Anglo-Chinese School (Primary)

END-OF-YEAR EXAMINATION 2011
SCIENCE
PRIMARY FIVE
BOOKLET A

Name: _____ ( ) Class: Primary 5 ___

Date: 3rd November 2011 Duration of paper: 1 h 45 min

_____
Parent's/Guardian's Signature

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of 20 printed pages, including this cover page.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answer on the Optical Answer Sheet (OAS) provided.

(3) You were at the school library doing research for your Social Studies project when you heard some noise. You saw two boys hiding behind a book shelf tearing pages off some books.

Based on the above situation, write a composition of **at least 150 words**.

In your composition, make use of the points below in your story.

- what you did
- what happened next
- what happened in the end

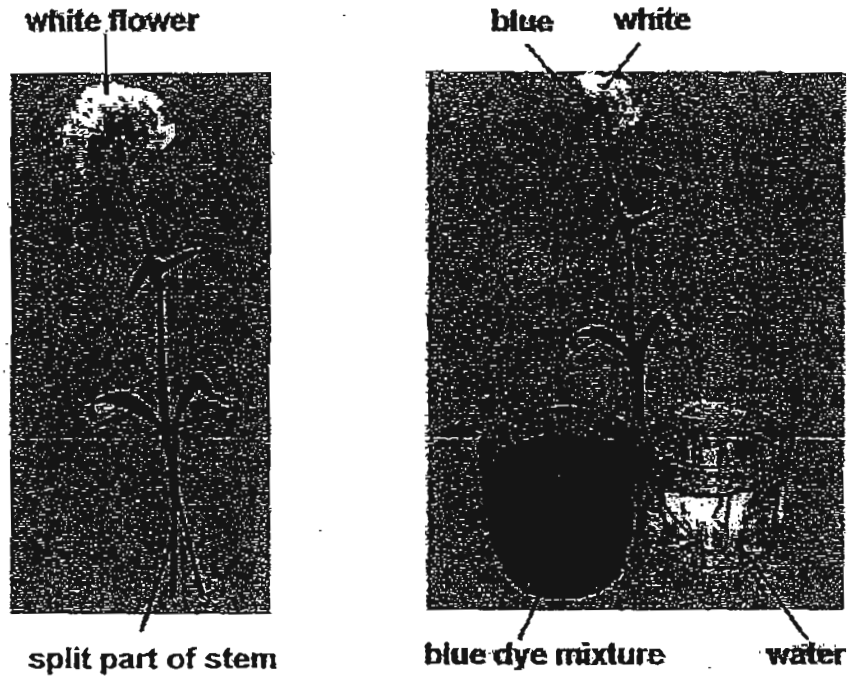
You may re-order the points. You may also include other relevant points.

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

(60 marks)

---

1 Alice set up an experiment as shown below. Firstly, she split part of a plant stem in half. Then, she put one half of it in a beaker of water mixed with blue dye and the other half in a beaker of water.



After some time, half of the flower turned blue.

Which of the following is/are also transported to the rest of the plant by tubes in the plant's stem that caused half of the flower to turn blue?

A food
B oxygen
C mineral salts
D carbon dioxide

(1) C only

(2) A and C only

(3) B and C only

(4) A, B and D only

2 Kelly removed the outer ring of a stem from a plant growing in the eco-garden as shown in Figure A below.

Figure A

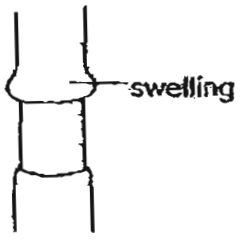


Figure B

A swelling was observed to have been formed above the ring a few days later as shown in Figure B.

Which statement best explains the formation of the swelling?

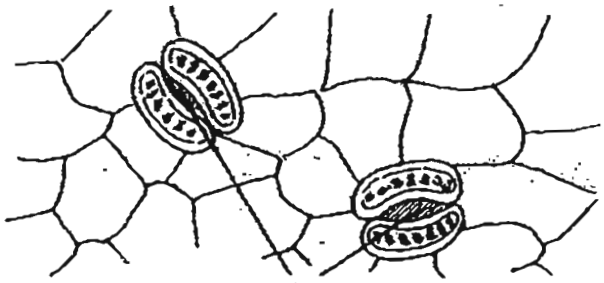
(1) Food travelling up the stem is trapped above the ring.

(2) Water travelling up the stem is trapped above the ring.

(3) Food travelling down the stem is trapped above the ring.

(4) Water travelling down the stem is trapped above the ring.

3 The diagram below shows tiny openings called stomata found on the underside of the surface of leaves.



tiny openings

Which of the following are the functions of the stomata?

A They allow excess water vapour to escape.
B They help to trap sunlight for photosynthesis.
C They enable the exchange of gases to take place.
D They allow the movement of mineral salts in and out of the openings.

(1) A and C only

(2) B and D only

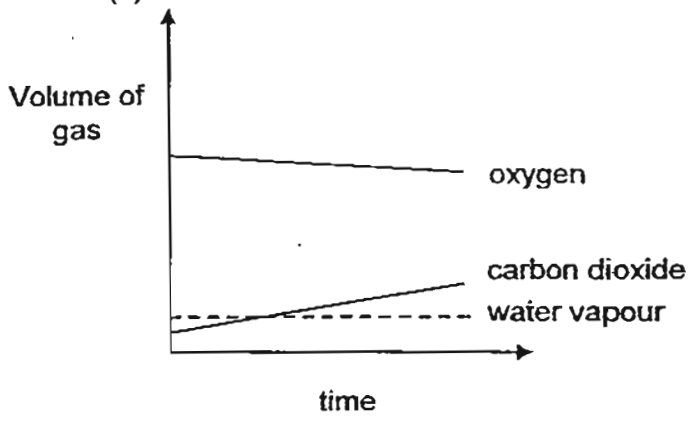
(3) A, B and C only

(4) B, C and D only

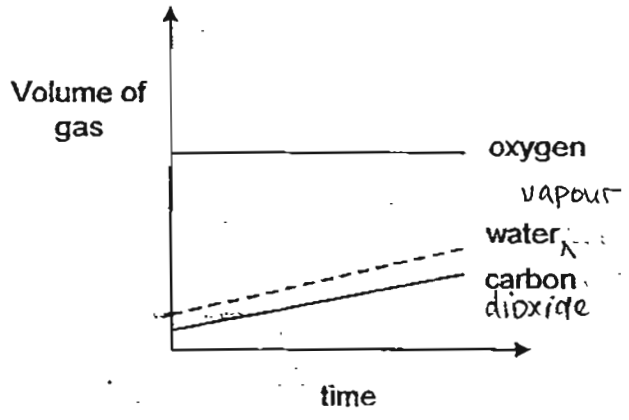
4 Alicia wanted to find out which gases are taken in and given out by animals. She put twenty mice in an enclosed tank for an hour.

Which one of the following graphs most likely show how the amount of gases in the tank changed after an hour?

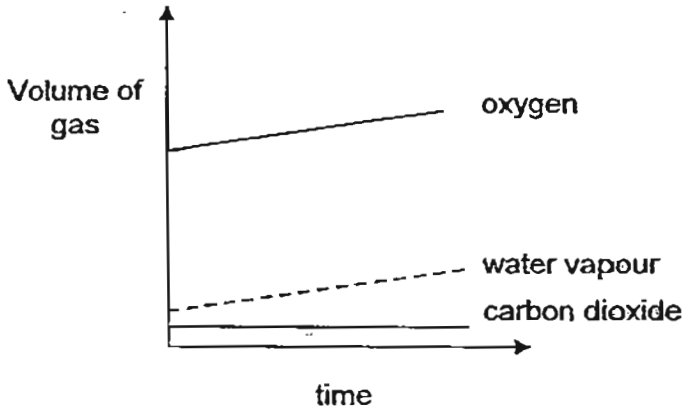
(1)



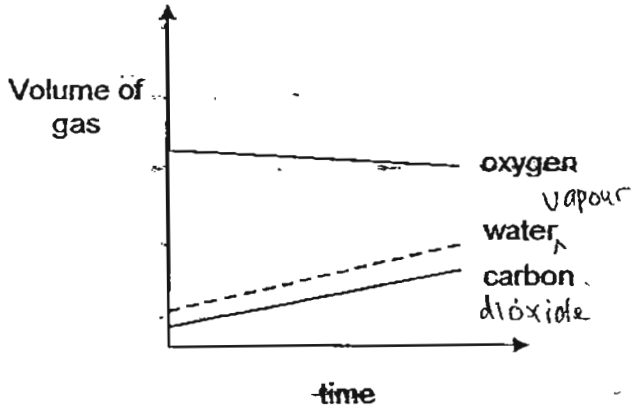
(2)



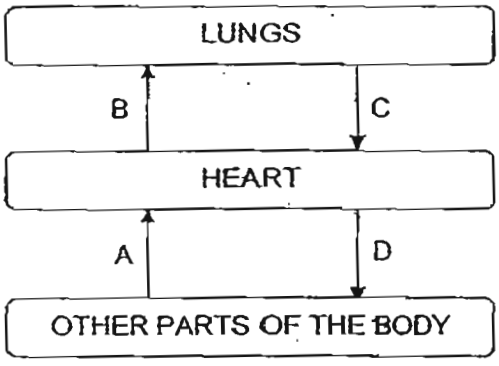
(3)



(4)



5 The arrows, A, B, C and D, in the diagram below represent blood vessels carrying blood to and from the lungs, heart and other parts of the body in the human circulatory system



Which two blood vessels carry blood rich in oxygen?

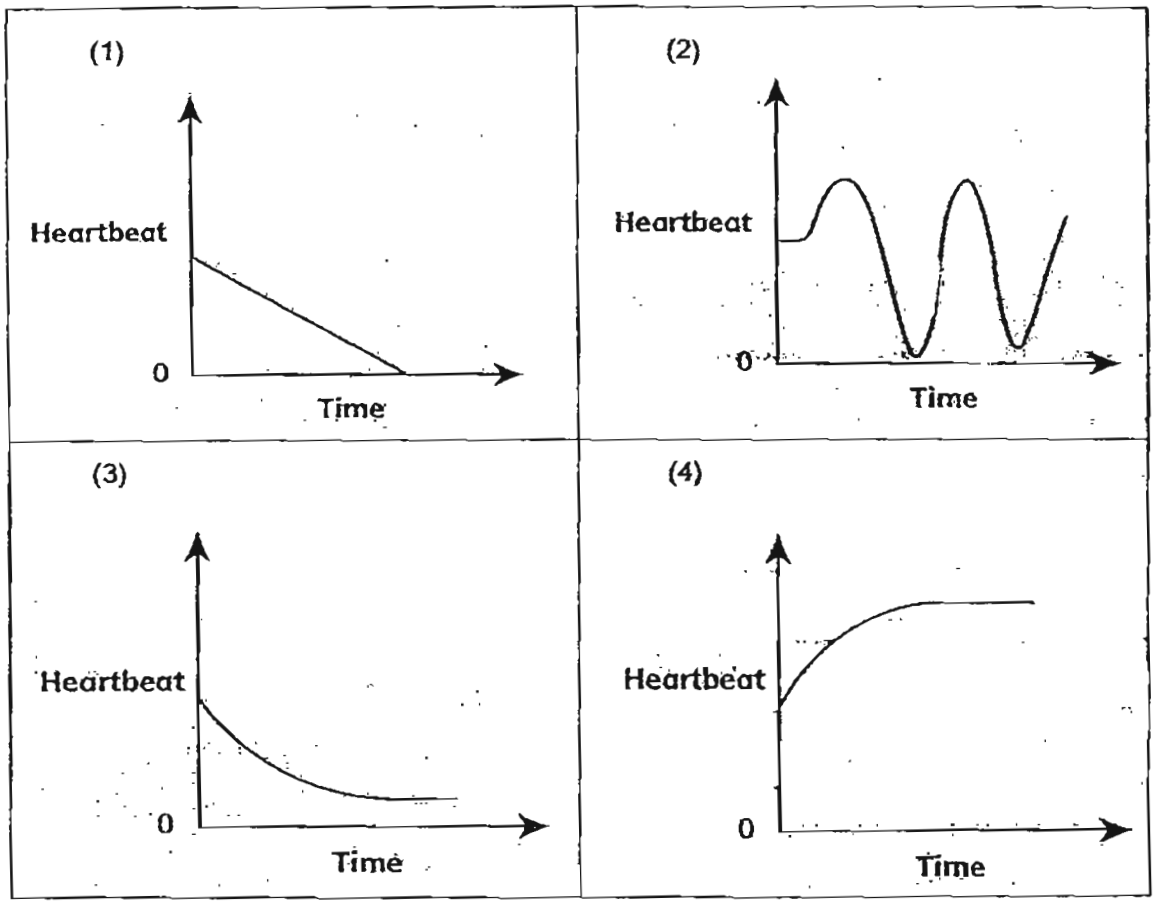
(1) A and B

(2) A and C

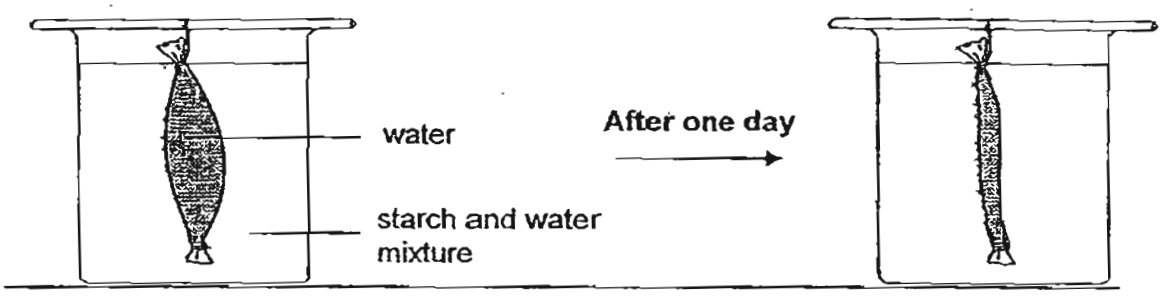
(3) B and C

(4) C and D

6 Colin ran a 100-metre race. Which one of the following graphs below shows the likely change in his heartbeat during the race?



7 Alton carried out an experiment using a bag made of a special material. He poured some water into the bag. He tied the bag very tightly at the two ends so that there would be no leakage and left it in a beaker containing a mixture of starch and water as shown in the first diagram below.



First Diagram **Second Diagram**

After one day, he observed that the bag became flimsy and limp as shown in the second diagram above. There were no leakages from the two ends.

He then compared the results of the above experiment to what he had learnt about a certain part of a plant cell.

Which one of the following statements best relates the results of the above experiment to the function of a part of a plant cell?

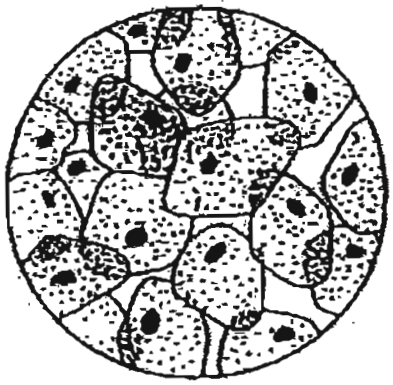
(1) The bag represents the cell wall of a plant cell.

(2) The bag represents the cell membrane of a plant cell.

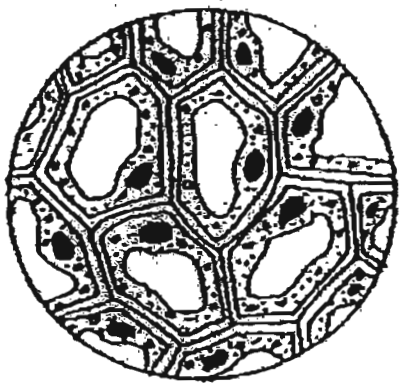
(3) The bag represents the cell wall and the cell membrane of a plant cell.

(4) The bag represents the nucleus of a plant cell as they control the movement of substances in and out of the bag.

8 Some pupils observed two groups of cells under a microscope. The diagram below shows what they observed.



X



Y

Which of the following statement(s) about the cells is/are most likely correct?

A Cells Y are plant cells as they contain chloroplasts.
B Cells X and Y are plant cells as they contain a nucleus each.
C Cells X and Y are animal cells as they do not have a cell wall.
D Cells X are animal cells as cytoplasm completely fills the cells.

(1) C only.

(2) A and B only

(3) A and D only

(4) C and D only

9 Which one of the following sets of characteristics can be passed down from one generation to the next?

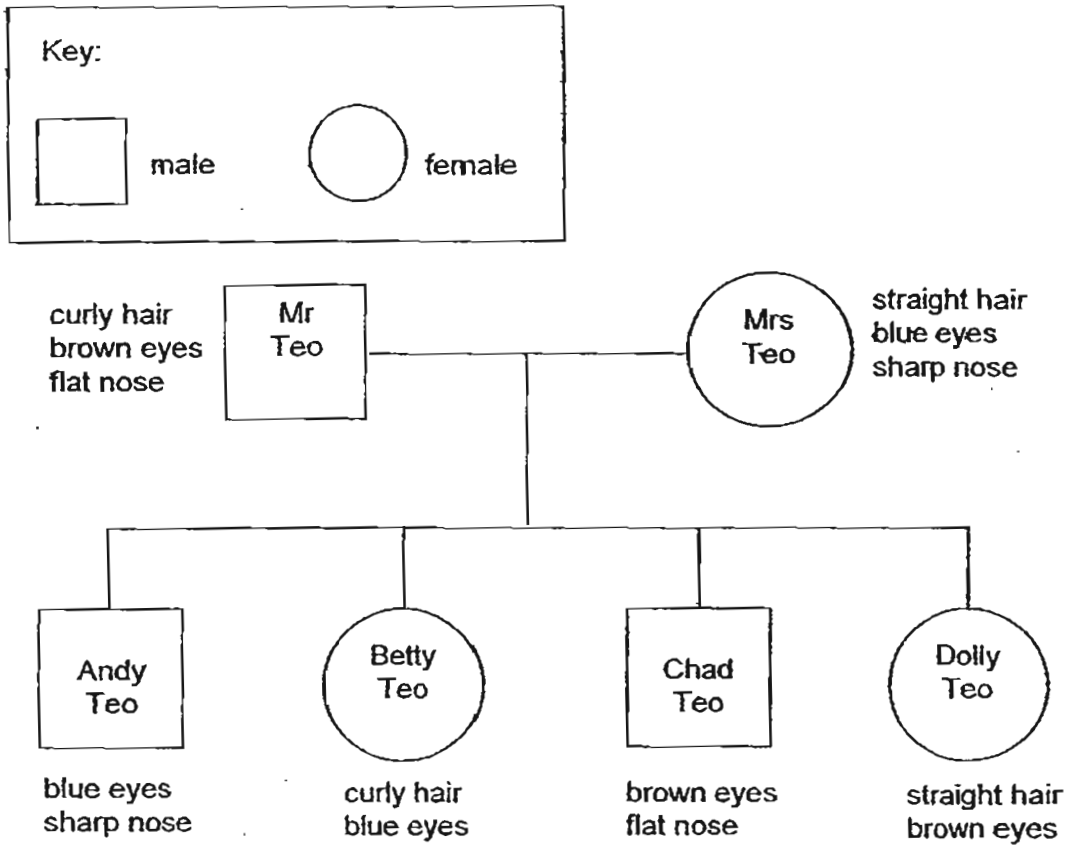
(1) Height, fingerprints and type of earlobes.

(2) Dimples, ability to roll tongue and length of fingernails.

(3) Colour blindness, favourite hobby and natural skin colour.

(4) Type of earlobes, ability to roll tongue and colour blindness.

10 Study the family tree below. A brief description of the physical characteristics of the different family members is given.



Based on the information above, which of the four children inherited exactly two characteristics from one of their parents?

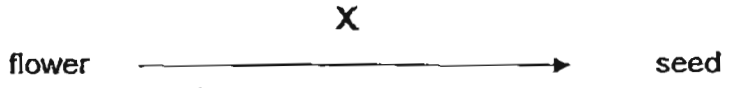
(1) Betty and Chad

(2) Andy and Betty

(3) Andy and Chad

(4) Andy , Betty, Chad and Dolly

11 In the life cycle of a plant, many processes (X) can take place that will change a flower to eventually a seed.



Which one of the following processes is not possible to occur at X?

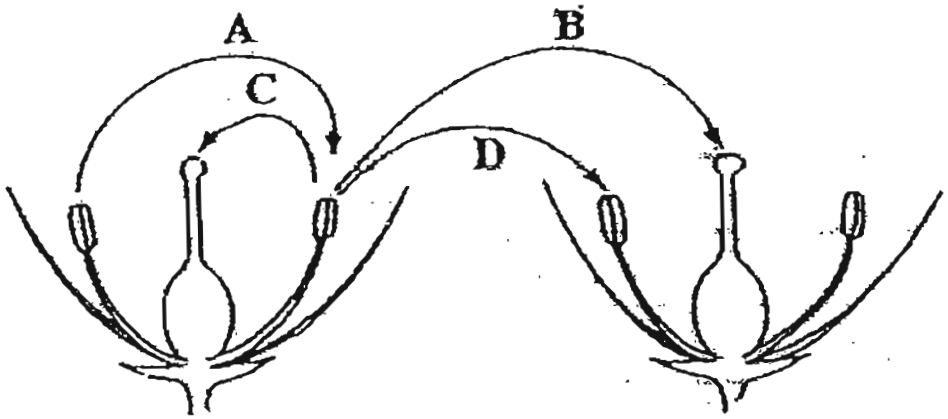
(1) pollination

(2) fertilisation

(3) germination

(4) seed dispersal

12 The diagram below shows two flowers of the same plant.



If the arrows were to indicate the movement of pollen grains, which arrows correctly show the process of pollination taking place?

(1) A and B

(2) A and D

(3) B and C

(4) C and D

13 The table below compares the sexual reproduction of humans and flowering plants.

	Humans	Flowering plants
Male reproductive cell	A	B
Female reproductive cell	egg	C
Process whereby the male reproductive cell fuses with the female reproductive cell	fertilisation	D

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

	A	B	C	D
(1)	sperm	pollen	ovule	pollination
(2)	pollen	sperm	egg	fertilisation
(3)	sperm	pollen	ovule	fertilisation
(4)	pollen	sperm	egg	pollination

14 Which of the following statements about reproduction in humans are correct?

A Sperms are produced by the male.
B Many sperms can fuse with one egg.
C After fertilisation, the fertilised egg will begin to develop into a baby.
D The developing baby gets nutrients directly from the mother's stomach.

(1) A and B only

(2) A and C only

(3) B and D only

(4) A, C and D only

15 The table below gives information about the average number of sperms released at a time by an adult male in humans.

	Average number of sperms released at a time by an adult male
human	300 million

Why is it necessary for an adult male to release such a large number of sperms for reproduction?

A One sperm is needed to fertilise many eggs.
B Most sperms will die before reaching the egg.
C Some sperms are defective and not fully-developed.
D Increase the chance of a human egg being fertilised.

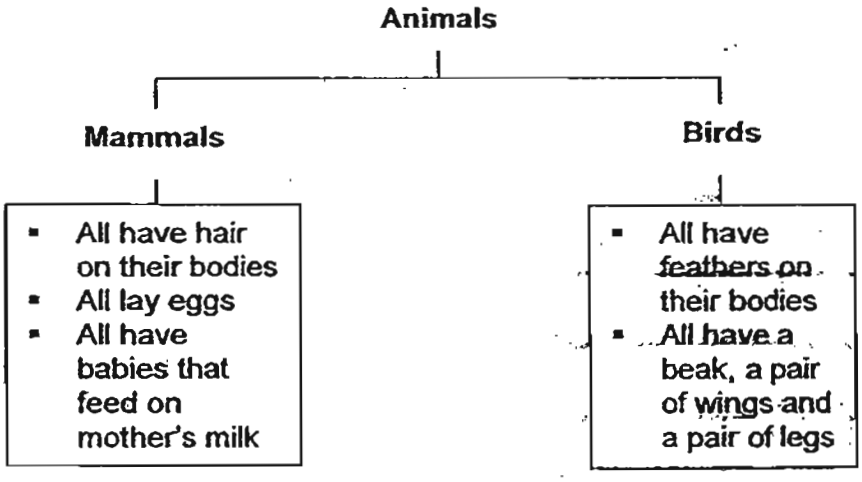
(1) A and B only

(2) A and C only

(3) C and D only

(4) B, C and D only

16 Tom wrote some of the characteristics of mammals and birds as shown in the classification chart below.



Based on his chart, which of the following characteristics of a mammal or a bird is **incorrectly** classified?

(1) All lay eggs.

(2) All have hair on their bodies.

(3) All have babies that feed on mother's milk.

(4) All have a beak, a pair of wings and a pair of legs.

17 Michael planted four orchid plants, **A**, **B**, **C** and **D**, in four similar pots. He placed the orchid plants under different conditions as shown below.

	Conditions		
Plants	**Air**	**Sunlight**	**Water**
A	Yes	Yes	Yes
B	No	Yes	Yes
C	Yes	No	No
D	No	Yes	No

Which of the plant(s) will most likely die after a few weeks?

(1) A only

(2) B and D

(3) A, B and C

(4) B, C and D

18 Amin put 50 cm^3 of water in a plastic beaker. He then placed the beaker in a freezer. After a few hours, he took the beaker out and observed that the water had frozen. What changes in the water had taken place?

A state
B shape
C colour
D temperature

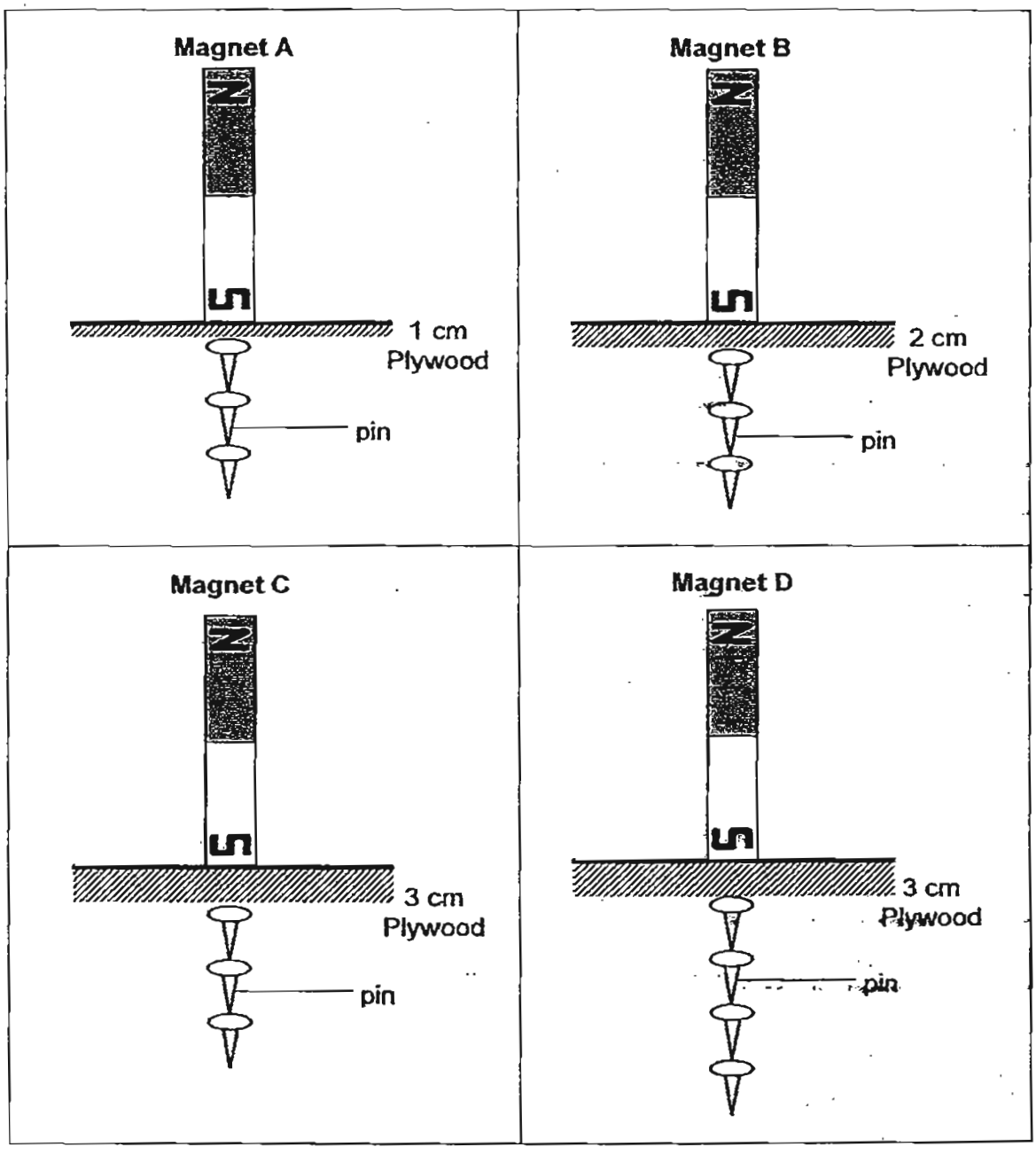
(1) A and B

(2) B and C

(3) A and D

(4) A, B, and D

19 Sherry carried out an experiment using four bar magnets A, B, C and D. She placed the magnets on plywoods of different thickness. The diagrams below show the results at the end of the experiments.



Based on the diagram above, which one of the magnets has the weakest magnetic force?

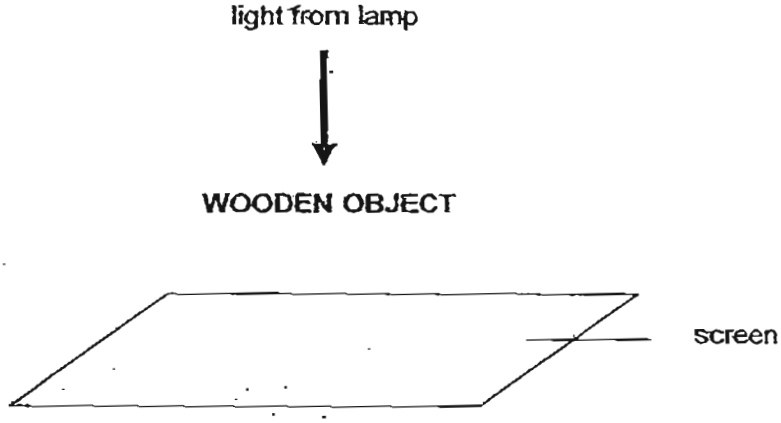
(1) A

(2) B

(3) C

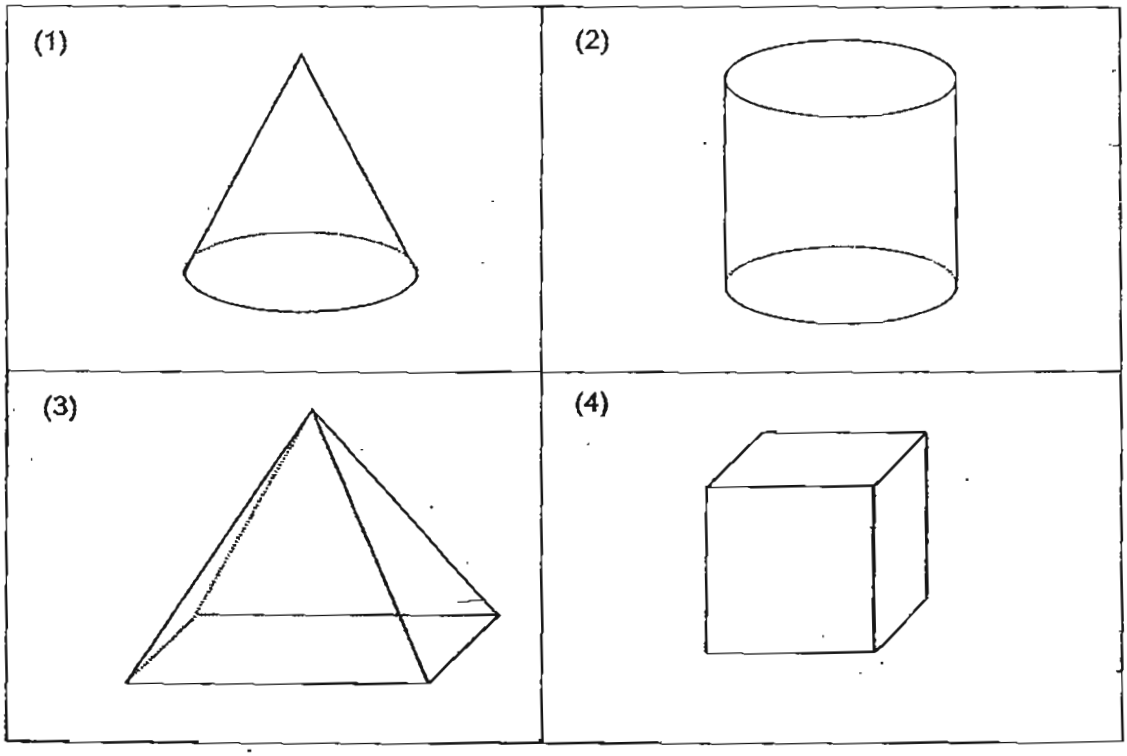
(4) D

20 Ahmad placed a wooden object under a light source in a dark room as shown below.



He observed the following shadow on the screen.

Which one of the following wooden objects could have cast the shadow above?



21 Jonathan conducted an experiment to find out how the rate of evaporation of water is related to the different types of materials. He used 3 items: handkerchief, table cloth and carpet. The three items are of the same size and they have the same exposed surface area. He used the same amount of water to wet the items. He recorded the results of his experiment in the table shown below.

Items	Place where item was hung to dry	Time taken for item to dry
Handkerchief	Garden	45 minutes
Tablecloth	Bathroom	1 hour
Carpet	Kitchen	4 hours

Jonathan's teacher said that the experiment was not a fair one. How could Jonathan improve his experiment to make it a fair one?

	Items	Place to hang	Duration to hang
(1)	1 set of 3 items (1 item each)	Garden, Bathroom, Kitchen respectively	4 hours at each place
(2)	1 set of 3 items (1 item each)	Kitchen	4 hours
(3)	3 sets (Each set consists of 3 items made up of 3 different types of material)	1 set in the garden, 1 set in the bathroom, 1 set in the kitchen	4 hours at each place
(4)	3 sets (Each set consists of 3 items made up of 3 different types of material)	1 set in the garden, 1 set in the bathroom, 1 set in the kitchen	4 hours 4½ hours 5 hours

22 Arrange the following stages of the water cycle in the correct order.

A Rain falls from the clouds.
B Water vapour condenses to form clouds.
C Water vapour rises and cools.
D Water evaporates from the seas.
E The clouds get heavier.

(1) A, E, C, B, D

(2) A, D, C, E, B

(3) D, C, B, E, A

(4) D, A, E, B, C

23 How can we conserve water to ensure that we have enough water in Singapore?

A Reduce the amount of water used during bathing.
B Use a pail of water instead of a water hose to wash a car.
C Recycle used water in treatment plants to turn it into NEWater.
D Re-use the water from washing vegetables to flush toilet bowls.

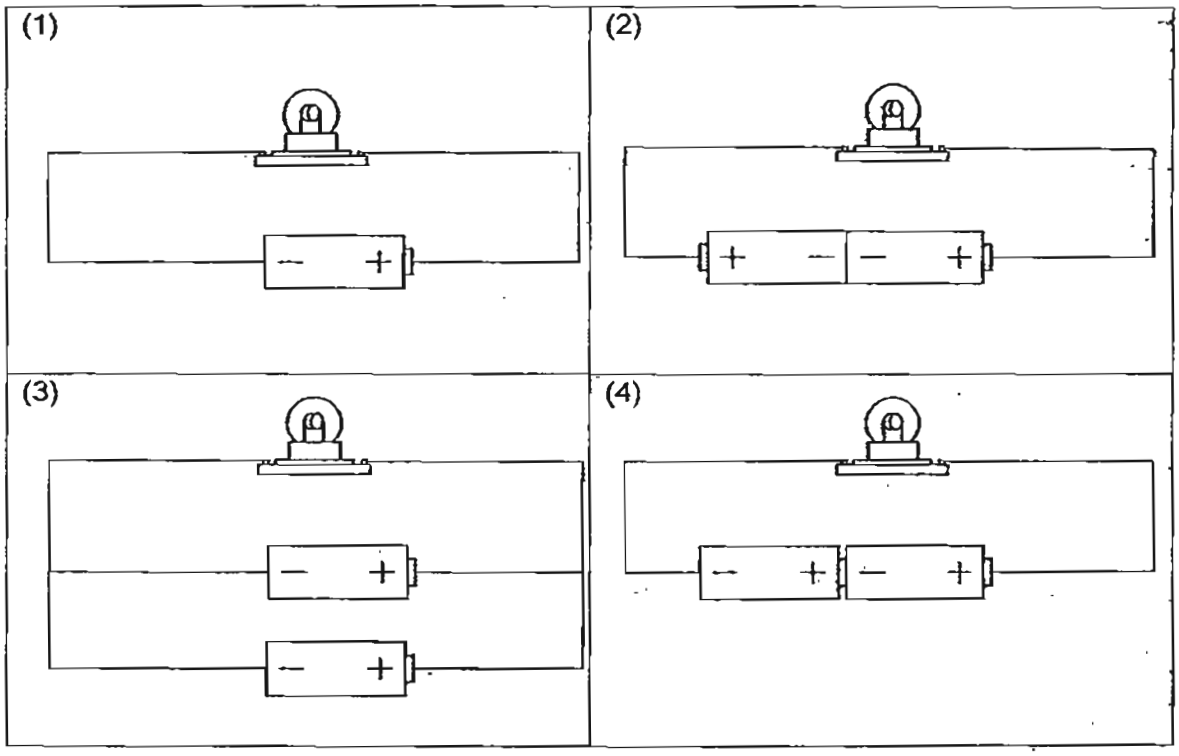
(1) A and C

(2) B and C

(3) A, B and D

(4) A, B, C and D

24 Study the electric circuits below. If all the bulbs and batteries are identical, which bulb would be the brightest?



25 Which one of the following statements is true about the functions of the water-carrying tubes and food-carrying tubes in a plant?

(1) The tubes help to trap light for making food.

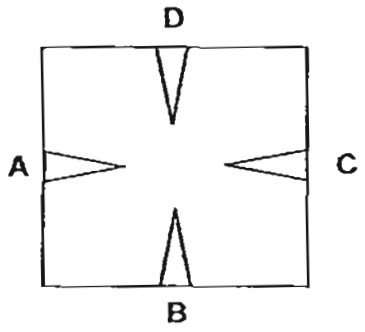
(2) The tubes make up the transport system of a plant.

(3) The tubes produce food to provide energy for the plant.

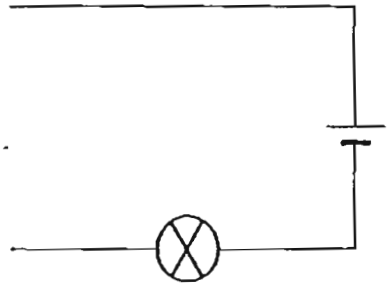
(4) The tubes enable the plant to take in carbon dioxide and release oxygen during the process of photosynthesis.

26 Jane tested the circuit card below with a circuit tester.

Circuit Card



Circuit tester

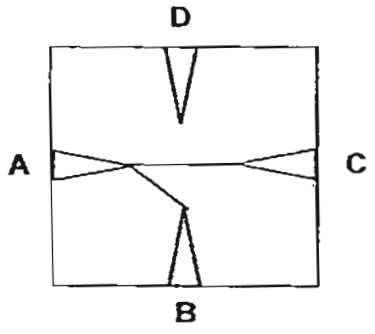


She recorded the results in the table below.

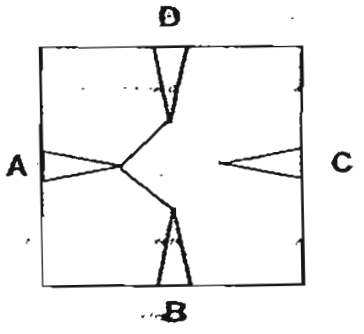
Points tested	Does the bulb light up?
A and C	Yes
A and D	Yes
B and C	No
B and D	No

Which one of the following could be the correct arrangement of the wires in the circuit card?

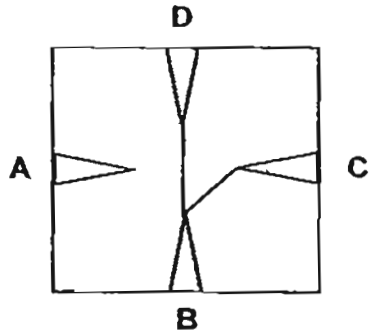
(1)



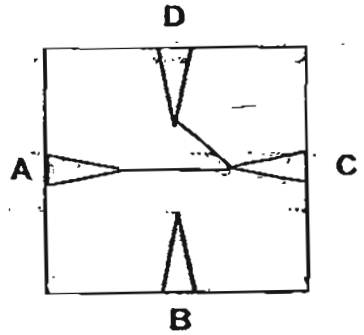
(2)



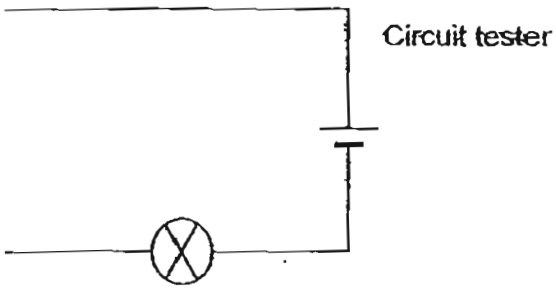
(3)



(4)



27 Samuel carried out an experiment to find out which objects, **W**, **X**, **Y** and **Z** are conductors of electricity. He used the circuit tester below to connect each object one at a time and his results are shown in the table below.



Object	Light produced by the bulb
W	Dim
X	None
Y	Very bright
Z	None

Which four objects were used?

	W	X	Y	Z
(1)	Glass rod	Steel nail	Plastic ruler	Pencil lead
(2)	Plastic ruler	Steel nail	Pencil lead	Aluminium foil
(3)	Aluminium foil	Glass rod	Pencil lead	Steel nail
(4)	Pencil lead	Plastic ruler	Steel nail	Glass rod

28 Which of the following factors below will lead to an increase in the size of an organism's population?

A abundance of food
B more predators
C diseases
D high birth rate
E sufficient water

(1) A and D

(2) B and C

(3) A, D and E

(4) A, B, C, D and E

29 Which one of the following is the correct definition of a population?

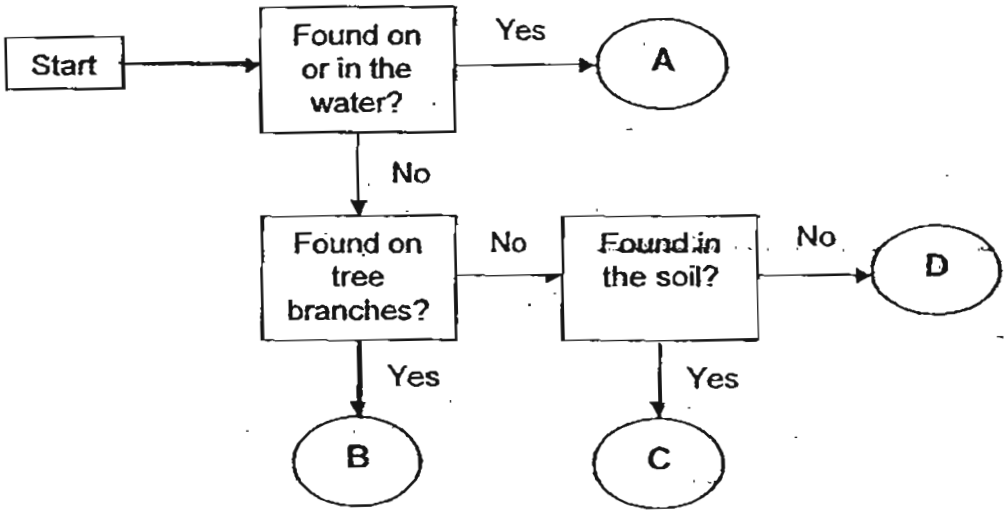
(1) A population is a characteristic of an animal.

(2) A population is a place where an organism lives.

(3) A population is a community that has many needs.

(4) A population is a group of organisms of the same kind that live together and reproduce in a particular place.

30 Study the flow chart below carefully.



Which one of the following sets of A, B, C or D correctly matched each of the given organisms in the table below?

	Chicken	Mosquito Larvae	Earthworm	Hawk
(1)	D	A	C	B
(2)	D	B	A	C
(3)	C	B	A	D
(4)	B	C	D	A

END OF BOOKLET A

Anglo-Chinese School (Primary)

END-OF-YEAR EXAMINATION 2011
SCIENCE
PRIMARY FIVE
BOOKLET B

Name: _____ ( ) **Class: Primary 5** ___

Date: 3rd November 2011 **Duration of paper: 1 h 45 min**

_____
Parent's/Guardian's Signature

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of 16 printed pages including this cover page.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answer neatly in this booklet.

BOOKLET	MAXIMUM MARKS	MARKS OBTAINED
A	60	
B	40	
Total	100	

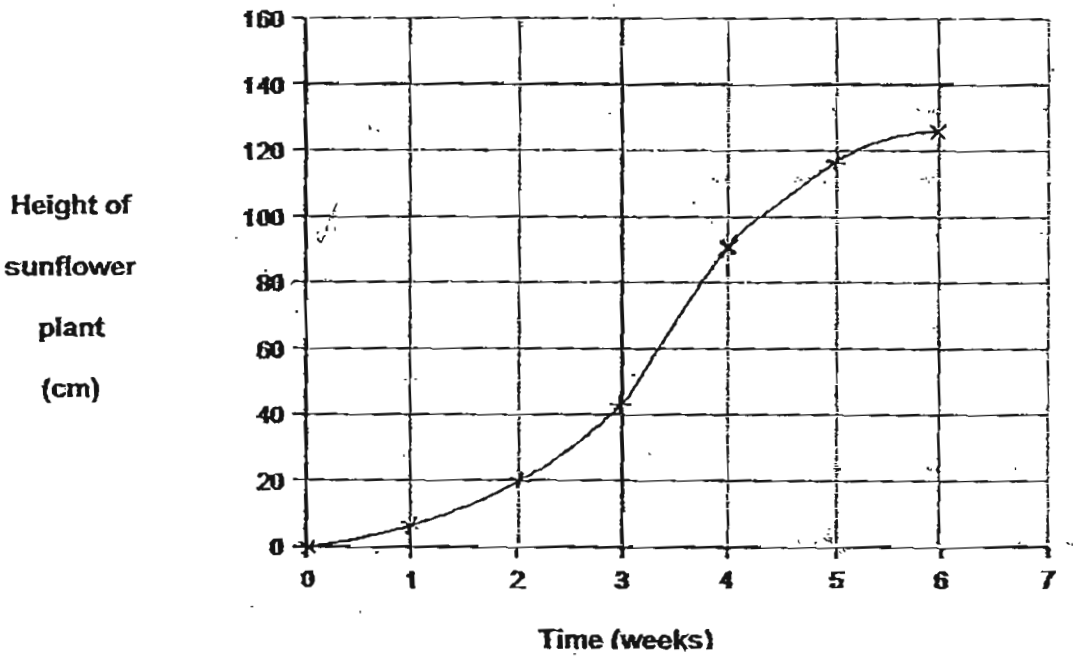
For questions **31** to **44**, write your answers in the spaces provided.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (40 marks)

---

31 Jeremy planted a sunflower seed in the school garden and measured the height of the plant at the end of each week. He then presented his data to his classmates in the form of a line graph as shown below.

Graph to show the height of a sunflower plant



(a) Jeremy's classmates studied the graph and recorded their observations about the growth of the plant as shown below:

Ali: The plant was 140 cm tall at 6 weeks.
Bentley: The plant started growing after week 1.
Chunli: The plant stopped growing after 5 weeks.
Donovan: The plant grew fastest between week 3 and 4.

Based on the graph, whose observation is correct? [1]

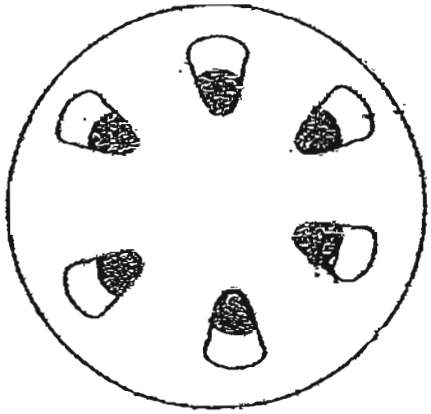
(b) Use the graph to help you find out how tall the sunflower plant was at week 4. [1]

(Go on to the next page)

Score	/ 2

(c) The diagram below shows a cross-section view of the sunflower plant's stem.

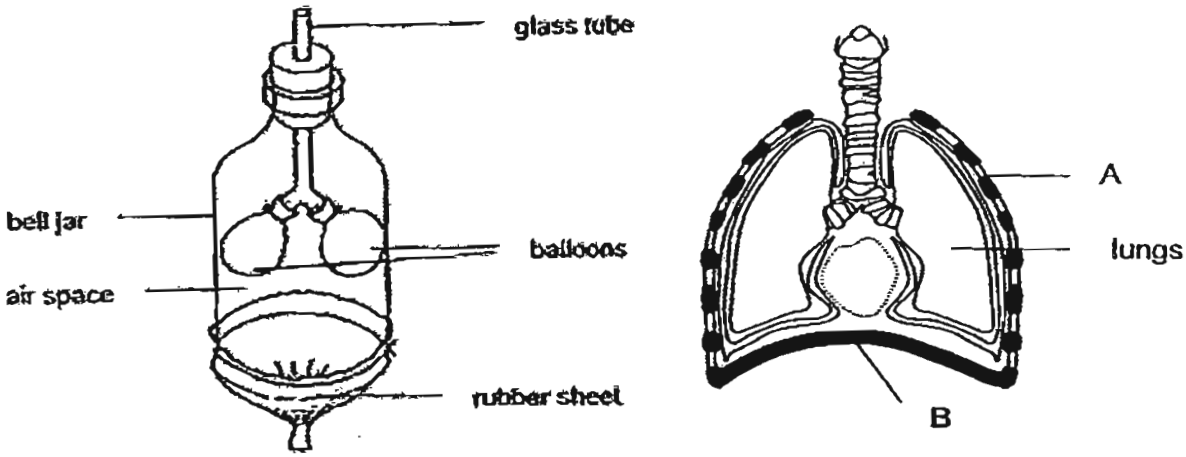
Using a ruler and a pencil, label and name the part which transports food from the leaves to the other parts of the plant. [1]



(Go on to the next page)

Score	/ 1

32 Louis created a toy model to represent the human respiratory system as shown in the diagram on the left below.



(a) Which part of the human respiratory system does the glass tube represent? [1]

(b) The bell jar was meant to represent the part labelled, A.

However, Louis' classmates pointed out to him that the bell jar is not an accurate representation of how part A functions.

Explain why. [1]

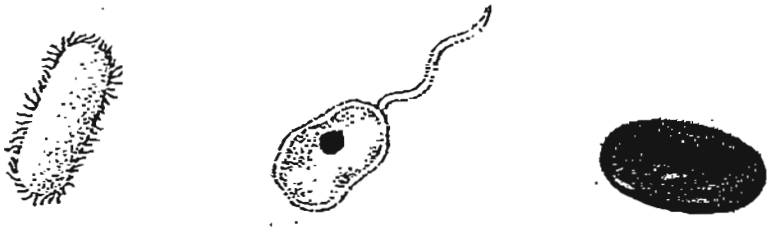
(c) In the table below, state whether part B moves **upwards** or **downwards** when we breathe in and when we breathe out. [1]

	Direction in which part B moves
Breathe in	
Breathe out	

(Go on to the next page)

Score	/ 3

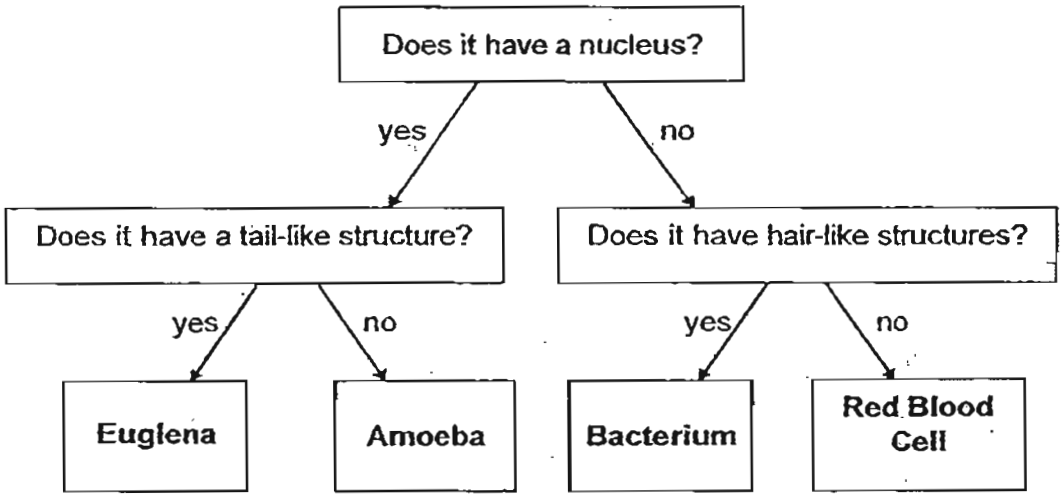
33 The diagrams below show how three different cells (A, B and C) look like under a microscope.



A B C

(a) Use the classification key below to identify these cells.

Write your answers in the blanks provided.



A: _____

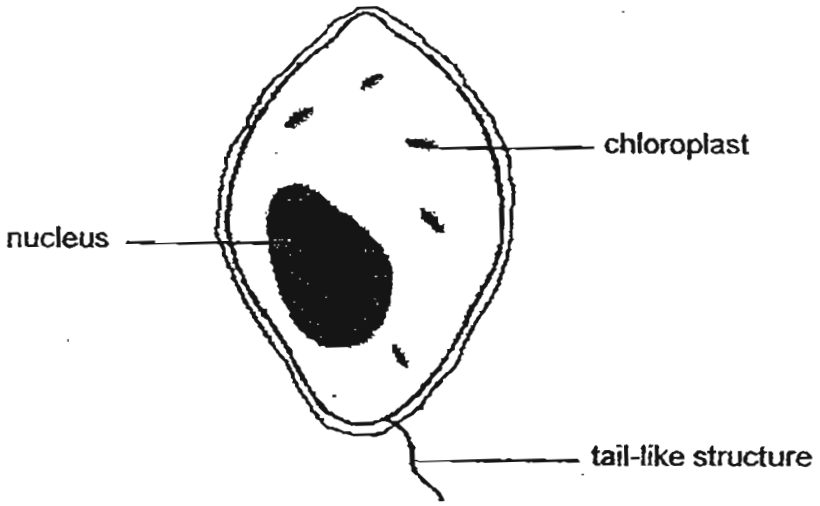
B: _____

C: _____ [1]

(Go on to the next page)

Score 1

The diagram below shows a one-celled organism called *Dinoflagellate* that lives in the coral reefs of the oceans.



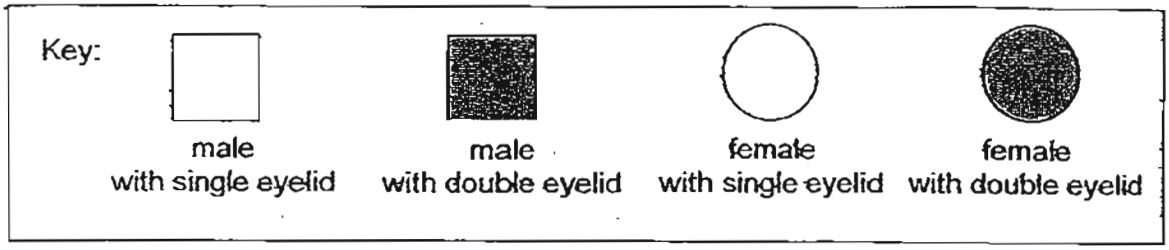
(b) Based on the diagram above, is the *Dinoflagellate* an animal cell or a plant cell? Give a reason for your answer. [1]

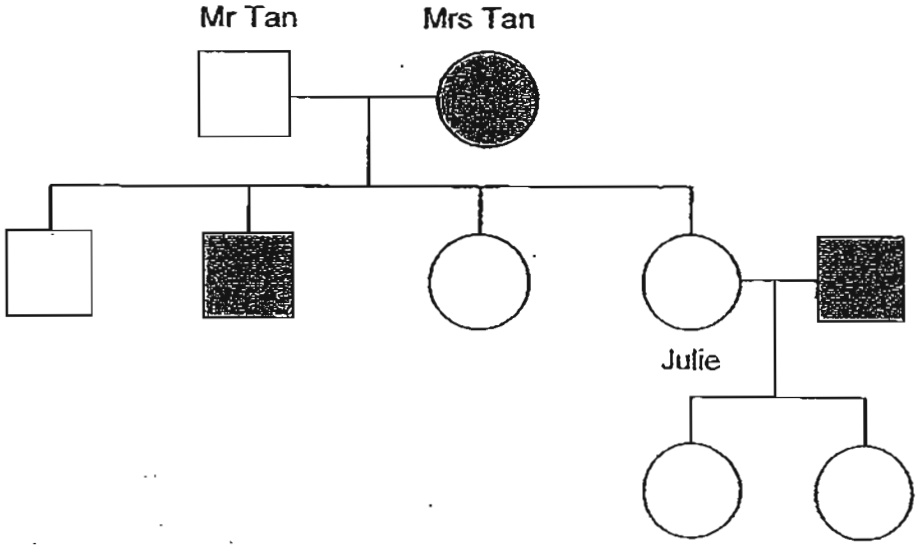
(c) What is the function of the chloroplast? [1]

(Go on to the next page)

Score	/2

34 The diagram below shows Mr Tan's family tree.





Based on the information from the family tree above, answer the following questions:

(a) How many of Mr Tan's son(s) has/have double eyelid? [1]

(b) If Julie were to have a third child, what kind of eyelid will the child have? Explain your answer. [1]

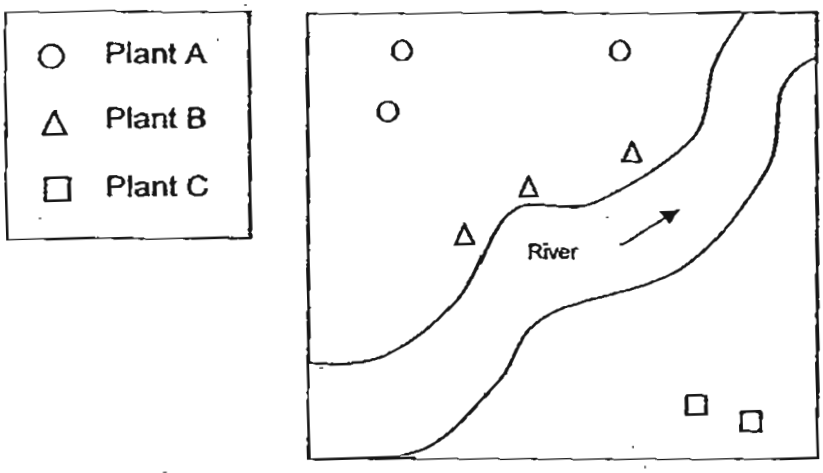
(c) Julie likes to eat durians and claimed proudly that she inherited this characteristic from her mother, Mrs Tan, who also likes to eat durians.

Do you agree with Julie? Give a reason for your answer. [1]

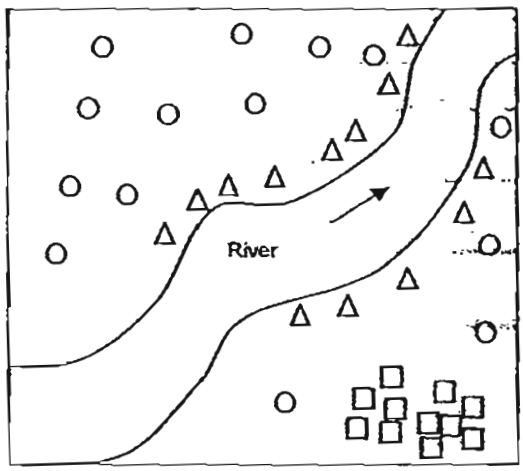
(Go on to the next page)

Score 3

35 The diagram below shows the population of three different types of plant in an area in the year 2010. The arrow indicates the direction of water flow.



The diagram below shows the population of the three different types of plant in the same area in the year 2011.



Based only on the diagrams above, indicate whether each of the statements below is **True, False or Not Possible to Tell.** Put a tick (✓) in the correct box. [2]

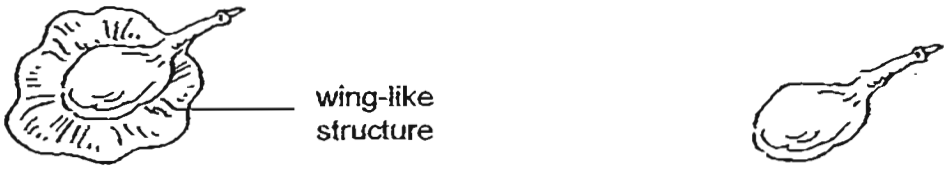
Statement	True	False	Not Possible to Tell
All the three plants bear yellow flowers.			
Plant B bears fruits that can float in the air.			
The seeds of Plant C are most probably dispersed by splitting.			
The seeds of Plant A are dispersed by animals only.			

(Go on to the next page)

Score	/ 2

36 Linda, Mary and Nathan found a fruit, Y, in their school's eco-garden as shown in the diagram below and decided to investigate if the wing-like structure affects the time taken for the fruit to reach the ground.

They dropped the fruit from a height of 10 m and recorded the time taken for the fruit to reach the ground. They repeated the experiment using the same fruit but with its wing-like structure cut-off as shown below and called it fruit Z.



Y Z

Each of them carried out the experiment separately using the same fruit and compared their results as shown in the table below.

	Time taken for the fruit to reach the ground (seconds)		
	Linda	**Mary**	**Nathan**
Fruit Y	21.4	26.7	23.5
Fruit Z	28.6	20.2	23.5

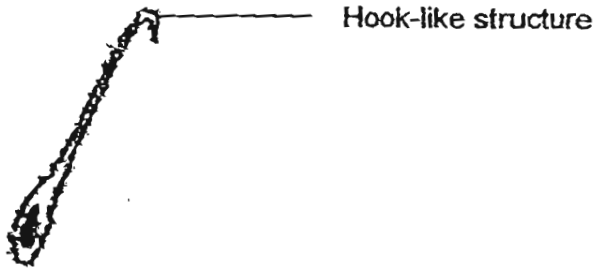
(a) If the wing-like structure does affect the time taken for the fruit to reach the ground, whose set of results (Linda, Mary or Nathan) is most likely to be the results of the above experiment that was done correctly?
Give a reason for your answer. [1]

(b) State one other variable that they must keep the same to ensure that the experiment is a fair one. [1]

(Go on to the next page)

Score /2

Linda found another fruit in her school's eco-garden as shown in the diagram below. She told her friends that the seeds of the fruit is most likely dispersed by wind as the fruit is light and tiny.

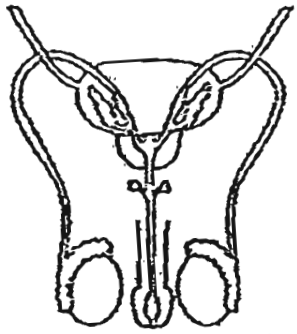


(c) Do you agree with Linda? Give a reason for your answer. [1]

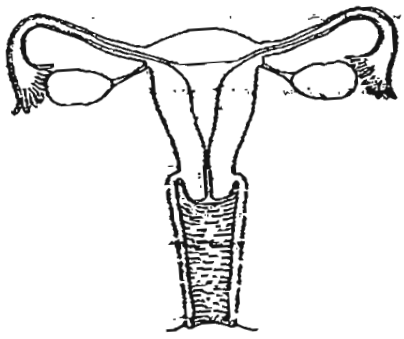
_____

_____

37 The diagrams below show the male and the female human reproductive systems.



Front view of the male reproductive system



Front view of the female reproductive system

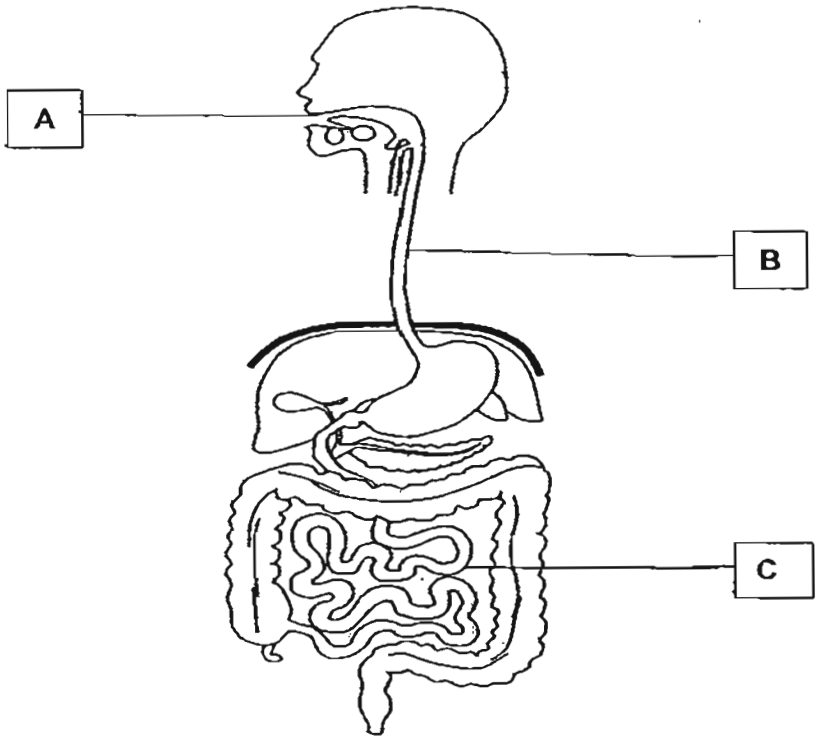
(a) On each of the diagrams above, label and name the organs that produce the sex (reproductive) cells. [2]

(b) On the correct diagram above, mark with a cross, 'X', at the place where a young develops. [1]

(Go on to the next page)

Score	/ 4

38 The diagram below shows the human digestive system with 3 of its part labelled A, B and C.



(a) Explain how food is first broken down into smaller pieces and then into simpler substances at A. [1]

_____

(b) Identify the organs labelled B and C above and describe their function.

B: _____ [½]

Function of B: _____ [½]

_____

C: _____ [½]

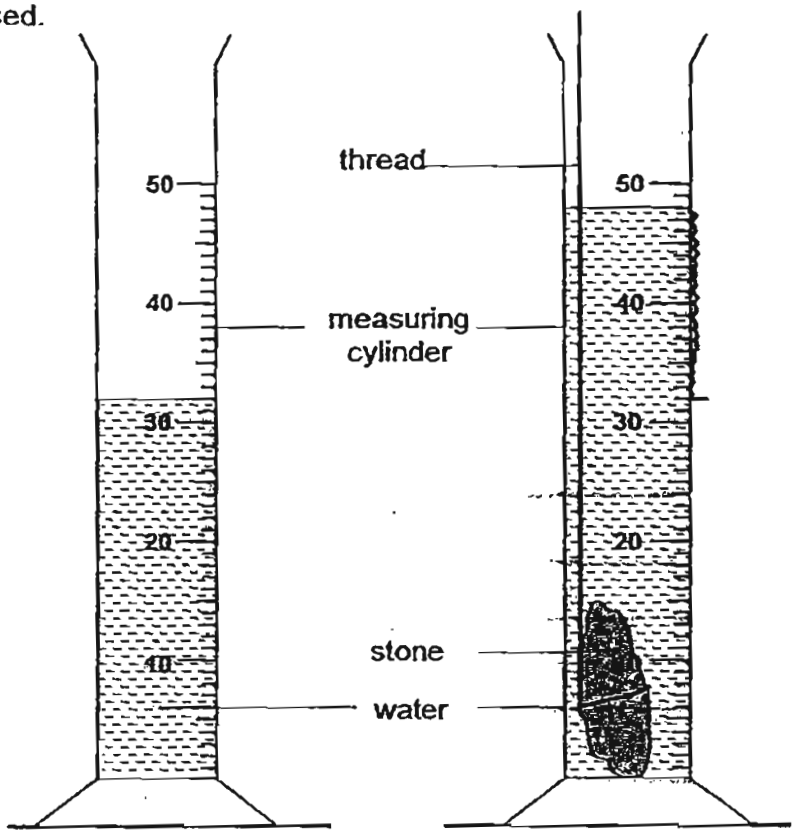
Function of C: _____ [½]

_____

(Go on to the next page)

Score	/3

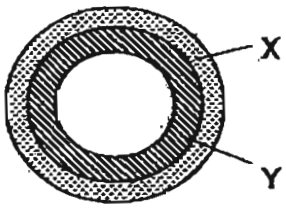
39 A student wanted to find the volume of a stone. The diagram below shows the method used.



Using information from the diagram, complete the table below.

Volume of water without the stone	cm³	[½]
Volume of water after the stone is added.	cm³	[½]
Volume of stone	cm³	[1]

40 The diagram below shows 2 rings, **X** and **Y**, tightly fitted together. **X** and **Y** are made of different metals.

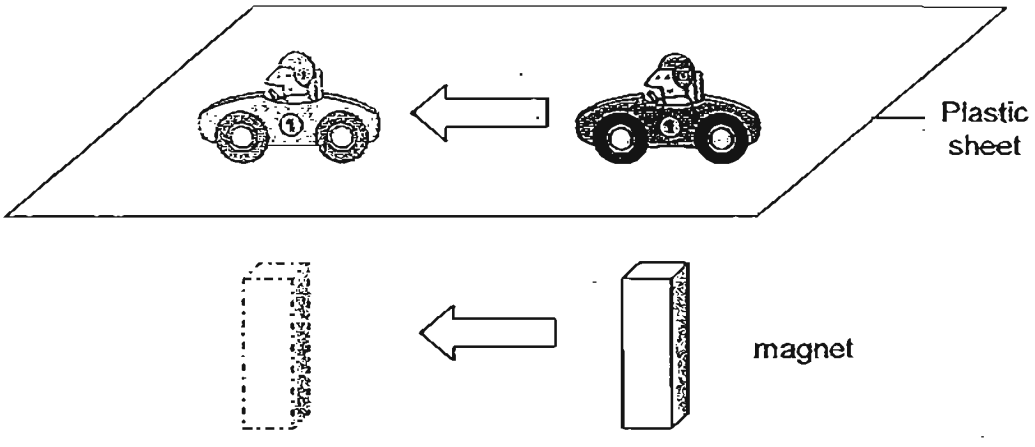


When the two rings were heated, the rings became loose and were easily separated. Give an explanation for this observation. [2]

(Go on to the next page)

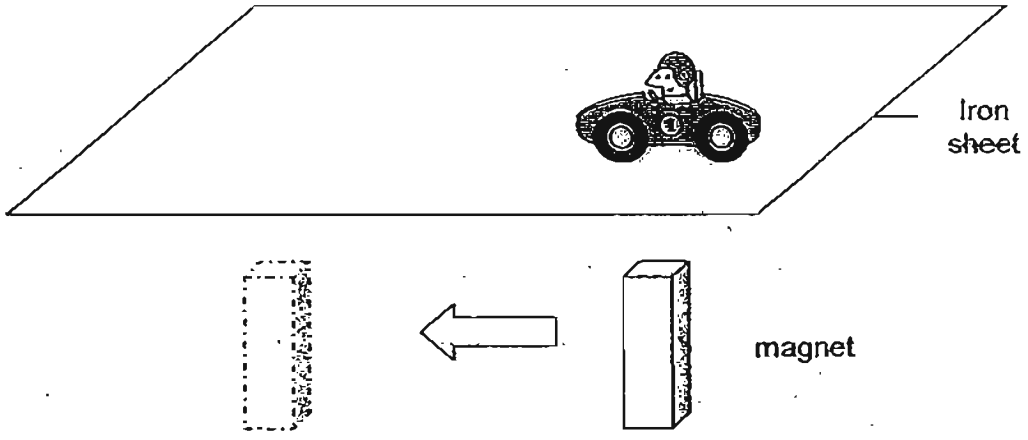
Score	/ 4

41 Sally placed a metal toy car on a plastic sheet and held a magnet under the sheet as shown in the diagram below.



She observed that when the magnet moved, the toy car would move in the same direction.

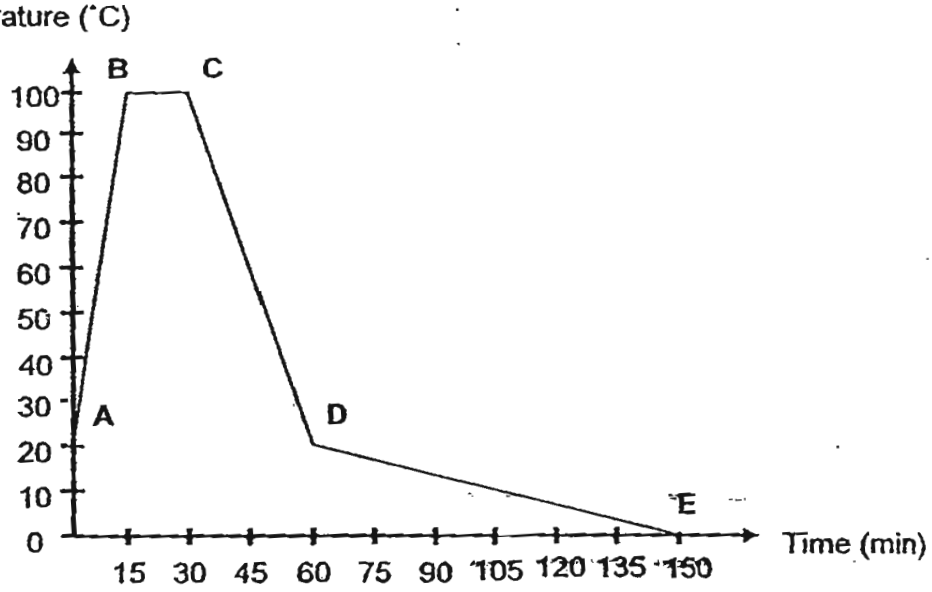
When the plastic sheet was replaced by an **iron sheet**, the toy car did not move even when the magnet was moved as shown in the diagram.



Explain the difference in the observation. [2]

Score	/2

42 The graph below shows the change in temperature of 100 ml of water as it was heated and cooled over a period of time.



(a) How long did the water take to boil? [½]

_____

(b) Describe the change of state taking place at BC. [½]

_____

(c) Apart from the difference in temperature, state another difference that could be observed between the samples of water during stages **AB** and **CD**. Explain for the difference stated. [1]

_____

_____

(d) Study the flow chart below.

Name the processes represented by the arrows A, B, C and D. [2]

A: _____

B: _____

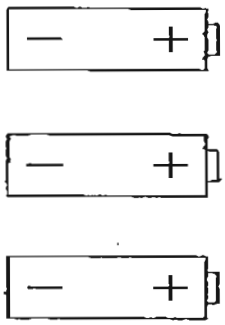
C: _____

D: _____

(Go on to the next page)

Score	
	4

43 (a) Draw wires to create a circuit that would produce the brightest bulbs possible. All items must be used. [2]



(b) It is always a good practice to ensure that one does not touch electrical appliances with wet hands. Explain the reason for this. [1]

_____

_____

(Go on to the next page)

Score / 3

44 Jim placed 25 duckweeds into each of three identical beakers of water, **P**, **Q** and **R**. He dripped Solution A into all the three beakers. He then placed the beakers near the window.

After one week, Jim recorded his observations in the table below.

Beaker	Number of drops of Solution A	Number of duckweeds alive
P	20	15
Q	50	8
R	70	3

(a) What is the relationship between the number of drops of Solution A and the number of duckweeds alive at the end of the experiment? [1]

_____

_____

(b) Name two other variables that have to be kept constant in his experiment. [2]

_____

_____

(c) Without dripping the solution A, state another condition that can cause the decrease in the number of duckweeds in one week? [1]

_____

_____

Score	/ 4

END OF BOOKLET B

Answer Ke

EXAM PAPER 2011

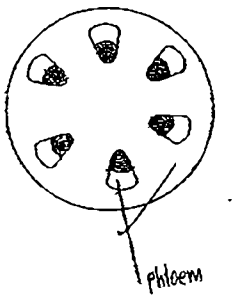
SCHOOL : ACS
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA2

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

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

31)a)Donovan observation is correct.
b)90cm.
c)



32)a)Wind pipe/trachea
b)Part A is actually a ribcage and the ribcage was supposed to expand when we breathe but the bell jar does not expand at all.
c)downwards / upwards

33)a)A: Bacterium B: Euglena C: Red blood cell
b)It is a plant cell because it have a cell wall.
c)It contains chlorophyll which traps light energy from the sum for photosynthesis to make food.

34)a)1.
b)Double eyelids. Because Julia husband have double eyelids.
c)No. Because liking to eat durians cannot be inherited, it's a matter if you like it or not.

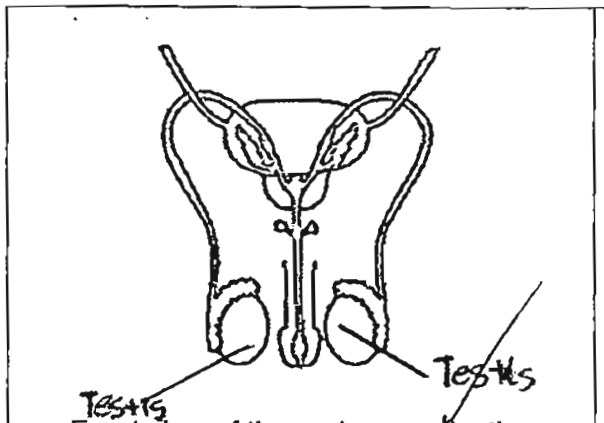
35) Not, F, T, Not

36)a)Mary the fruit with the wing-like structure will allow it to float in the air for a longer period of time.

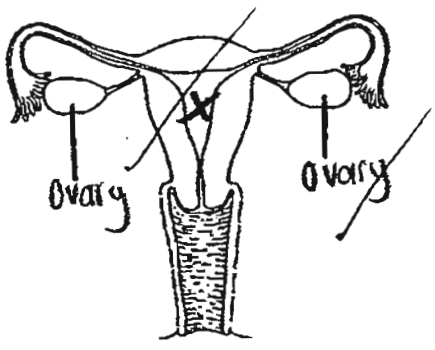
b)Presence/ absence of wind.

c)No. Because the hook of the fruit can hook on to animals fur or other parts of their body so that the fruit got another place to geminate.

37)a)b)



Front view of the male reproductive system



Front view of the female reproductive system

38)a)Food is chewed at A using the breaking food into smaller pieces while saliva is secreted and digested starch into simple substances.

b)B: gullet

Function of B: It is a muscular tube which allows food to travel form the mouth to the stomach.

C: Small intestine.

Function of C: Digestion is completed here and nutrients are absorbed from the digested food.

39)32cm3, 48cm3, 16cm3

40)When the metal rings were heated, they expand buy metal X conducts heat better than metal Y, thus expands faster than metal Y causing metal Y to fit loosely in metal X and can be separated easily.

41)As the plastic sheet is not a magnetic object, magnetism could flow through and attract the metal toy car. However, as the iron sheet was a magnetic object it did not allow magnetism to flow through.

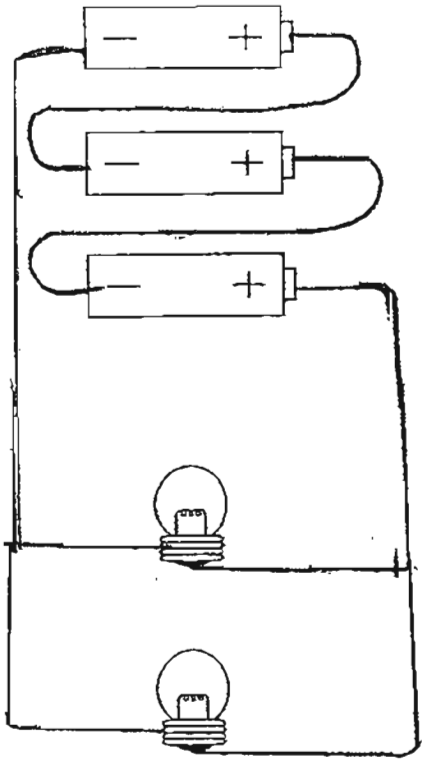
42)a)15 minutes.

b)From liquid 40 gas.

c)There was more water in AB than CD. Some water would have gained heat and evaporated as the water was boiling, therefore there was less water.

d)A: Condensation B: Freezing C: Boiling D: Melting

43)a)



b)Water is a good conductor of electricity, therefore if our hands are wet, we will get an electric shock as electricity would flow through the water and to our hands.

44)a)The more the number of drops of solution A, the less the number of duckweeds alive at the end of the experiment.

b)The size of the beakers and the amount of water at first.

c)Lack of sunlight caused the duckweeds to be unable to photosynthesis efficiently.