduct the experiment correctly?

	Aim of the experiment	Variables kept constant
(1)	To test if light affects germination.	P, Q and R only
(2)	To test if heat affects germination.	P, Q and S only
(3)	To test if moisture affects germination.	P, R and S only
(4)	To test if overcrowding affects germination.	Q, R and S only

(Go on to the next page)

26 Clement hung a metal bar, XY, with a piece of thread on a retort stand. It always came to rest with end Y pointing in the North direction as shown. He hung another bar, AB, made of the same material, but it did not settle in any particular direction.



What would Clement observe if he brought Bar AB close to Bar XY?

(1) End Y will repel End A and End B.
(2) End Y will attract End A but repel End B.
(3) Bar XY does not interact with Bar AB at all.
(4) Both ends of Bar XY will attract both ends of Bar AB.

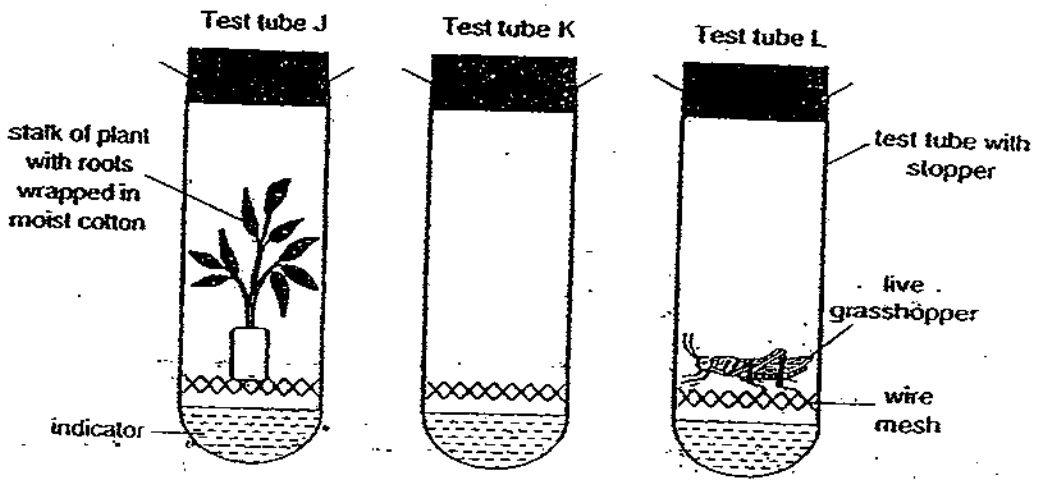
27 Caleb wanted to compare the hardness of 4 types of metals, J, K, L and M. He conducted a scratch test on the metal rods and recorded his observations in the table below.

Type of metal rod used to scratch	Presence of scratch marks on metal rod			
	J	K	L	M
J		✓		✓
K				
L	✓	✓		✓
M		✓		

Arrange the metal rods in ascending order of hardness.

(1) L, K, M, J
(2) L, J, M, K
(3) K, M, J, L
(4) K, L, M, J

28 Charles set up the experiment below. He left the set-ups at a well-lit spot in the garden at 9.30 am. The colour of the indicator was purple at the start of the experiment. The indicator changes colour from purple to red as it interacts with more carbon dioxide. It changes from purple to yellow when it interacts with more oxygen.

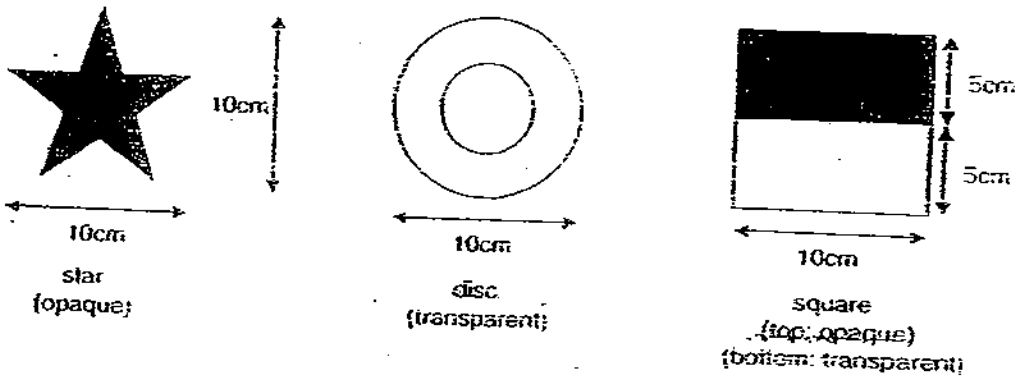


What will be the colour of the indicator in each test tube 1 hour later?

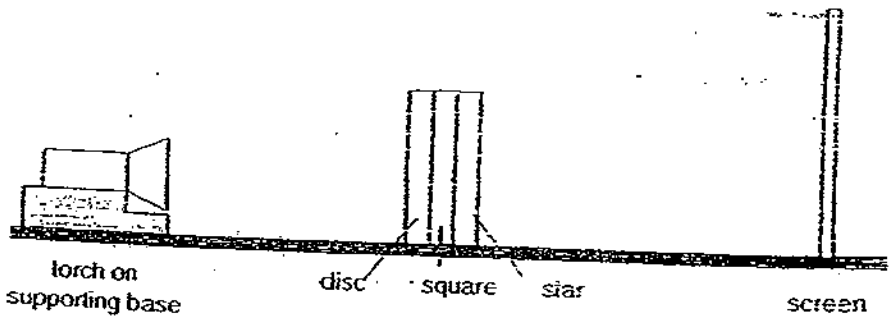
	Test tube J	Test tube K	Test tube L
(1)	red	purple	yellow
(2)	yellow	purple	red
(3)	red	yellow	red
(4)	yellow	red	yellow

(Go on to the next page)

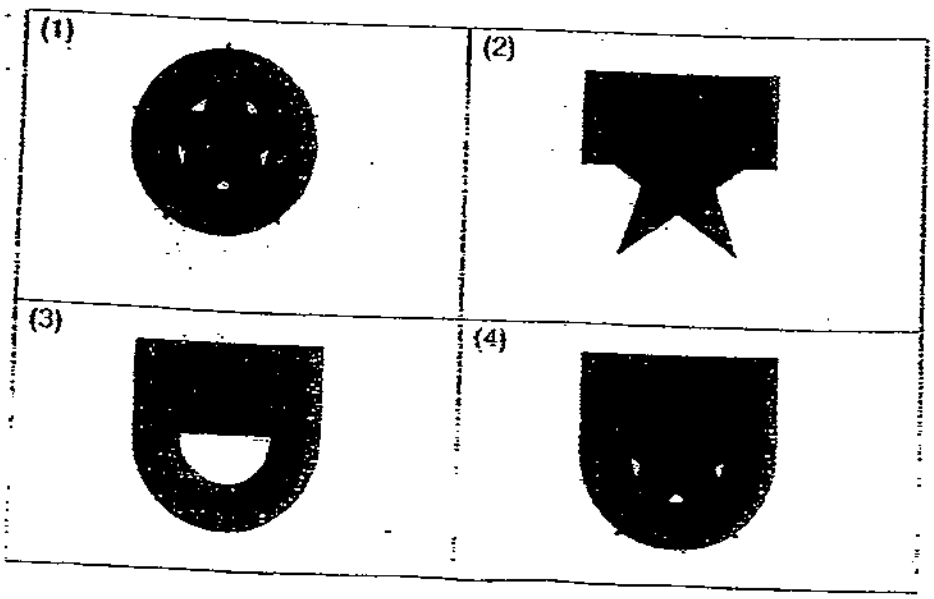
29 Arthur has the 3 objects shown below



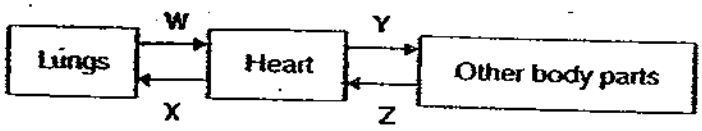
First, he glued the 3 objects together. Then, he placed the glued objects, the torch and the screen in a straight line in a dark room as shown below.



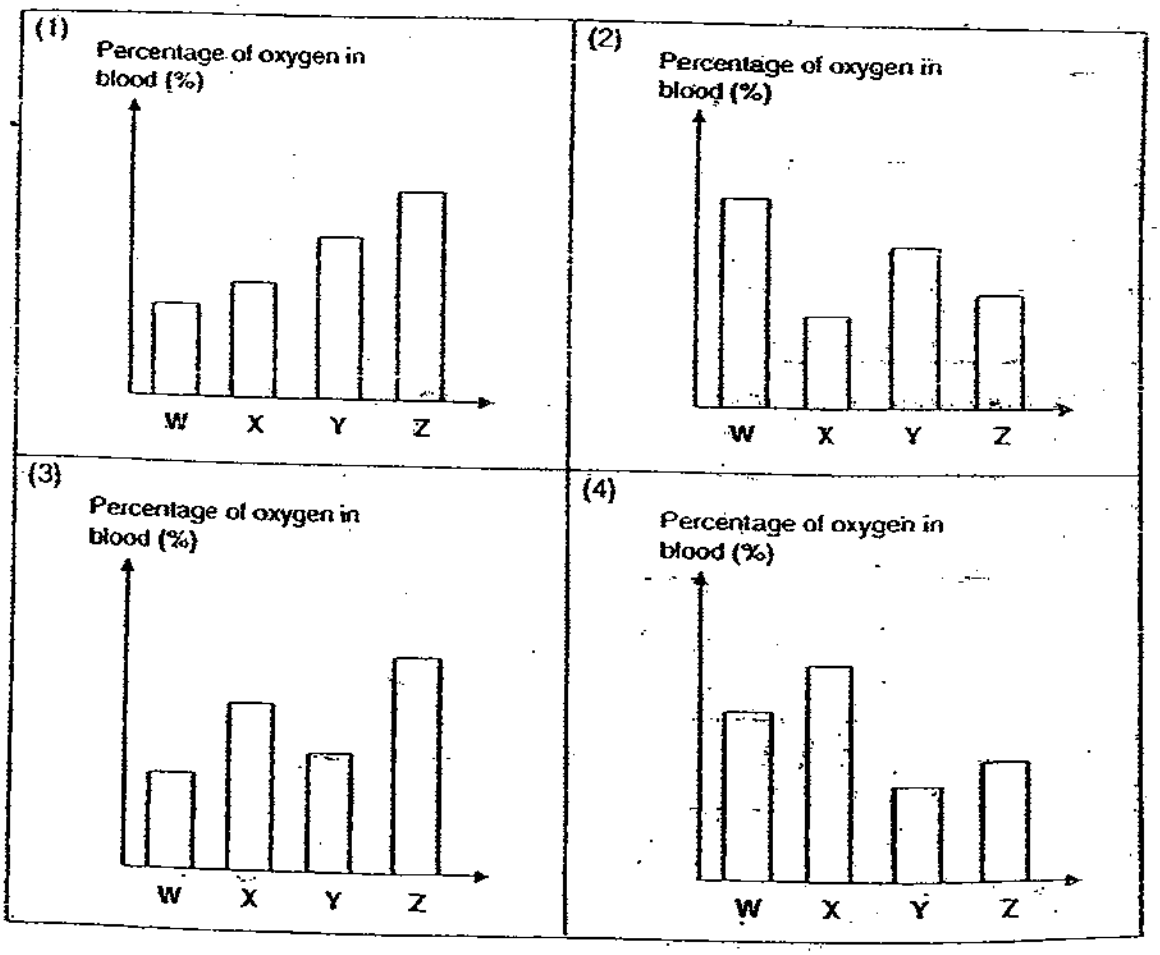
Which one of the following shows how the shadow would look like on the screen when Arthur switched on the torch?



30 The diagram below is a representation of blood circulation in the human body. Arrows W, X, Y and Z represent the flow of blood to the various parts of the body.



Which one of the following graphs correctly represents the percentage of oxygen in W, X, Y and Z?



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Index No. ____

ANGLO-CHINESE SCHOOL (JUNIOR)
ANGLO-CHINESE SCHOOL (PRIMARY)

COMBINED PRELIMINARY EXAMINATION 2009
SCIENCE
BOOKLET B

NAME : _____ ( ) CLASS : P6. ____

DATE : 17th August 2009

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

INSTRUCTIONS TO PUPILS

DO NOT TURN OVER THE PAGES UNTIL YOU ARE TOLD TO DO SO
Follow all instructions carefully.
There are 16 questions in this booklet.
Answer ALL questions

INFORMATION FOR PUPILS

The number of marks is given in brackets ( ) at the end of each question or part question.
The total marks for this booklet is 40.
The total time for Booklets A and B is 1 hour 45 minutes.
This question paper consists of 16 printed pages. (Inclusive of cover page)

Question Number	Possible Marks	Marks Obtained
31	3	
32	3	
33	2	
34	3	
35	2	
36	2	
37 - 38	6	
39	2	
40	3	
41	2	
42	3	
43	2	
44	3	
45	2	
46		

Booklet A	/60
Booklet B	/40
Total	/100

Parent's Signature / Date

Section B (40 marks):

For questions 31 to 46, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question.

31 The animals listed below use different breathing methods to survive in the water.

Water scorpion **Dolphin** **Swordtail** **Great diving beetle** **Crab**

(a) Which 2 animals from the list given above share the same breathing method to live in the water? [1]

_____

(b) Name 1 other method of breathing in an aquatic environment not used by any of the animals mentioned in the list above. [1]

_____

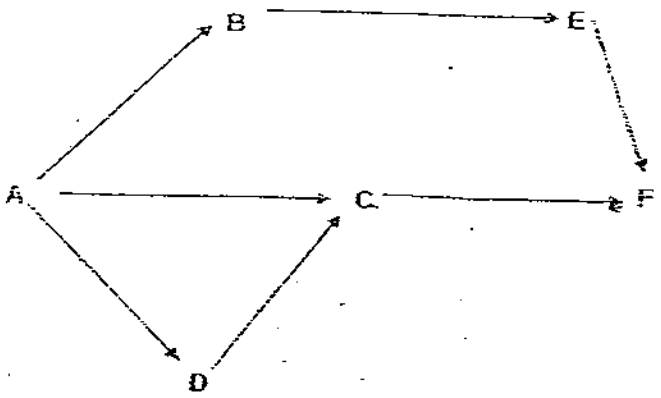
(c) What are the 2 sources of oxygen for animals in an aquatic environment? [1]

_____

(Go on to the next page)

Score	

32 Study the food web consisting of organisms found in a pond below.



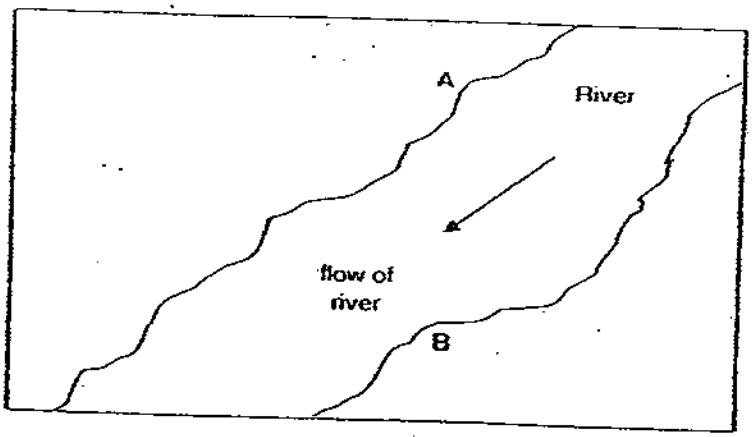
(a) Which organisms (A, B, C, D, E or F) are both predator and prey? [1]

(b) Which organism (A, B, C, D, E or F) in the food web has the largest population size? [1]

(c) Organism G is an animal that is a predator of C and a prey of F. Write the letter 'G' and draw the appropriate arrows to show organism G's place in the food web above. [1]

(Go on to the next page)

33 The diagram below shows the location of a river.



Gabriel collected several water samples around points A and B of the river. All samples had the same volume of water. The percentage of 3 organisms, T, U and V, found in the water samples are tabulated below.

	Percentage of each organism in the water samples (%)			
Point	T	U	V	Others
A	45	29	8	18
B	13	19	42	26

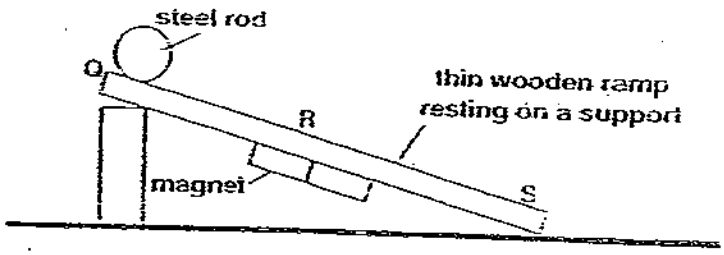
(a) It was observed that a pollutant was found in the 2 water samples. Based on the data collected, what can Gabriel conclude about the effect of the pollutant on the populations of Organisms T, U and V? [1]

(b) Gabriel concluded that the pollutant must have been discharged at only point B. Is he correct? Explain your choice. [1]

(Go on to the next page)

Score

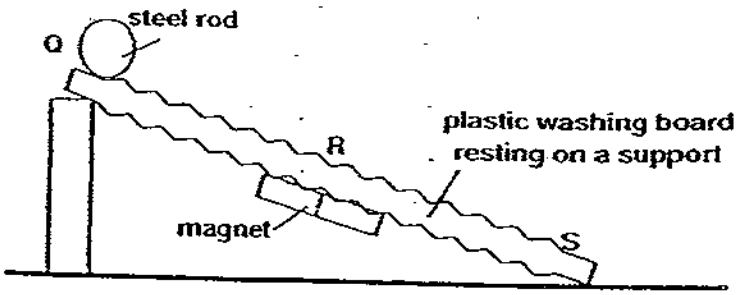
34 Julio glued a strong magnet to a thin wooden ramp at position R as shown below. He then released a steel rod at Q and measured the time taken for it to reach S.



(a) Describe what Julio observed when he released the steel rod at Q. [1]

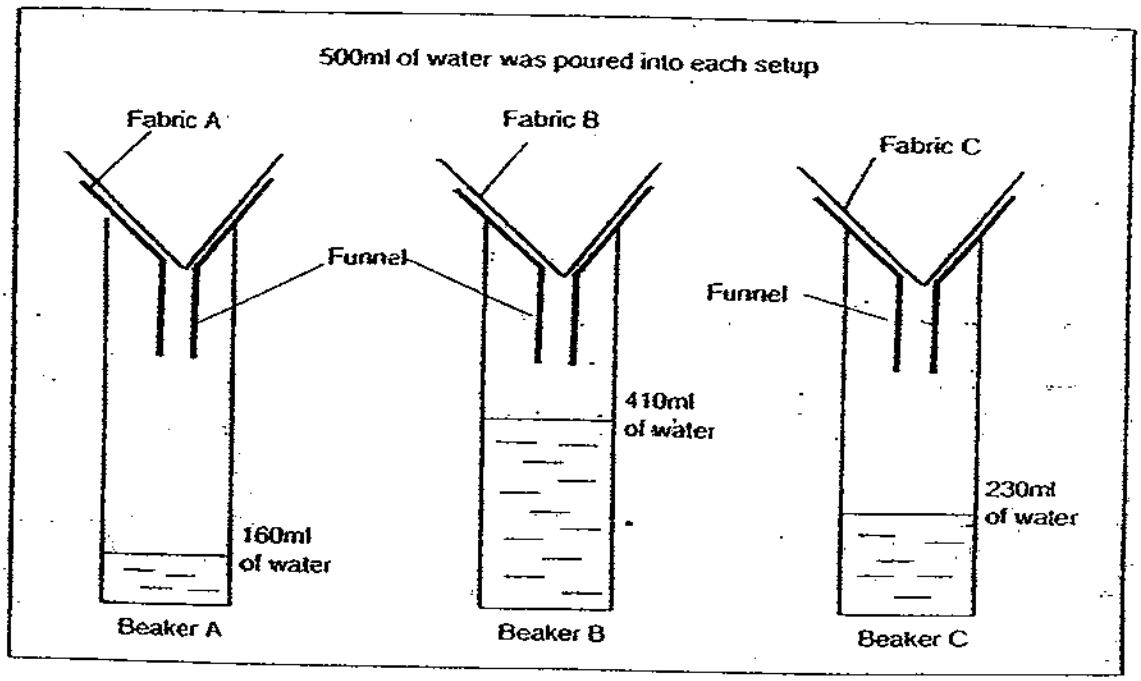
(b) Julio replaced the wooden ramp with an iron sheet and repeated the above procedure. What would he observe? [1]

(c) Julio decided to use a plastic washing board of the same length, thickness and angle of indination as the wooden ramp as shown below. He released the steel rod at Q and noted the time taken for it to reach S.



He observed that the steel rod moved faster on the plastic washing board than it did on the thin wooden ramp. Explain why this is so. [1]

35 Mr Green conducted an investigation as shown below to find out how much water 3 different fabrics can absorb. He poured 500ml of water onto each fabric and allowed water to flow through the fabrics into the beakers. At the end of the experiment, he measured the water collected in each beaker as shown below.



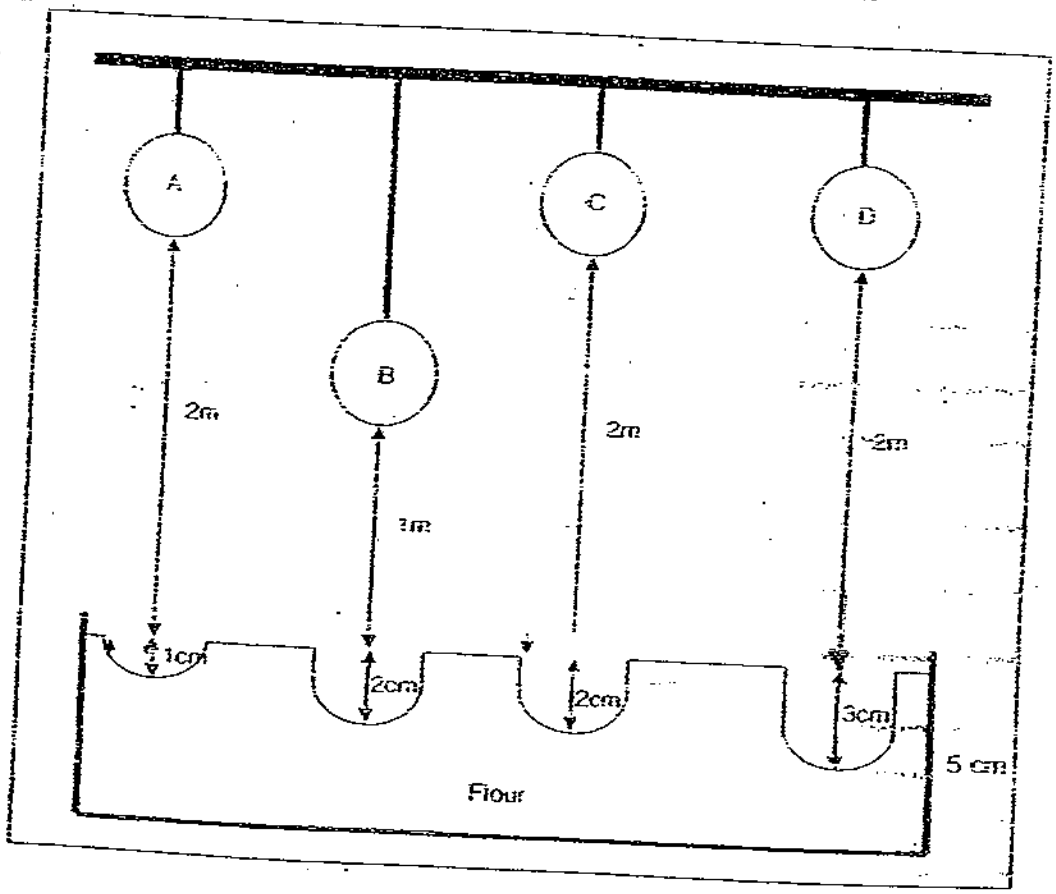
(a) Arrange the fabrics in ascending order according to the amount of water they can absorb. [1]

(b) If Mr Green wants to choose a fabric to make raincoats, which fabric would he choose, if any? [1]

(Go on to the next page)

Score

36 Freddie suspended 4 balls (A, B, C and D) of different masses at different heights above ground level using similar strings. He placed a container of flour below the balls. Freddie released ball A, B and C by cutting the strings one at a time and they created a depression of different depths each as shown in the diagram below.



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

(b) Freddie then released Ball D from a height of 2m above the flour. It caused a depression of 3cm in the flour. Freddie concluded that Ball D is heavier than Ball B. Freddie's teacher said that his conclusion was not accurate as it was not a fair test. Explain why it was not a fair test. [1]

[Go on to the next page.]

37 Fill in the blanks below with the appropriate words. [3]

When Mr. Tan switched on his handphone, the _____ energy from the battery will be converted to _____ energy. This energy will then be converted to _____ energy and _____ energy which makes the handphone work. It was also converted into _____ energy during silent mode to make it vibrate, as well as _____ energy which is not useful.

38 Four similar flower beds A, B, C and D were planted with long bean plants. The table below shows the conditions around the flower beds.

Bed	Presence of weeds	Presence of dead plants
A	Absent	Absent
B	Absent	Present
C	Present	Present
D	Present	Absent

(a) Based on the information above, which flower bed would grow the best long bean plant? [1]

_____

_____

(b) If Georgina wanted to find out if the presence of dead plants would affect the growth of the long bean plants, which 2 flower beds should she use to conduct her investigation in order to get the best conclusion? [1]

_____

_____

(c) How does the presence of weeds affects the growth of the long bean plants? [1]

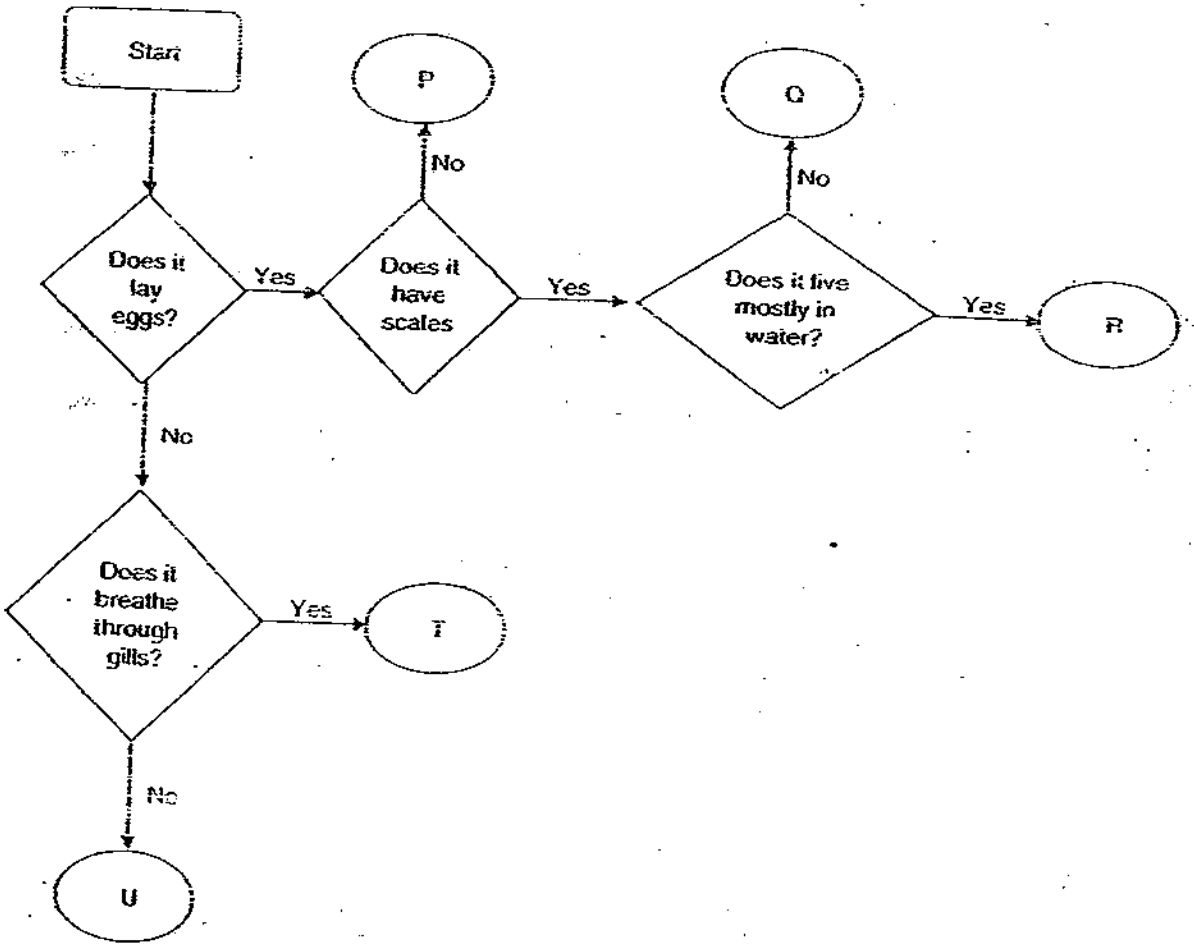
_____

_____

(Go on to the next page)

Score

39 Study the flowchart below.



(a) What is the difference between animals P and U? [1]

_____

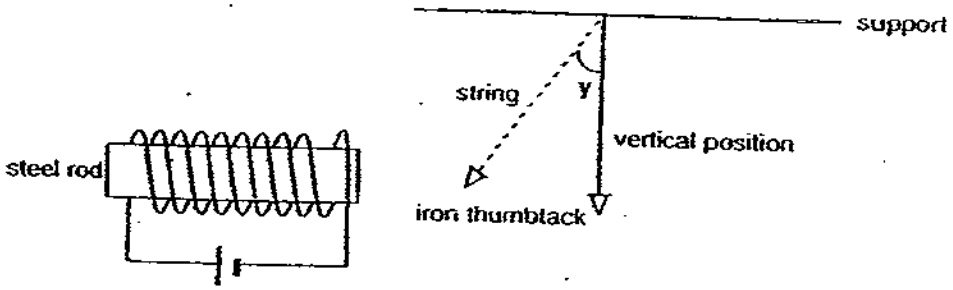
_____

(b) Name the group which animal R belongs to. [1]

_____

(Go on to the next page)

40 Marcus set up an experiment as shown in the diagram below. He measured the angle by which the iron thumbtack moved from the vertical position as he increased the number of batteries. He recorded his observations in the table below.



Number of batteries	0	1	2	3
Angle y (°)	W	15	28	37

(a) What is the value of W? Give a reason for your answer. [1]

(b) Explain why the iron thumbtack moved away from the vertical position. [1]

(c) He changed 1 more variable and carried out the experiment again. He recorded his readings in the table below.

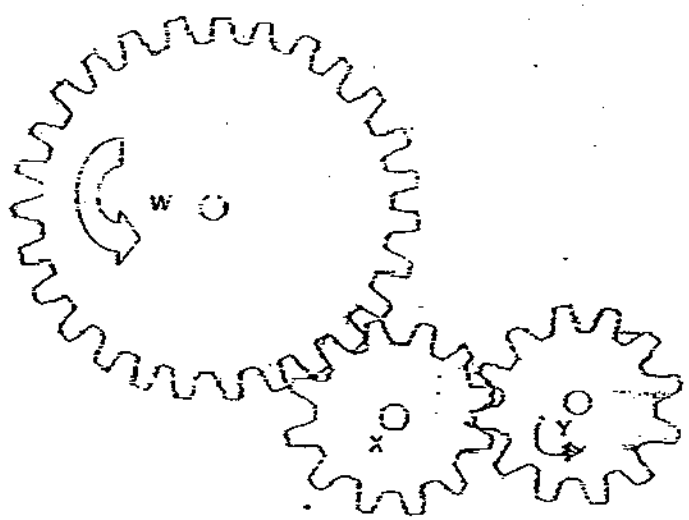
Number of batteries	1	2	3
Angle y (°)	21	37	49

What could Marcus have done to get the second set of readings if he used the same steel rod? [1]

(Go on to the next page)

Score

47 The diagram below shows 3 gears, W, X and Y.



The number of teeth in each of the gears is shown in the table below. The direction of rotation of the driving gear, W, is as shown.

Gear	Teeth
W	27
X	12
Y	12

(a) Draw on the diagram the direction of rotation of Gear Y. [1]

(b) How many rounds will Gear Y turn if Gear W turns 2 rounds? [1]

(Go on to the next page)

42 The classification table below shows how some plants have been grouped according to their method of reproduction. The letters A, B, C and D represent the 4 different types of plants.

Method of reproduction in plants			
Group Q	**Group R**	**Group S**	**Group T**
orange	bryophyllum	pineapple	onion
papaya	african violet	banana	potato
A	B	C	D

(a) Based on the classification table above, put a tick (✓) in the correct boxes. [2]

Statement	True	False
Plant B could be rose		
Plant A reproduces by seeds		
Sweet potato belongs to Group T		
Plant D could be an underground stem		

(b) In which group (Q, R, S or T) would you place ginger? [1]

_____

{Go on to the next page}

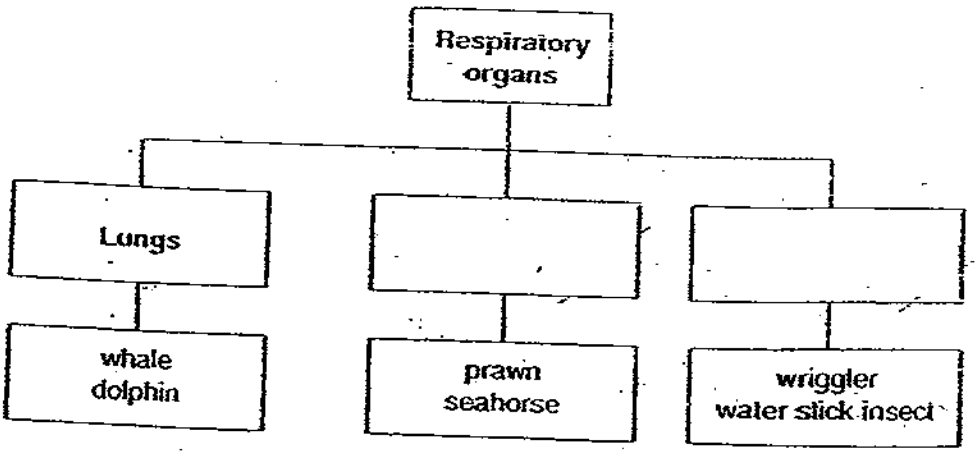
Score _____

43 Nicholas conducted an experiment to find out how the average number of times the goldfish opened and closed its gill covers changes with time. He set up a tank of water with only a goldfish inside and did not change the water for 1 week. He recorded his observation in the table below.

Number of days	1	2	3	4	5	6	7
Average number of times the gill covers open and close in 30s	6	9	13	17	20	23	28

(a) Based on the above data, describe the pattern observed. [1]

(b) Complete the classification chart below by filling in the respiratory organs of the different groups of animals in the spaces provided. [1]



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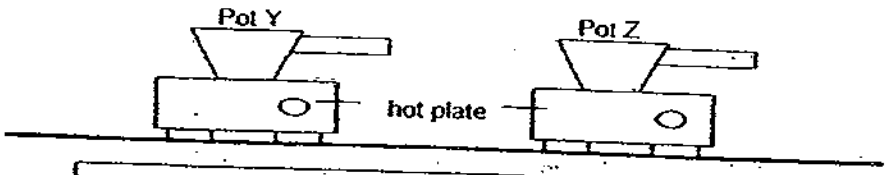
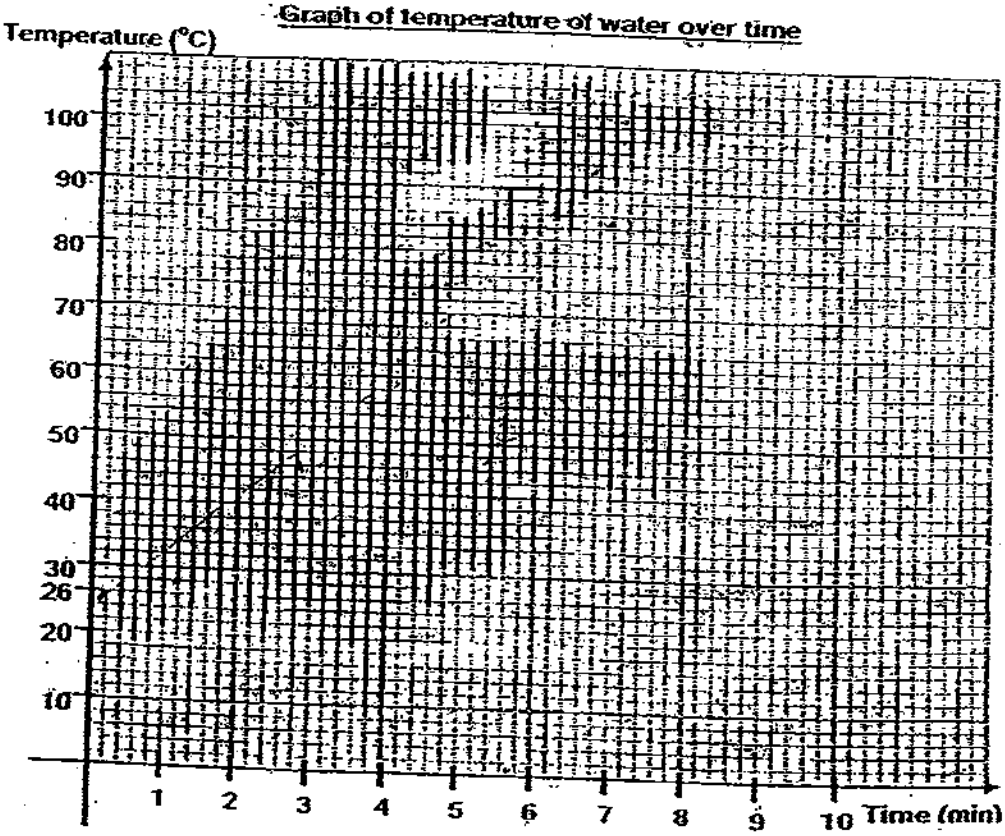
44 Brandon poured equal volumes of tap water into two metal pots, Pot Y and Pot Z. The pots were made of different materials. The two pots of water were then heated from room temperature (26°C) to boiling point using similar heating devices (hot plates) up to the 8th minute. The table below records Brandon's observations.



Time taken for water to reach boiling point (min)	
Pot Y	Pot Z
4	7

(a) Assuming that the temperature of water increases at a constant rate, draw line graphs to represent Brandon's observations up to the 8th minute. Label your graphs accordingly. [2]

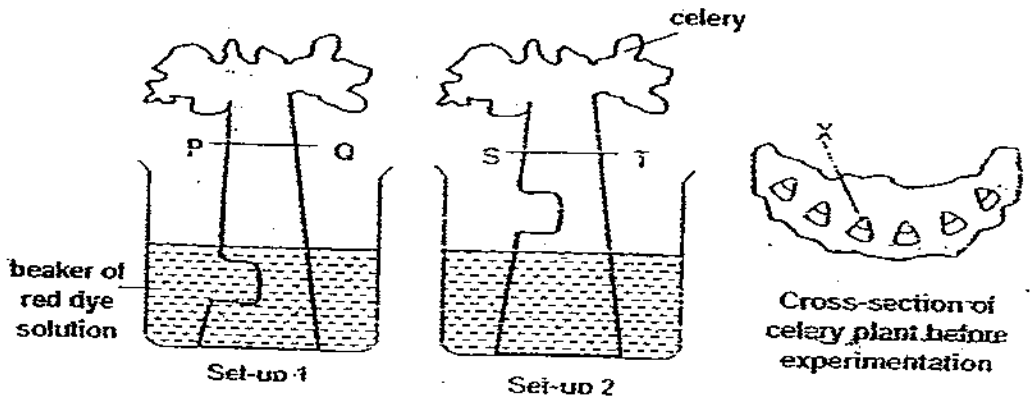


(b) Explain how the use of Pot Y contributes to cost saving. [1]

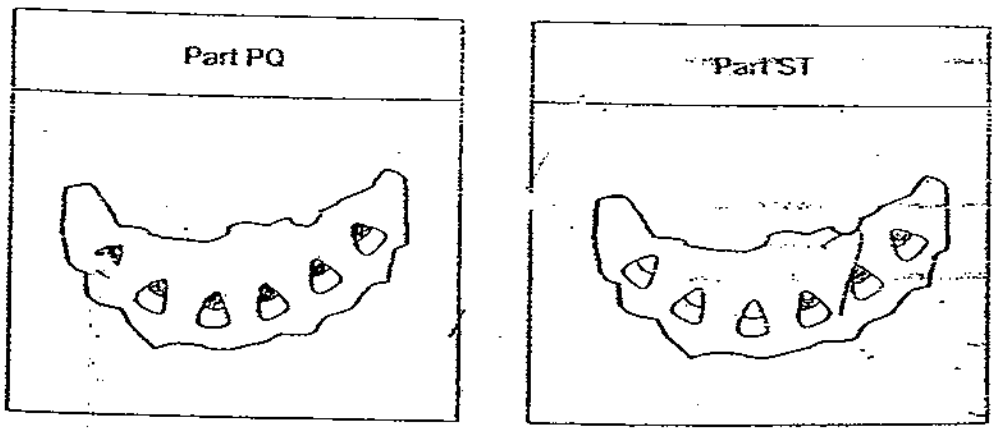
(Go on to the next page)

Score

45 Timothy put two stalks of a celery plant, each with a part removed, into two separate beakers of water mixed with red dye as shown below. He left the set-up undisturbed for 3 hours. At the end of the three hours, he cut the two stalks at positions PQ and ST and observed how much of the red dye was seen at the cross-sections, PQ and ST.



(a) In the space below, shade what he would observe in parts PQ and ST at the end of the experiment. [1]



(b) Based on the results of Timothy's experiment, explain how 'X' contributes to photosynthesis. [1]

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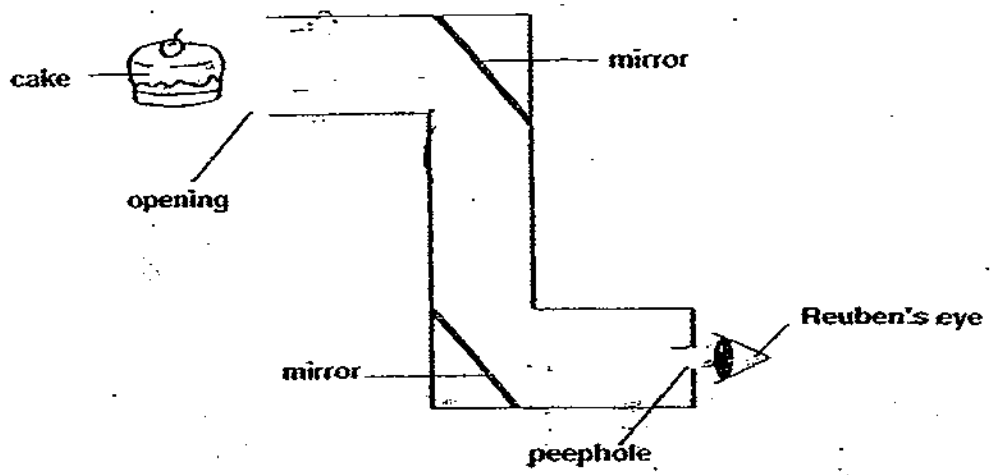
46 The diagram shows how Reuben is able to see the cake when he looks into the peephole in front of him.



(a) In the diagram, draw arrows to show the direction that light travels which enables Reuben to see the cake. [1]

(b) What will Reuben observe if a white-coloured plate <u>completely</u> covers the opening? [1]

_____

THE END

(Go on to the next page)

Score

ANSWER SHEET

EXAM PAPER 2009

SCHOOL : ACS PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA2

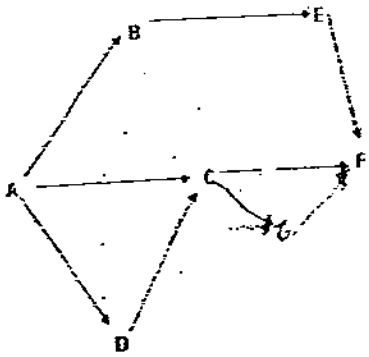
1.	1	6.	4	11.	3	16.	3	21.	3	26.	4
2.	1	7.	3	12.	4	17.	2	22.	3	27.	3
3.	2	8.	3	13.	1	18.	3	23.	4	28.	2
4.	4	9.	3	14.	2	19.	4	24.	4	29.	2
5.	1	10.	2	15.	1	20.	1	25.	3	30.	2

31.a)swordtail and crab.

31.b)breathe through skin

31.c)Dissolved oxygen from plants, or atmospheric air.

32.a)C and E b)A



33.a)Populations of T and U decreased but V increased.

33.b)No.The pollution could have been discharged at A and flowed downstream affecting organisms at B.

34.a)The rod will roll down but slow down or stop at K.

34.b0The steel rod would reach the bottom of the ramp.

34.c)less friction on the washing board than the iron sheet.

35.a)B,C,A. b)None of the fabric.

36.a)Gravity and air resistance.

36.b)The two balls were not dropped at the same height.

37.Chemical, electrical, light, sound, kinetic , heat

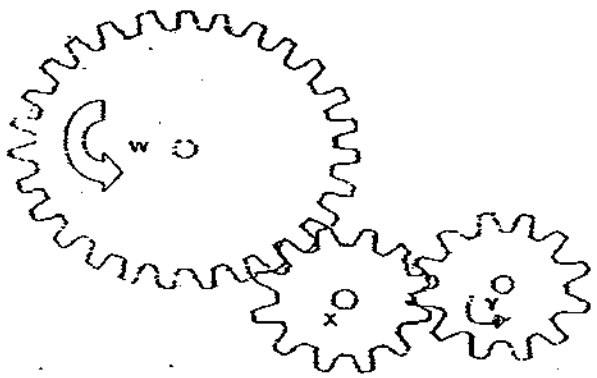
38.a)Bed B b)Beds A and B. c)The weeds compete with the plants for sunlight and nutrients.

39)a.P lays eggs and U does not. b.fish

40.a)O as it has no batteries.

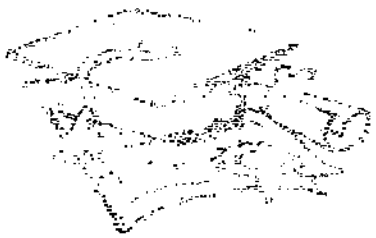
40.b)The rod became an electric magnet and attracted the thumbtack.

40.c)He could have used more powerful; batteries.



41.a)

b)4.5 rounds

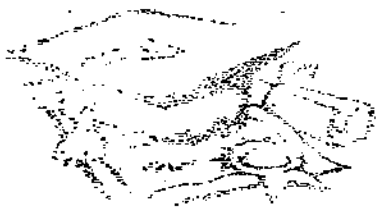


42a.i)False ii)True iii)False v)True

b)Group T

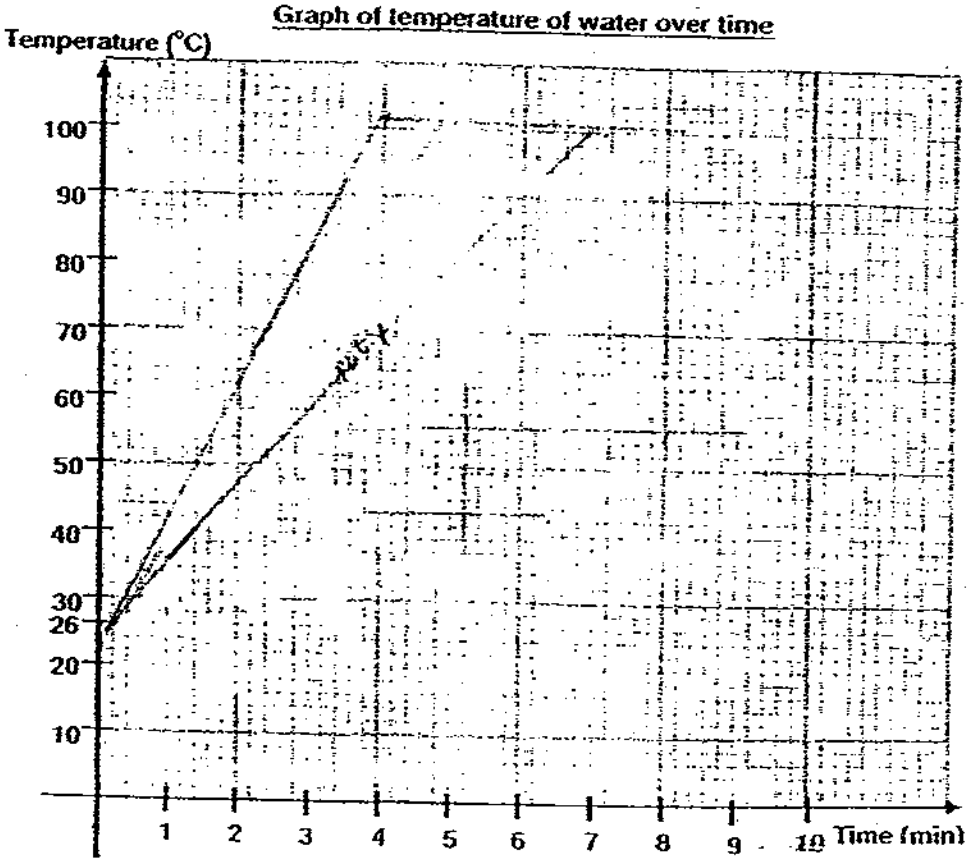
43.a)The more day there are, the more times the gill covers open and close in 30s

43.b)gills-prawn seahorse air tube-wriggler water stick insect



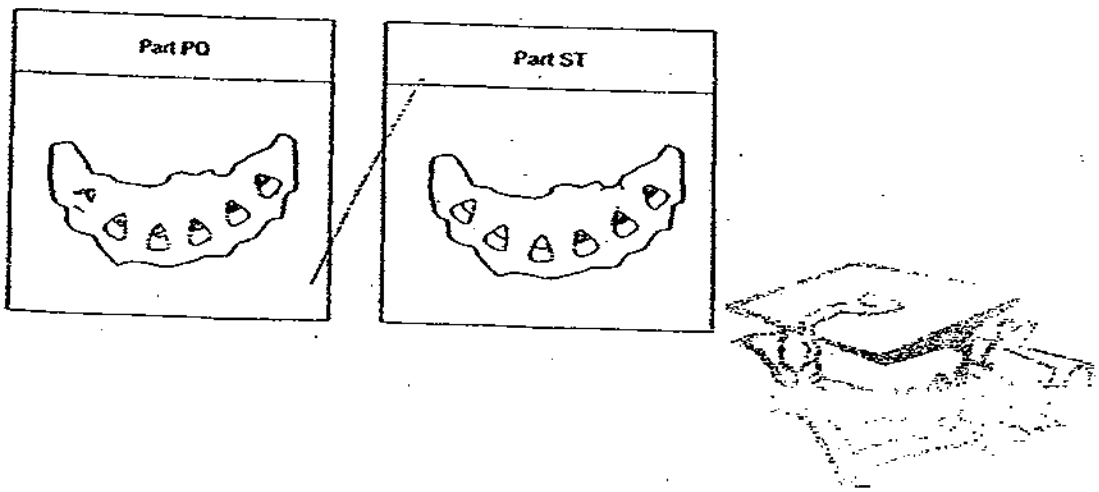
graphs accordingly.

44.a)

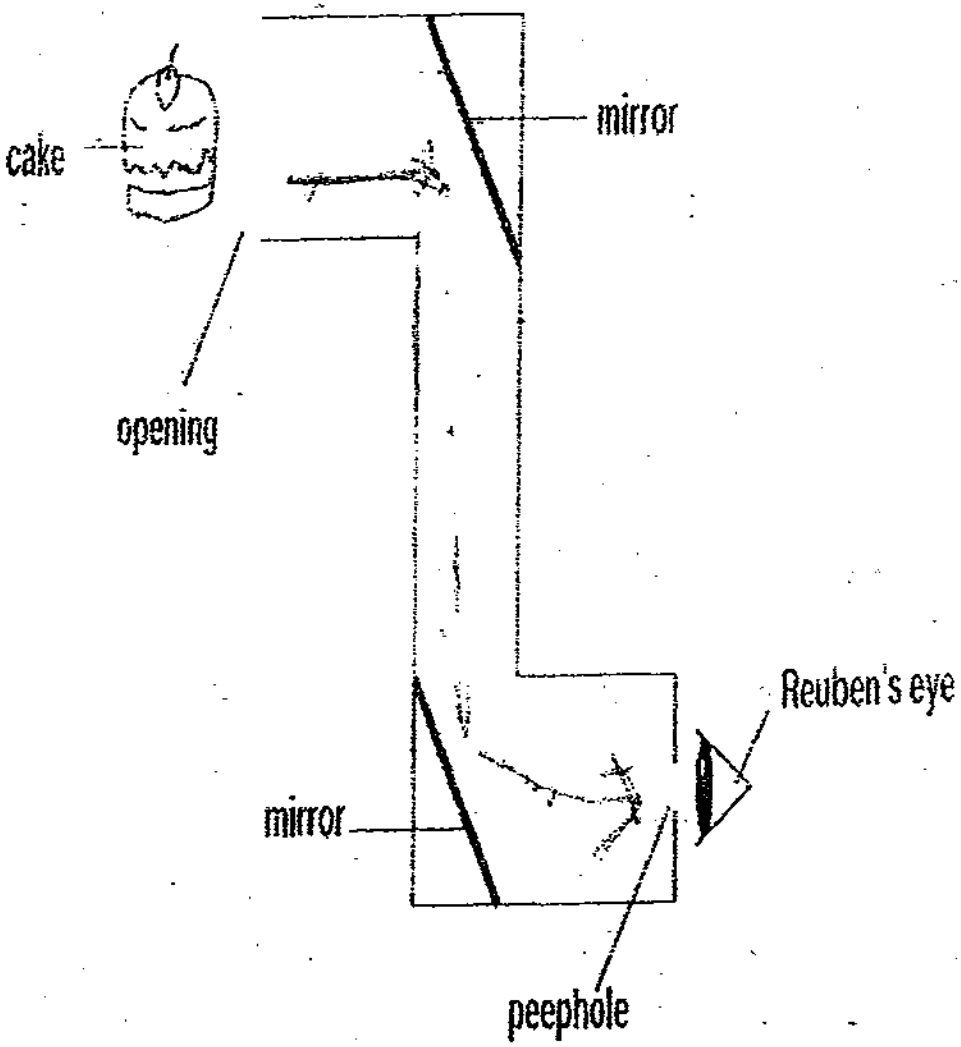


44.b)Y allows water to boil faster resulting in reduced use of electricity and saves money.

45.



45.b)It bring water from the roofs to the other parts of the plant.



46.a)

46b)The tube will be dark.