SA1

RAFFLES GIRLS' PRIMARY SCHOOL

SEMESTRAL ASSESSMENT (1)

2005

Name : _____ Class: P6___ Index No: _____

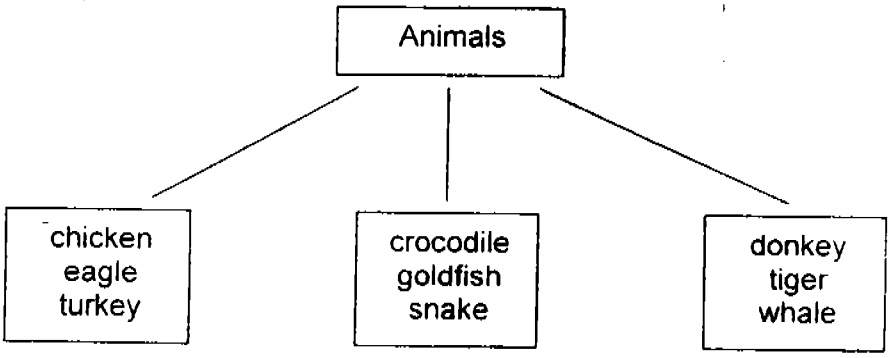
12 May 2005 **Science** **Duration: 1 h 45 min**

Your Score Out of **100** marks		
	Class	**Level**
Highest score		
Average score		
Parent's Signature		

SECTION A (30 x 2 marks)

There are 30 questions in this section. Answer **all** of them. For each question, 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 following animals had been classified into 3 groups.



They were grouped according to _____.

(1) their habitat

(2) the food they eat

(3) the way they breathe

(4) their outer body covering

2. Which one of the following is made from things that were once alive?

(1) A metal ruler

(2) A plastic pail

(3) An exercise book

(4) A diamond pendant

3. The table below shows some characteristics of 4 different types of plants.

Plants	Type of Stem		Flowers	
	Woody	Non-woody	Flowering	Non-flowering
Q	√	x	x	√
R	√	x	√	x
S	x	√	√	x
T	x	√	x	√

Which one of the following statements is **true**?

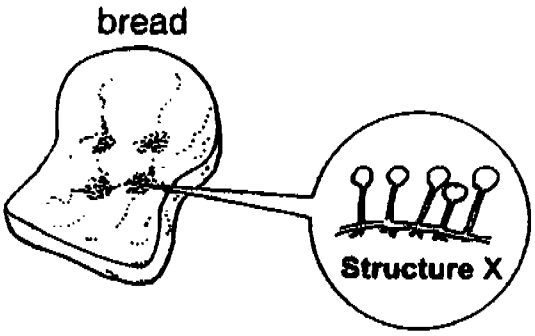
(1) Plant T has a weak stem and bears fruits.

(2) Plant S has a layer of bark surrounding its trunk.

(3) Plant R has a strong stem and it reproduces from seeds

(4) Plant Q needs to cling onto a support to hold itself up and does not have flowers.

4. If you observe a piece of mouldy bread carefully with a magnifying glass, you will be able to see structure **X**, as shown in the diagram below, growing on it.



Which of the following about Structure X is **correct**?

	Method of Reproduction	Method of Dispersal
(1)	By pollen grains	By water
(2)	By seeds	By animals
(3)	By spores	By wind
(4)	By seeds	By splitting action

5. Which of the following is **not** a result of the rotation of the earth?

(1) An owl hunting for food.

(2) Turning on the television.

(3) Solar energy used in the calculators.

(4) Plant making food in the process called photosynthesis.

6. The part of a plant cell that supports the cell, giving it a regular shape and holding it together with other plant cells is known as the _____.

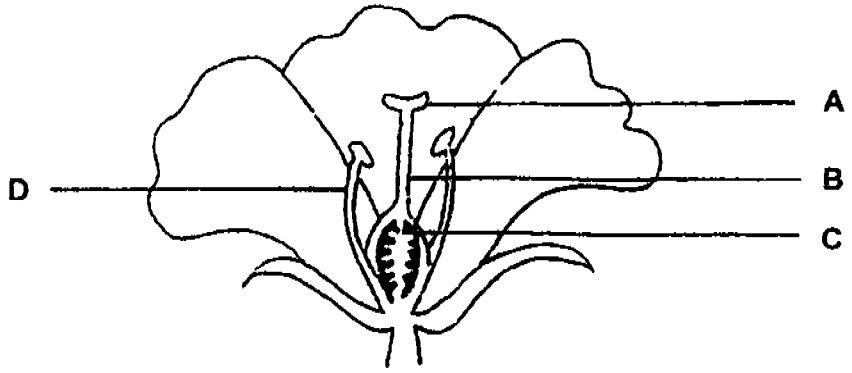
(1) nucleus

(2) cell wall

(3) cytoplasm

(4) cell membrane

7. The diagram below shows the flower of a plant.



Which part of the flower will become the fruit?

(1) A

(2) B

(3) C

(4) D

8. Jane cut a potato into 4 pieces, A, B, C and D. She placed the pieces on a plate containing some water and left them in a dark room. A week later, she found shoots growing out of A, B and C but there were no shoots on D. What is the likely reason for her observation?

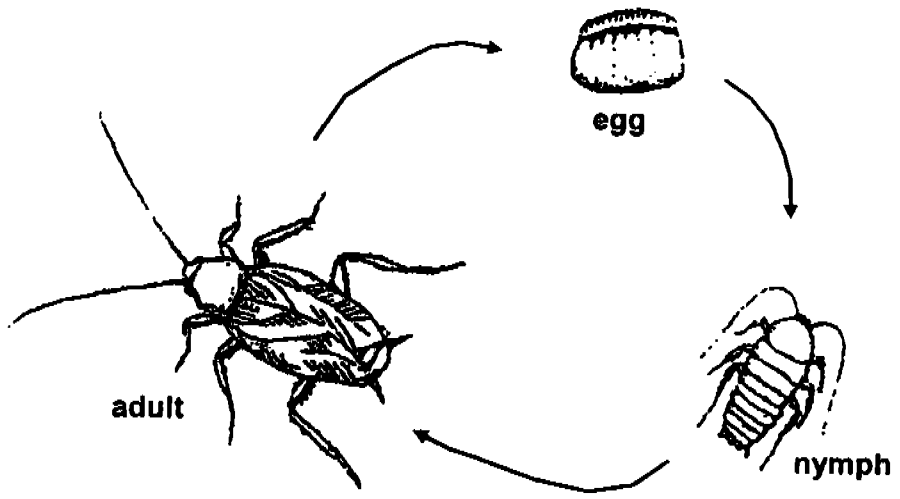
(1) There were no buds on D.

(2) There was not enough water.

(3) D did not get enough sunlight.

(4) A, B and C had more mineral salts than D.

9. The diagram below shows the life cycle of a cockroach.



Which of the following inference(s) can we make based on the diagram?

A. A cockroach lays its eggs in an egg case.

B. The life cycle of the cockroach consists of 2 stages.

C. Both the nymph and the adult cockroach eat the same food.

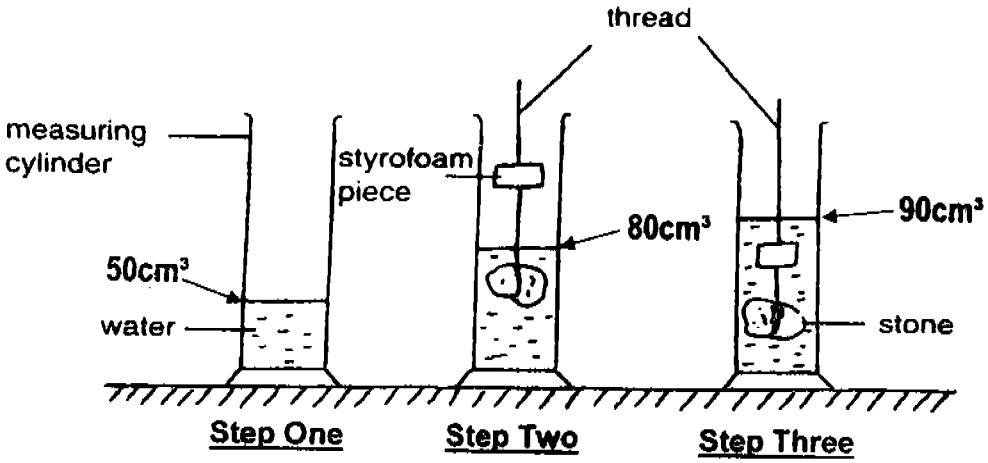
(1) A only

(2) A and B only

(3) B and C only

(4) A, B and C

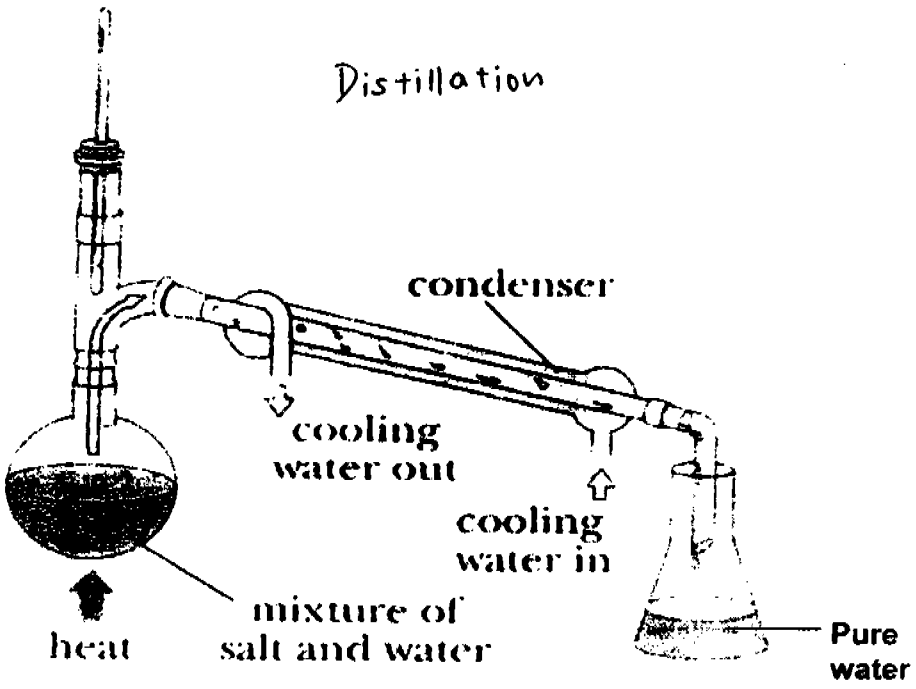
10. The diagrams below show the steps taken to measure the volumes of a stone and a piece of styrofoam.



Which one of the following is the **correct** set of volumes for the stone and the styrofoam?

	Volume of stone (cm³)	Volume of styrofoam (cm³)
(1)	80	90
(2)	80	10
(3)	50	40
(4)	30	10

11. Pure water can be obtained from the set-up below.
Study the set-up carefully.



What is the function of the condenser?
It _____

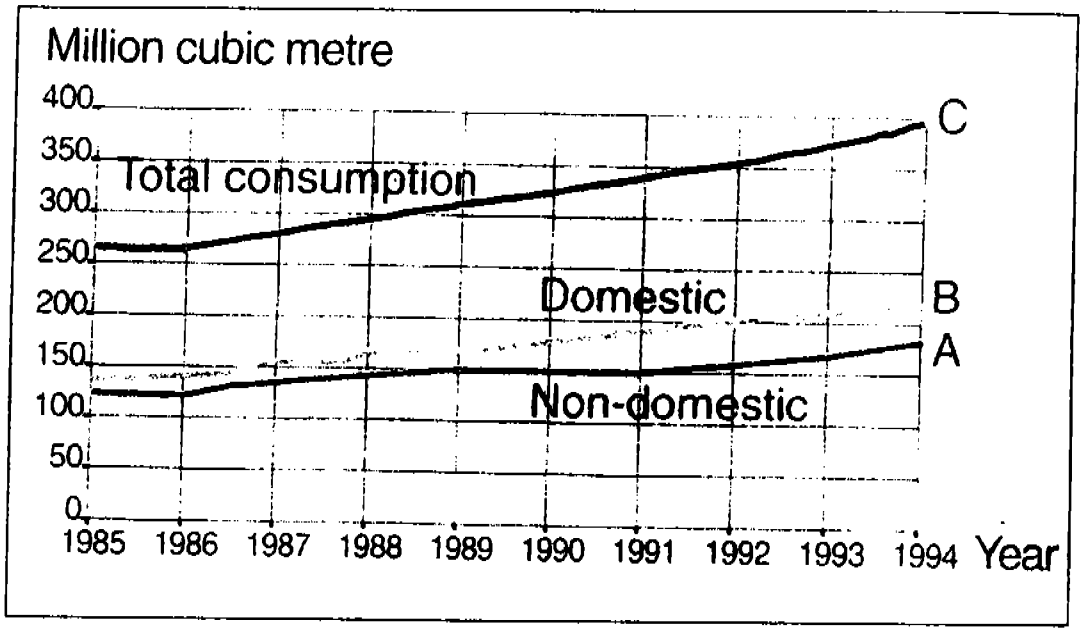
(1) removes all the salt.

(2) changes a liquid to a gas.

(3) changes a gas to a liquid.

(4) changes salt water to pure water.

12. The graph below shows Singapore's water consumption over the years.



Study the graph carefully. Which of the following statement(s) is /are true?

A. Singapore's water consumption increased from 1985 to 1994.

B. Curve C is obtained by adding the amount of water used for domestic and non-domestic purposes.

C. Water consumption remained constant between 1985 and 1986.

D. More water is used for non-domestic purposes.

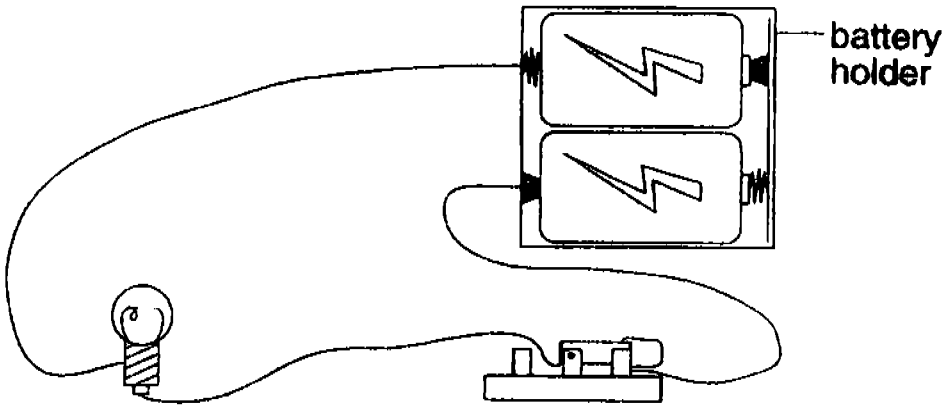
(1) A only

(2) C only

(3) A, B and C only

(4) A, B, C and D

13. Jerry set up a circuit as shown below.



This is an open circuit because the _____.

A. filament in the bulb is broken

B. dry cells are wrongly arranged

C. switch is not in the "on" position

D. battery holder is made from an insulating material with metal spring and plate

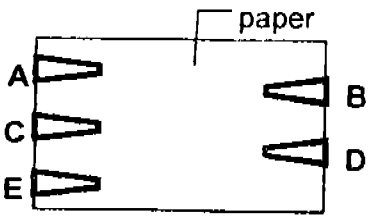
(1) A and B only

(2) A and D only

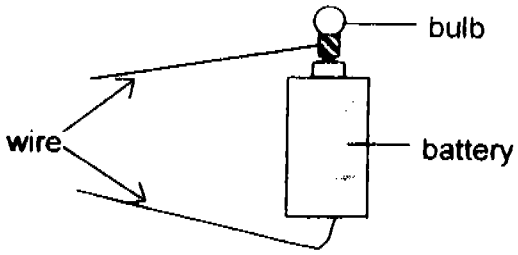
(3) B, C and D only

(4) All of the above

14. The diagrams below show a circuit card and a circuit tester.



Circuit card



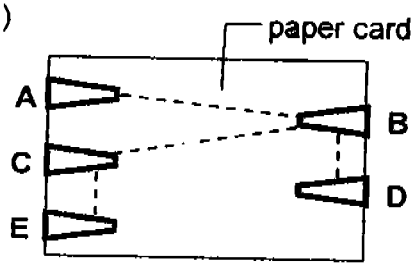
Circuit

The circuit card has connection points made of metal clips A, B, C, D and E. All the wires are hidden behind the circuit card. Xueli connected the circuit card to the circuit tester and recorded her findings in the table below.

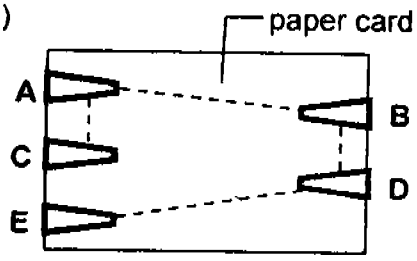
Clip tested	Bulb lights up	Bulb does not light up
A & B	✓	
A & C		✓
A & D	✓	
B & D	✓	
B & E		✓
C & E	✓	
D & E		✓

Based on Xueli's findings, which one of the following circuit card was the one she tested? (- - - - represents the hidden wire)

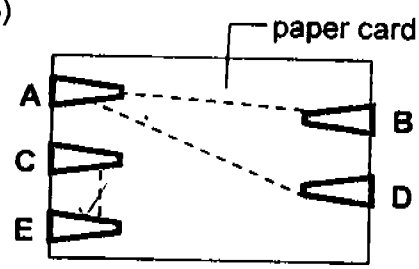
(1)



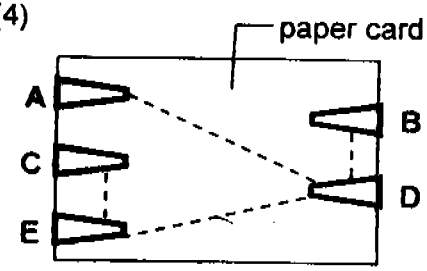
(2)



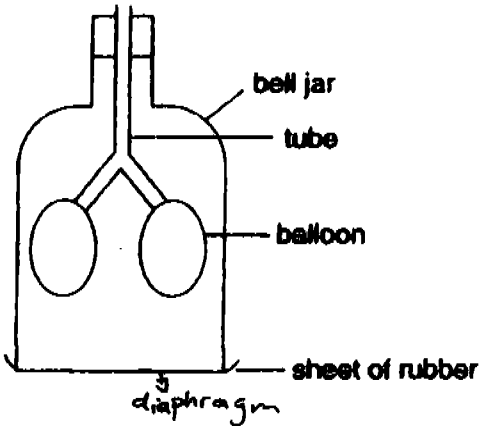
(3)



(4)



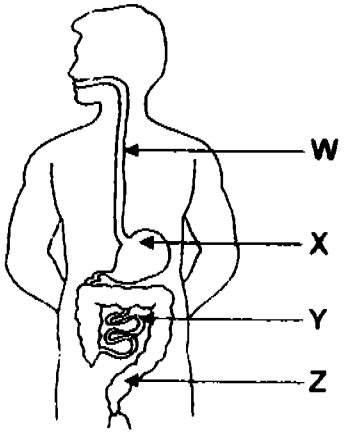
15. The apparatus shown below can be used to illustrate the action of breathing of a human body.



Which parts of the human body do the labelled structures represent?

	Balloon	Tube	Bell jar
(1)	lungs	windpipe	diaphragm
(2)	lungs	air tubes	rib cage
(3)	lungs	air tubes	diaphragm
(4)	lungs	windpipe	ribcage

16. The diagram below shows the human digestive system.



Identify the part(s) where the digested food goes into the circulatory system.

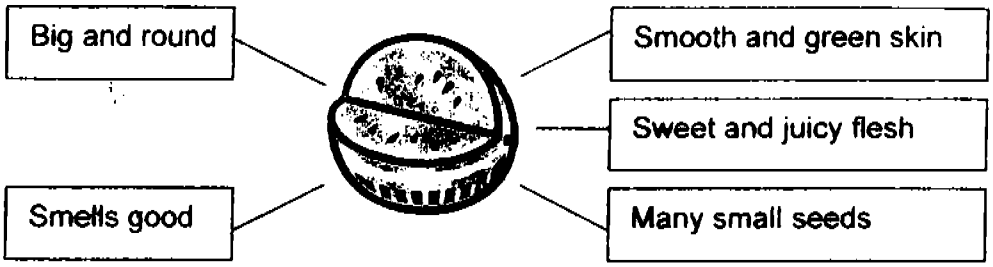
(1) Y only

(2) Y and Z only

(3) W and X only

(4) None of the above

17. Lilian observed a watermelon and recorded the information below.

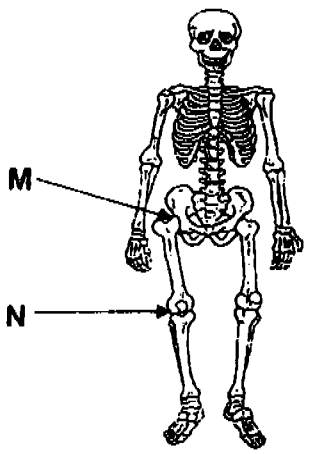


How many senses did Lilian use in making her observation?

(1) 5 (2) 2

(3) 3 (4) 4

18. A joint is a place where two bones meet. The diagram below shows the human skeleton.



Which pair of the statements below describe the function of joints M and N correctly?

	M	N
(1)	Allows movement in more than one direction	Allows movement in more than one direction
(2)	Allows movement in one direction	Allows movement in more than one direction
(3)	Allows movement in more than one direction	Allows movement in one direction
(4)	Allows movement in one direction	Allows movement in one direction

19. Jane painted the surfaces of the leaves of a plant with thick paint and left it in the garden. A few days later, the plant died because it did not have _____ _____.

A. water

B. oxygen

C. nutrients

D. carbon dioxide

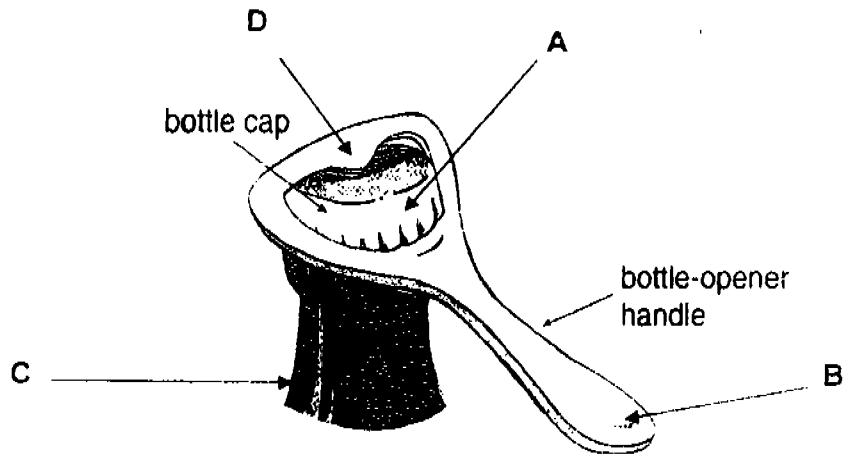
(1) A and C only

(2) B and D only

(3) A, B and C only

(4) A, B, C and D

20. The diagram below shows a bottle-opener that makes use of the principle of the lever to work.



The position of the fulcrum is at _____

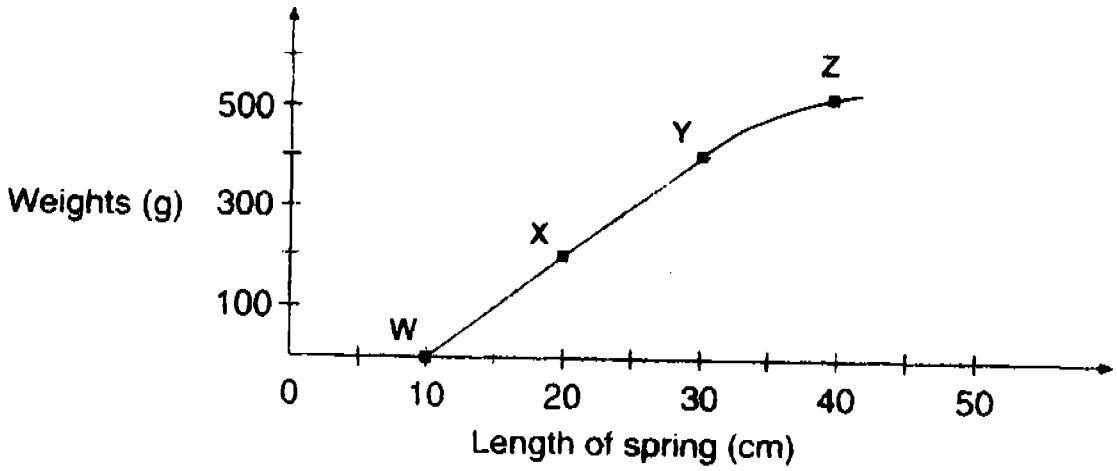
(1) A

(2) B

(3) C

(4) D

21. Alfred carried out an experiment to determine the effects that different weights have on a spring. Below is a line graph that was plotted after the experiment.



What can Alfred conclude from the line graph above?

A. The spring has an initial length of 10cm.

B. When 300g is added to the spring, the extension of the spring is 25cm.

C. Doubling the weights will double the length of the spring from point W to Y.

D. The length of the spring is no longer proportional to the weights added after point Y

(1) A and B only

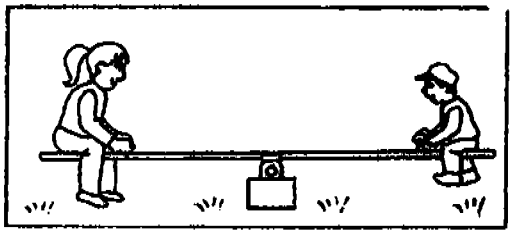
(2) B, C and D only

(3) A, C and D only

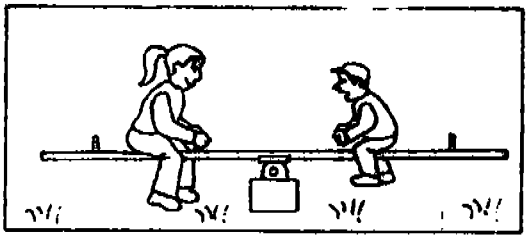
(4) A, B, C and D

22. Jenny wanted to play seesaw with her younger brother, Jim. Which picture below shows the best way for Jenny, who weighed 60kg, to balance Jim, who weighed 30kg?

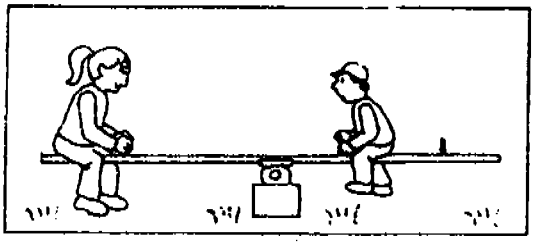
(1)



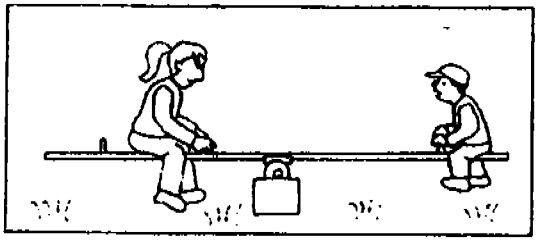
(2)



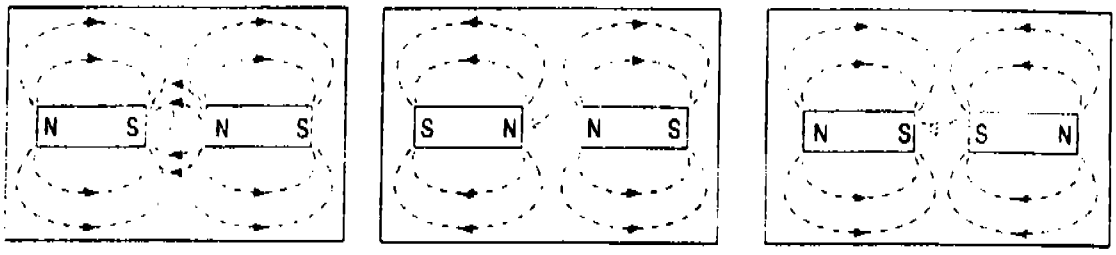
(3)



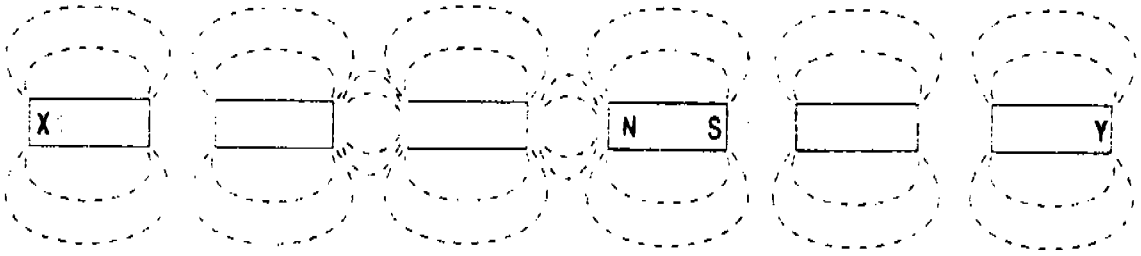
(4)



23. Each magnet has a north pole and a south pole. The magnetic field lines between the poles of magnets are shown below.



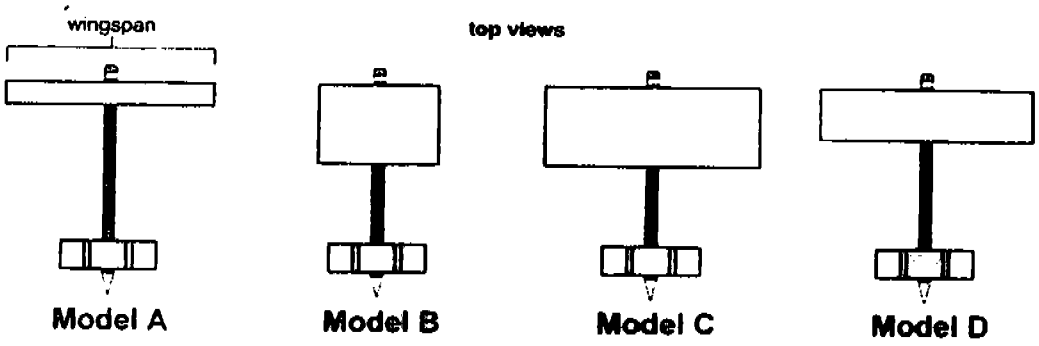
A series of magnets showing the magnetic field lines between the magnets is shown below. The poles of only one magnet are labelled.



What are the poles of the magnets at X and Y?

	X	Y
(1)	S	S
(2)	S	N
(3)	N	N
(4)	N	S

24. Jane constructed 4 model planes A, B, C and D as shown in the diagrams below.



In order to carry out a fair test, which of the 4 planes should she use to test the effect of wingspan on the distance the planes travelled.

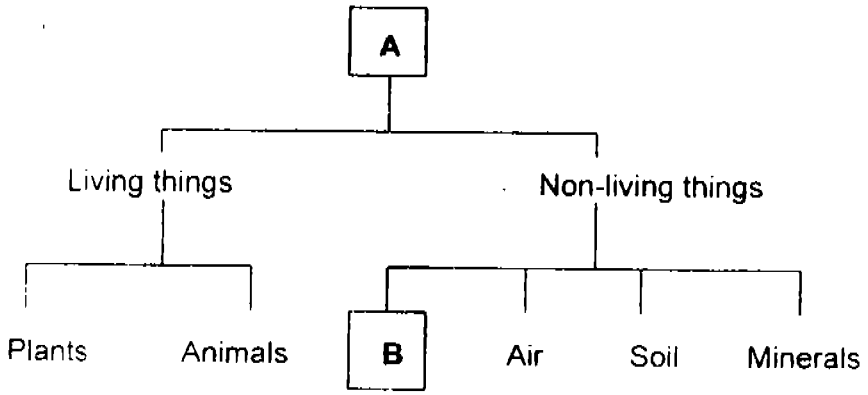
(1) A and D only

(2) B and C only

(3) C and D only

(4) A, C and D only

25. Study the classification table below.



Which do the letters A and B represent?

	A	B
(1)	natural resources	water
(2)	man-made resources	coal
(3)	natural resources	natural gas
(4)	natural resources	fungi

26. Study the two pie charts carefully.

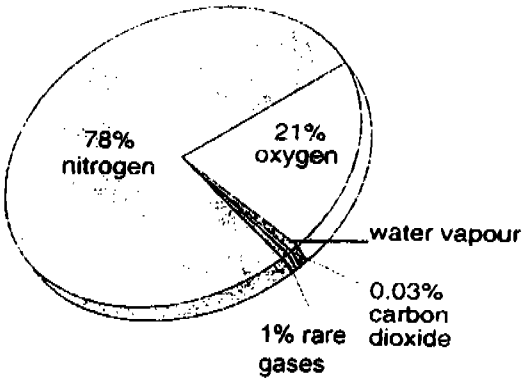


Figure 1: Composition of inhaled air

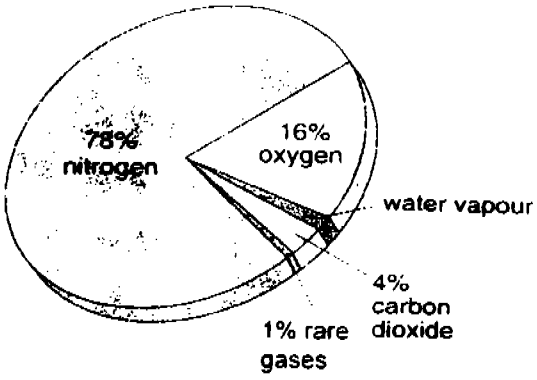


Figure 2: Composition of exhaled air

Based on the two pie charts above, we can conclude that

A. inhaled air has more oxygen.

B. exhaled air has more water vapour.

C. exhaled air has more carbon dioxide.

D. inhaled air is of a lower temperature than exhaled air.

(1) A and D only

(2) B and D only

(3) A, B and C only

(4) A, B, C and D.

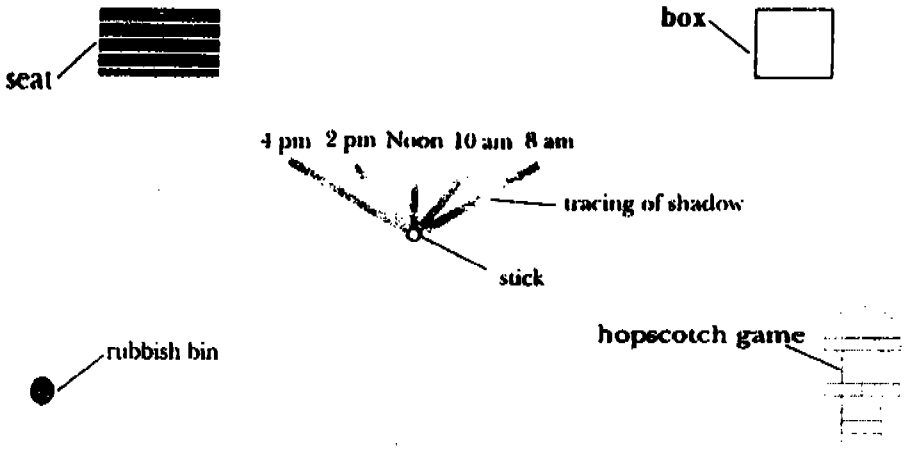
27. Photosynthesis can be summarized in a simple word equation as follows:-

A + B $\xrightarrow{\text{light energy from the sun}}$ C + D

Which of the following do the letters A, B, C and D correctly represent?

	A	B	C	D
(1)	Oxygen	Glucose	Water	Carbon dioxide
(2)	Carbon dioxide	Water	Glucose	Oxygen
(3)	Water	Oxygen	Starch	Carbon dioxide
(4)	Carbon dioxide	Water	Oxygen	Starch

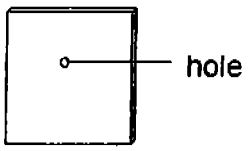
28. Amy placed a stick upright in the ground and traced the shadow made by the stick every 2 hours from 8 am to 4 pm. The diagram below shows the stick and the tracings of the shadows as seen from above.



Which object is north- east from the stick?

(1) the box
(2) the seat
(3) the rubbish bin
(4) the hopscotch game

29. Sally used 3 boards which has the same shape as the one below, to demonstrate that light travels in a straight line.



To carry out her experiment, Sally, must _____

A. use boards of the same size.

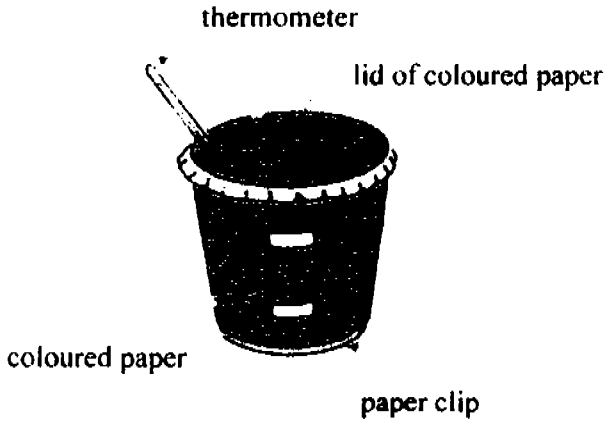
B. use boards made of transparent material.

C. ensure all the three holes are in a straight line.

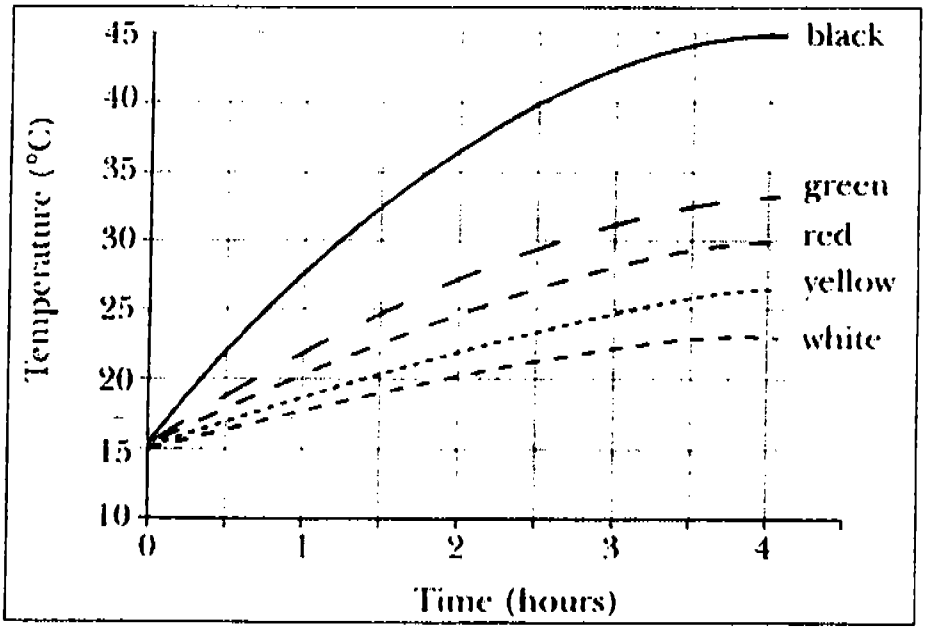
D. place a light source or an object at one end of the three boards.

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

30. Five similar paper cups of different colours, white, yellow, red, green and black were left in a sunny place for 4 hours. A sample of the cup used for the investigation is shown below.



Below is a graph showing the temperature in each cup at different times.



Based on the readings, which of the colours below are better suited for the purpose shown?

	For clothings on hot days	For solar water heaters
(1)	green	red
(2)	yellow	red
(3)	green	yellow
(4)	yellow	green

Name: _____ ( ) Class: P6 __ 40

SECTION B (40 marks)

There are 16 questions in this section. Answer **all** of them. Write your answers in the spaces provided.

31. Study the table below carefully.

Properties	Material	
	A	B
conducts electricity and heat	yes	no
shiny surface	yes	no
brittle	no	yes
attracted to magnets	no	no
transparent	no	yes

(a) Name the material that **A** is likely to be. [1]

_____

(b) Based on your answer in (a) above, state one of the uses of A. [1]

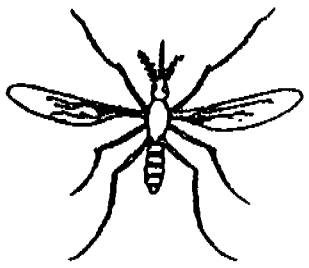
_____

(c) From the table above, choose the property which makes it suitable for Material B to be used in the making of windows. Give a reason for your choice. [1]

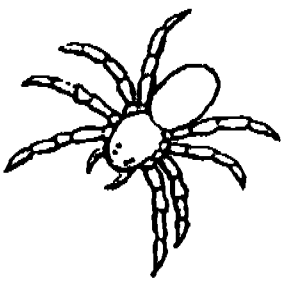
_____

_____

32. Look at the pictures of the animals below.

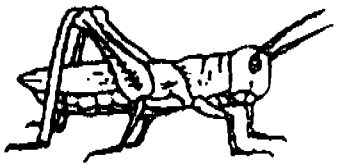


Animal A



Animal C

Animals B



Animal D

(a) Which animal is **not** an insect? [1]

_____

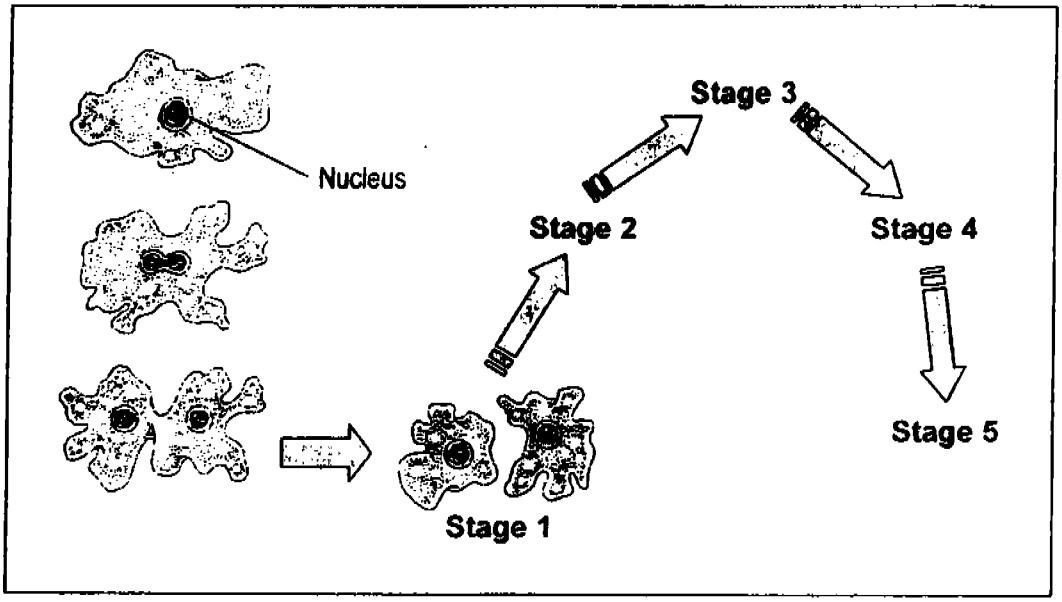
(b) Give **two** reasons to support your answer in (a) above. [2]

_____

_____

_____

33. The amoeba is a tiny, colourless, jelly-like, single-celled animal. The amoeba reproduces by splitting its nucleus into half as shown in the pictures below.



(a) The process of splitting a cell to produce two new cells is called cell division. The nucleus found in each amoeba at the end of each splitting has two important functions. State one of the functions of the nucleus. [1]

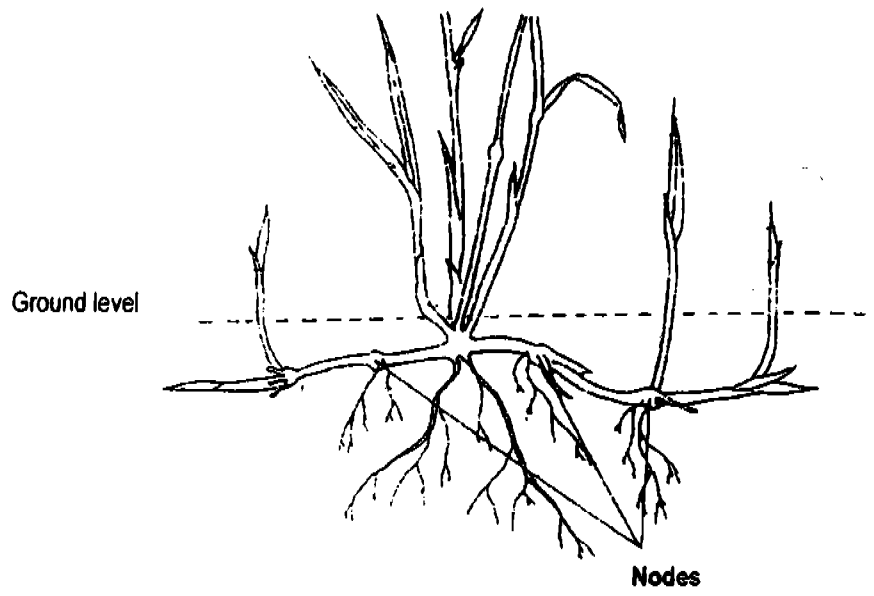
_____

_____

(b) How many cells would be produced from a single 'parent' cell after five stages of cell division? [1]

_____

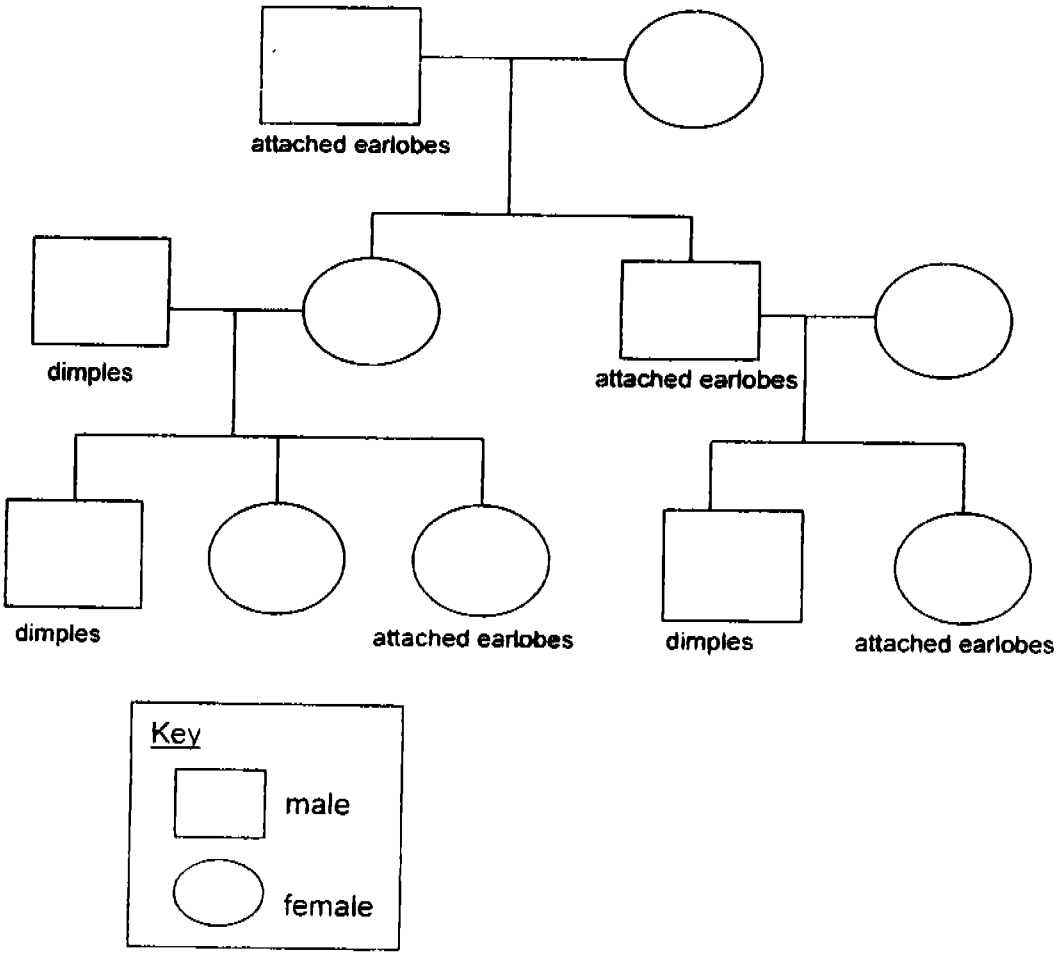
34. In addition to reproducing by seeds, many plants are able to produce new plants asexually without pollination or fertilization. Look at the diagram below which shows new plants being produced as a result of asexual reproduction.



(a) **Circle** <u>two</u> new plants shown in the diagram. [1]

(b) The new plants are being produced from the _____ that are on the underground stem. [1]

35. Study the family tree below.

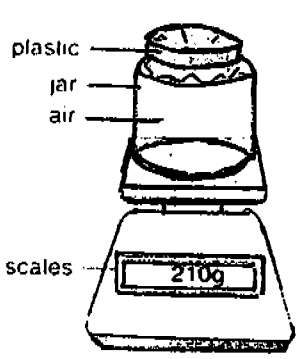


(a) Susan has attached earlobes like her paternal grandfather, Peter. Where would you place **Susan** and **Peter** in the above family tree?

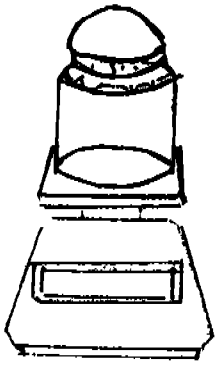
Write their names in the correct box or circle. [1]

(b) Susan's male cousin has dimples. Who could he have inherited this trait from? [1]

36. Sharon covered a jar tightly with a piece of plastic wrap so that no air could enter or leave it. The 2 diagrams below show what she observed.



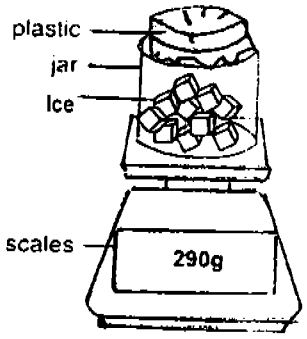
Jar at room temperature



Jar after being heated

(a) What can she predict about the mass of air in the jar when it was heated? [1]

Sharon carried out another experiment using ice this time. Study the set-up below.



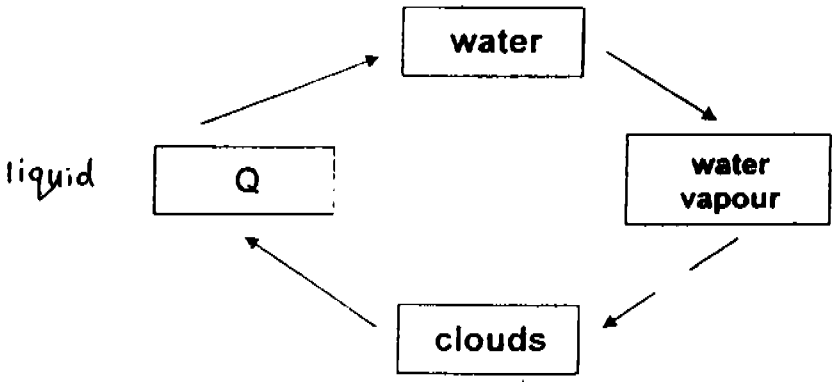
Jar at room temperature

(b) What would the reading on the weighing scale be after 10 minutes? [1]

(c) Give a reason for your answer in (b). [1]

P4

37. The diagram below shows a water cycle.



(a) What does Q represent? [1]

Q: _____

(b) Mark an 'X' on the water cycle to show where condensation will take place. [1]

(c) Why is the water cycle important? [2]

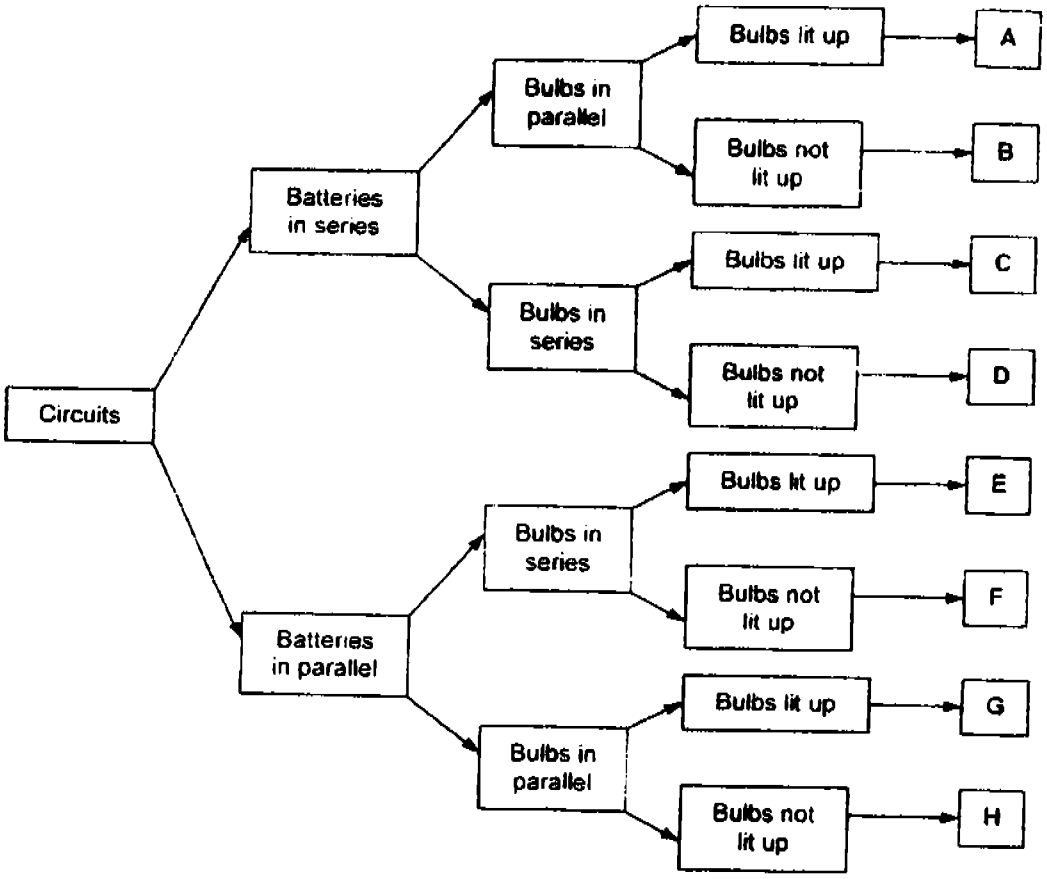
_____

_____

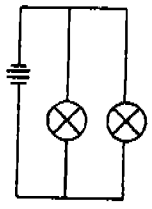
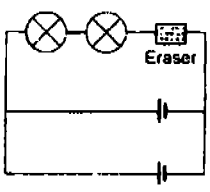
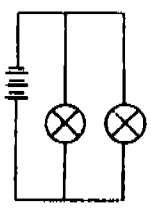
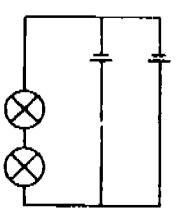
_____

P5

38. Below is a classification table on circuits.



Using the information given, match the four circuits shown below with the correct letter. [2]

			
(i) Circuit _____	(ii) Circuit _____	(iii)Circuit _____	(iv)Circuit _____

39. On Planet Raffles, the atmosphere is made up of three main gases, namely P, Q and R. Two creatures native to Planet Raffles were captured and kept separately in two similar chambers (A and B) where changes in the composition of the atmosphere could be measured over a period of 24 hours. The results are shown in the table below.

Gas	% of gas in atmosphere in both chambers A and B with no creatures in 24 hours	% of gas in the exhaled air from creature 1 in chamber A after 24 hours	% of gas in the exhaled air from creature 2 in chamber B after 24 hours
P	20	25	15
Q	20	15	25
R	60	60	55

(a) If now the two creatures were kept in the same room for 24 hours, what do you think will happen to the composition of gas Q in the room? [1]

_____

_____

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

_____

_____

40. Systems are made up of parts which work together. The table below describes 2 systems found in the human body.

System	Features
X	Made up of thick bands which usually work in pairs
Y	All parts are connected and come in different shapes and sizes

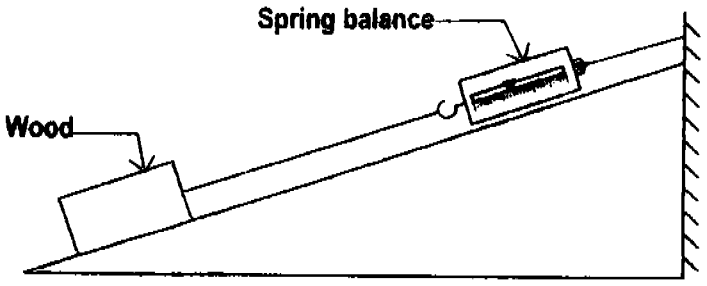
Both Systems X and Y work together to enable movement of the human body. Identify Systems X and Y.

System X : _____ [1]

System Y : _____ [1]

41.

(a) Vincent conducted an experiment to determine the force required to pull a block of wood across four different surfaces. The set-up of his experiment is shown below.



Surface	Force Required (N)
A	8
B	22
C	15
D	20

Arrange the above surfaces beginning with the one with the least friction to the one with the most friction by filling in the letters (A, B, C, D) in the boxes below.

[1]

(b) Friction plays an important part in our daily life. State one advantage and one disadvantage that friction has on the following. [2]

A cyclist riding a bicycle on the road

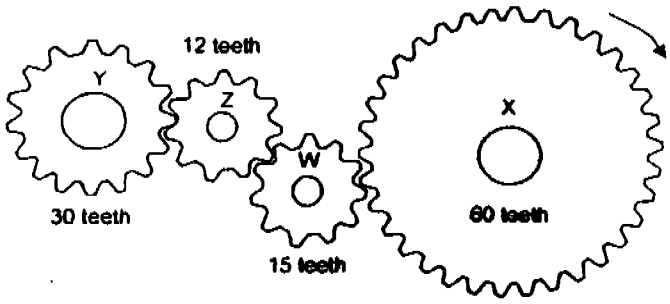
Advantage: _____

_____

Disadvantage: _____

_____

42. (a) The diagram below shows a simple machine called gears.



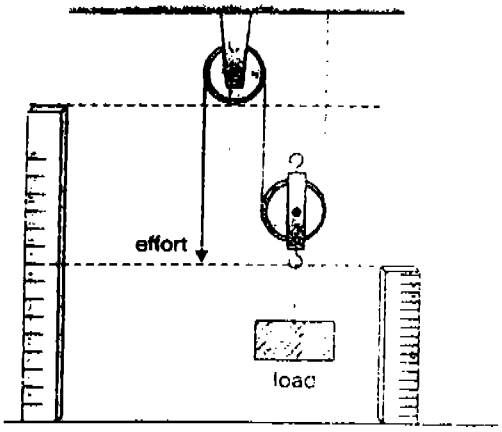
(i) Which gear(s) will rotate 4 times as fast as Gear X?

Gear(s) : _____ [1]

(ii) If gear X turns clockwise, which gear(s) will turn in an anti-clockwise direction?

Gear(s): _____ , _____ [1]

(b) A group of students carried out the following experiment using the pulley system shown below. They applied a force over different distances to lift a load. They recorded the results as shown in the table below.



Results of the experiment:

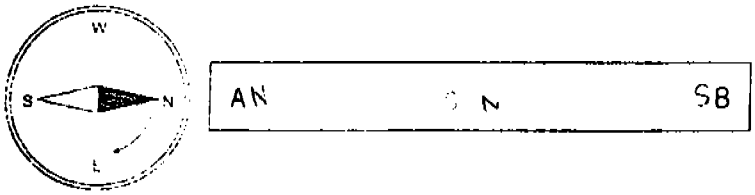
Distance moved by the effort	Distance moved by the load
6 cm	3.5 cm
15 cm	8 cm
20 cm	10 cm

From the results, what pattern did they notice about the distance moved by the effort and the distance moved by the load? [1]

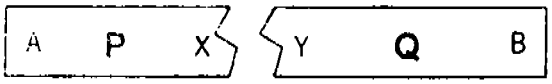
_____

_____

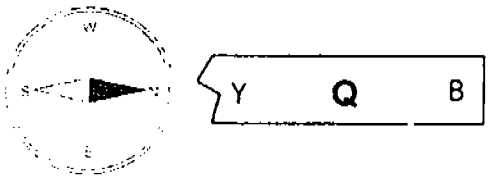
43. (a) The diagram below shows a bar magnet. When its end "A" is brought close to a compass as shown below, the north-seeking pole of the compass needle moves away.



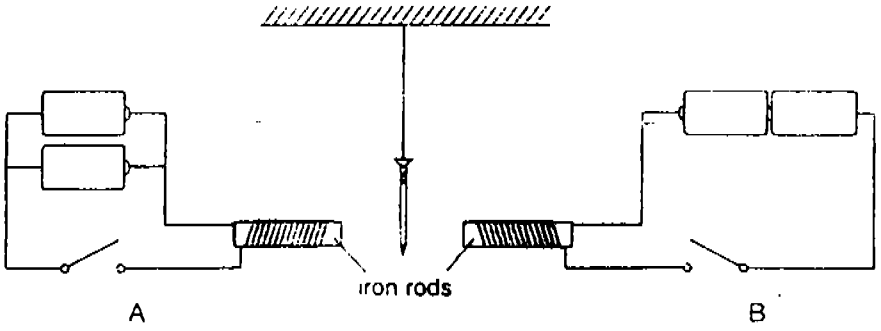
The magnet is then broken in the middle into two pieces, P and Q, as shown below.



What will happen to the compass needle when end "Y" is brought close to it as shown below? [1]



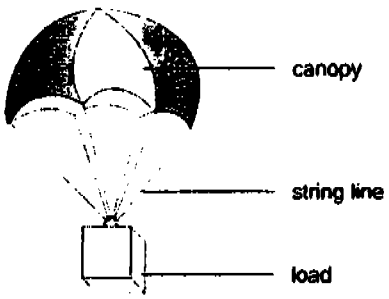
(b) The diagram below shows an iron nail suspended from an equal distance between two electromagnet set-ups, A and B. The batteries and iron rods used are identical.



(i) When both electric circuits are closed at the same time, what will happen to the iron nail? [1]

(ii) Explain your answer given in part (i). [1]

44. The diagram below shows the basic parts of a parachute.



A group of students carried out an experiment to investigate the effectiveness of various parachute designs and recorded their findings as shown in the table below.

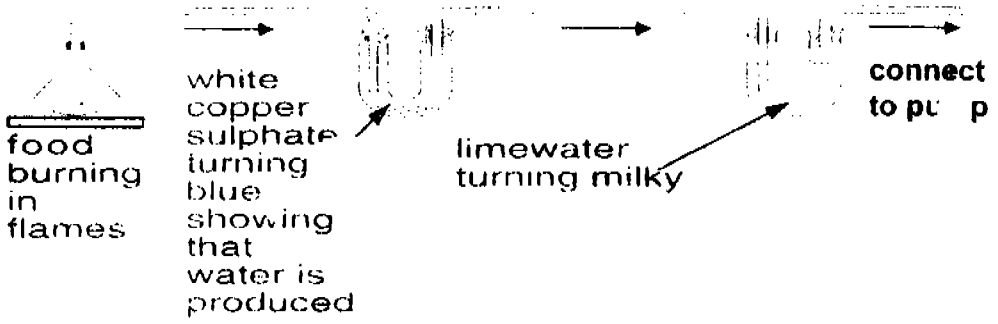
Trial	Material used in canopy	Diameter of material used for canopy (cm)	Length of string lines (cm)	Time to fall 10 m (seconds)
1	tissue paper	20	30	25
2	tissue paper	30	30	30
3	tissue paper	30	40	28
4	cotton	20	30	20
5	cotton	20	30	18
6	cotton	30	30	28
7	plastic	20	40	23
8	plastic	30	40	28
9	plastic	30	30	30

(a) Based on the above table, which 3 trials can the students use to make a fair test comparison? [1]

Trials _____ _____, _____ _____ and _____ _____

(b) The parachute is released from the top of a building. Write down the energy conversion of the parachute in the boxes provided. [1]

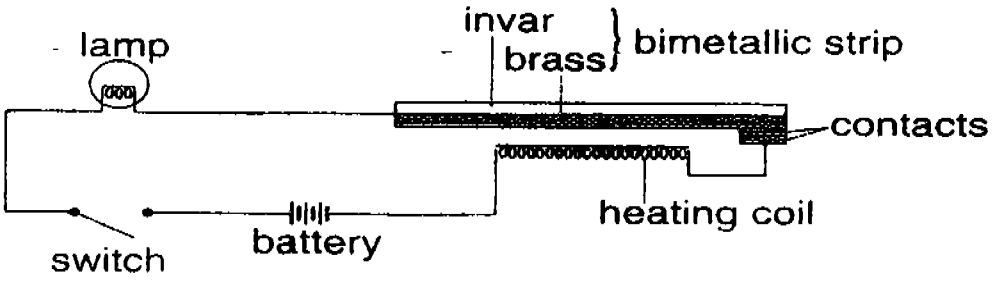
45. The diagram below shows some food being burnt in air.



(a) Respiration is like the burning of food in air.
Besides water, what are the other **two products** of respiration?

(b) Besides food, name one thing that is needed in the 2 processes. [1]

46. A bimetallic strip is made up of two different metal strips welded or riveted together. The diagram below shows an electric circuit which uses a bimetallic strip. Brass expands more than invar when heated.



Study the diagram carefully. Describe what would happen to the lamp when the switch is switched on for 15 minutes. [1]

End of paper

Setters: Christina Lim
Tng Jiew Kim
Cheng Kim Hong

SA1

National University of Singapore

Pb (SA2) RGS science Date No.

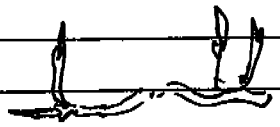
1)	4	11) 3	21) 3	31) a) Aluminium
2)	3	12) 3	22) 4	b) wrapping food
3)	3	13) 1	23) 1	c) Material B is transparent People can see the outside from the house
4)	3	14) 3	24) 2	
5)	2	15) 4	25) 1	
6)	2	16) 1	26) 3	
7)	3	17) 4	27) 2	
8)	1	18) 3	28) 3	
9)	1	19) 2	29) 3	
10)	4	20) 4	30) 4	

32) a) Animal C

b) An insect has 6 legs, Animals C has 2 body parts. But an insect has 3 body parts. The characteristics does not suit an insect, So animal C is not.

33) a) It controls the activities in the cell.

b) 54 cells will be produced 32 cell.

34) a) 

b) nodes

35) peter — attached earlobes

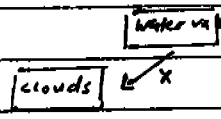
Susan — attached earlob

36) a) The air become better and the temperature increases.
Mass - remained the same.

b) The reading would be the same, 290g. Mass. Slightly more than 290 g.

c) water vapour condensed on the outside of the jar.

37) a) rain

b) 

c) All living things need water to survive. The water cycle is a continuation of the amou of water in the Earth. So that the Earth will not run out of water.

38) (i) B
(ii) F
(iii) A
(iv) E

35

Date No.

39) a) The composition of gas Q will remain the same.
b) The amount of gas Q produces by creature 2.

40) System X : Muscular System
Y : skeletal system.

41) a)

A	C	D	B

b)
Advantage : The cyclist will not fall onto the ground.
Disadvantage : The tyres of the bicycle will wear and tear.

42) a) i) W ii) W and Y.
b) The distance moved by the effort is twice the distance moved by the load.

43) a) The compass needle will also move away.
b) i) It will be attracted to iron rod B.
ii) The arrangement of batteries for Circuit B causes more electricity to pass through the electro-magnet making it a stronger magnet

44) a) Trials 2, 6 and 9
b) potential energy → kinetic energy

45) a) Carbon dioxide and energy.
b) Oxygen.

46) flashing on, off, on, off