RAFFLES GIRLS' PRIMARY SCHOOL
PRELIMINARY EXAMINATION 2011

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

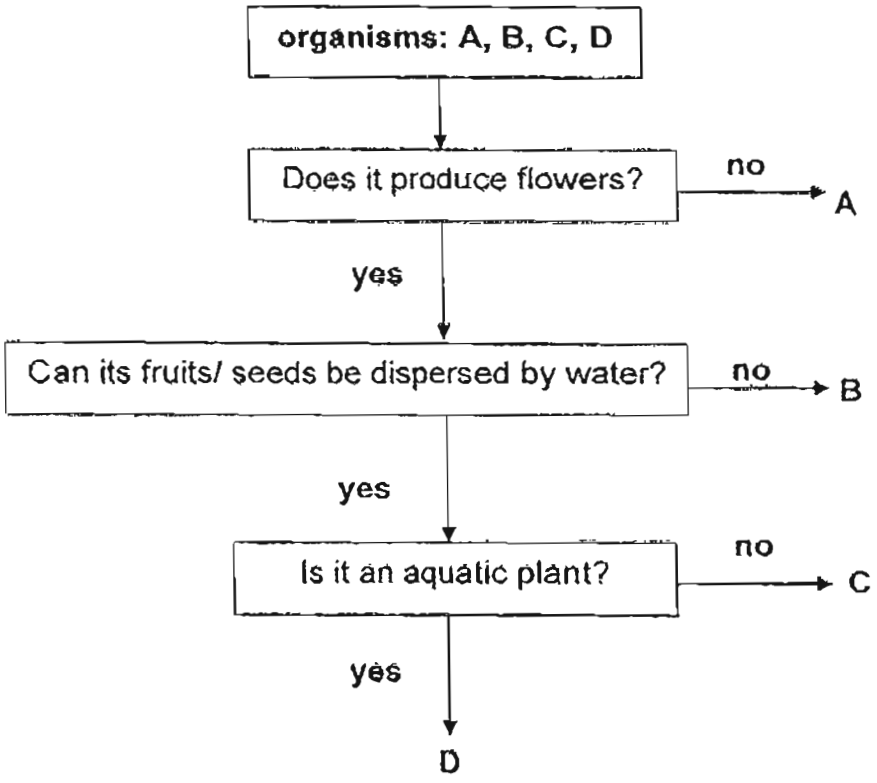
Name : _____ Index No: _____ Class: P 6____

22nd Aug 2011 **SCIENCE** **Att: 1 h 45 min**

SECTION A (30 X 2 marks)

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

1. The flow chart below helps to differentiate organisms A, B, C and D.



	A	B	C	D
~~(1)~~	moss	mimosa	angsana	lotus
~~(2)~~	toadstool	shorea	nipah	bougainvillea
~~(3)~~	ladder fern	mango	pong pong	balsam
~~(4)~~	bread mould	durian	coconut	water lily

2. The table below shows some characteristics which animals X, Y and Z have.

A tick (√) in the box indicates the characteristic which the animal has.

animal	lays eggs	has feathers	has gills
X	√	√	
Y			√
Z	√		

Which one of the following identifies these animals correctly?

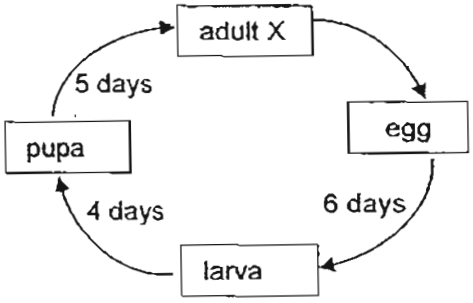
	X	Y	Z
(1)	crow	spider	guppy
(2)	crow	guppy	platypus
(3)	penguin	spider	dolphin
(4)	platypus	dolphin	penguin

3. The bar graphs below show that certain temperatures can affect organism X in the following ways:

- number of eggs laid by the female X each time
- length of its life cycle
  (i.e. from the time the eggs are laid to the end of its pupal stage)

temperature of the surroundings (°C)	number of fertilised eggs laid	length of life cycle of X (days)
18	50	25
22	110	15
26	140	13
30	225	10

At a certain time of the year, the life cycle of X in a farm is shown below.



Based on the information above, what could possibly be inferred about X in the farm during the observation period?

A The surrounding temperature in which X lived was 22°C.

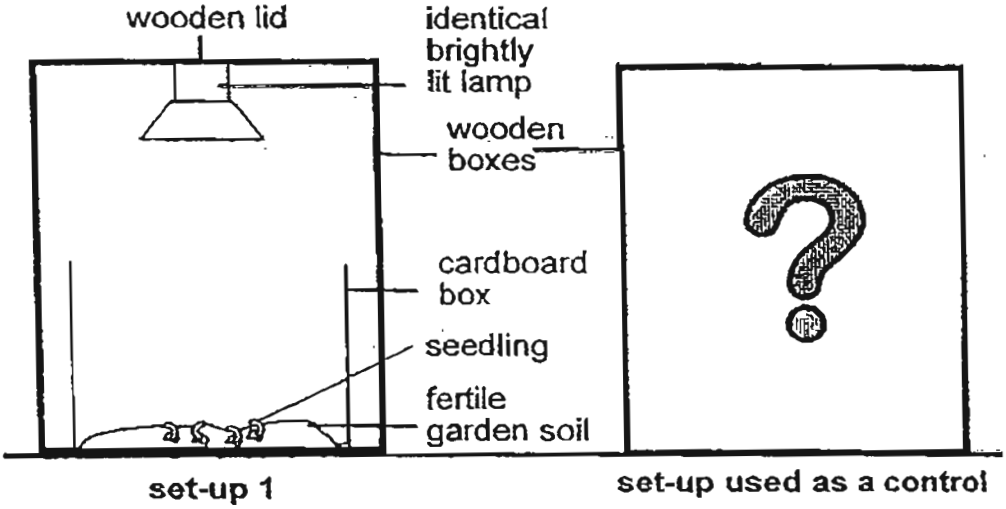
B It took 10 days for X to change from its larval to pupal stage.

C Without predators, X could multiply quickly when it lived in warm surroundings of 22°C to 30°C.

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

4. Sally carried out an experiment to find out if light from a brightly lit lamp can affect the growth of seedlings of type X.

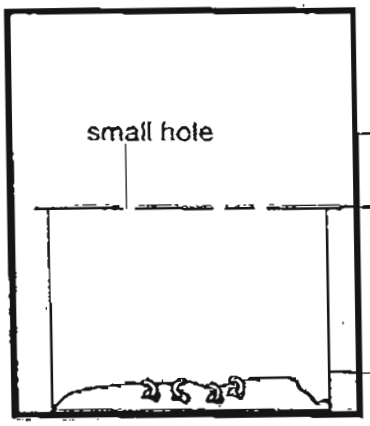
She placed seedlings of type X in set-up 1 as shown below.



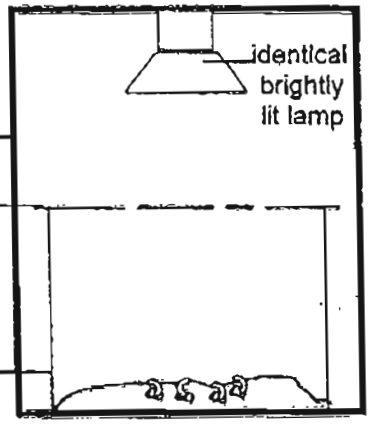
The same type of seedlings was put in another set-up containing fertile garden soil. The seedlings in both set-ups were given the same amount of water daily.

Which one of the following set-ups is most suitable for Sally to use as a control for her experiment?

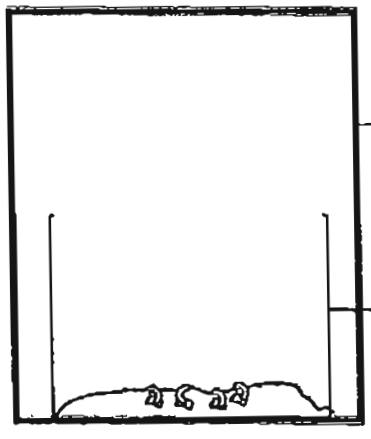
(1)



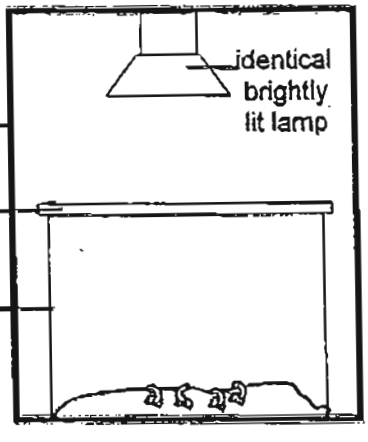
(2)



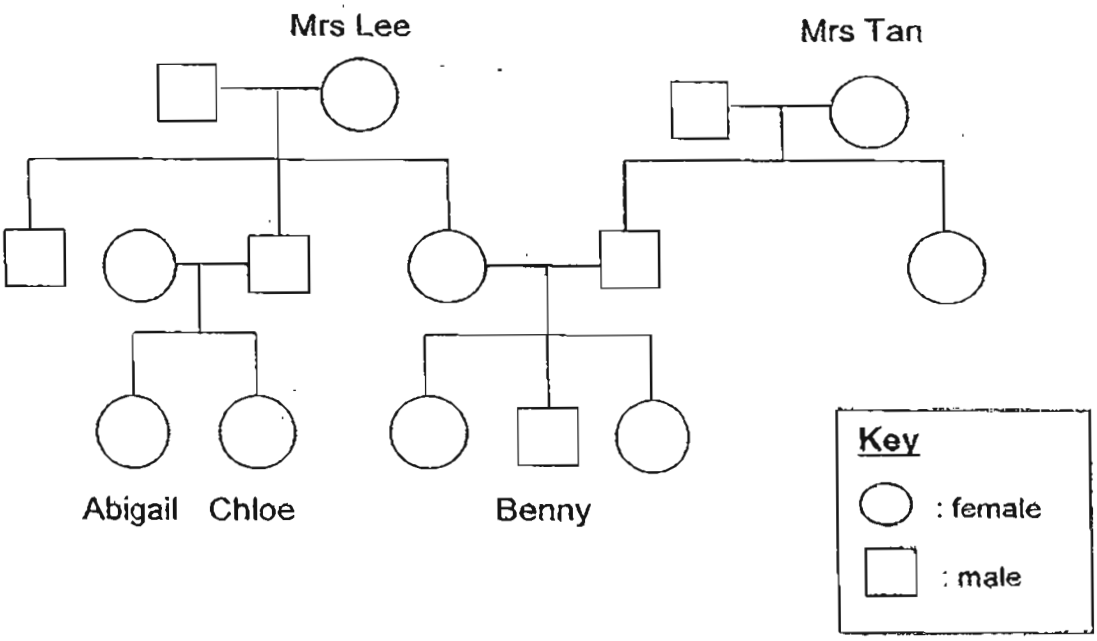
(3)



(4)



5. The diagram below shows the family tree of Abigail, Chloe and Benny.



Based on the information above, which one of the following statements is correct?

A Chloe has a sister.

B Abigail and Chloe are twins.

C Benny's mother has 4 nieces.

D Abigail and Benny's mothers are sisters.

(1) A only

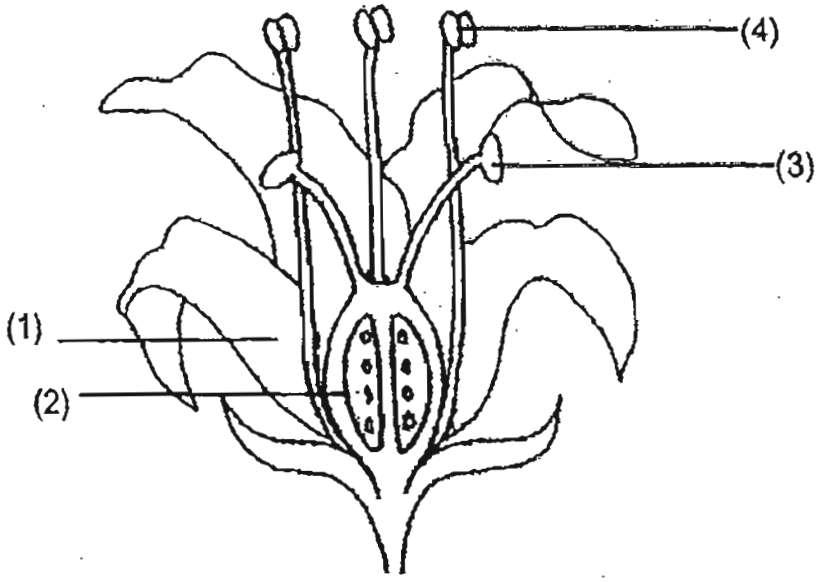
(2) A and D only

(3) B and C only

(4) C and D only

6. The diagram below shows some labelled parts of a flower.

Which one of these labelled parts develops into a fruit after pollination and fertilisation of the flower have taken place?



7. Three fruits, A, B and C, from a plant were used in this experiment.

Part of the wing-like structures of fruits B and C were cut away as shown in the diagrams below.

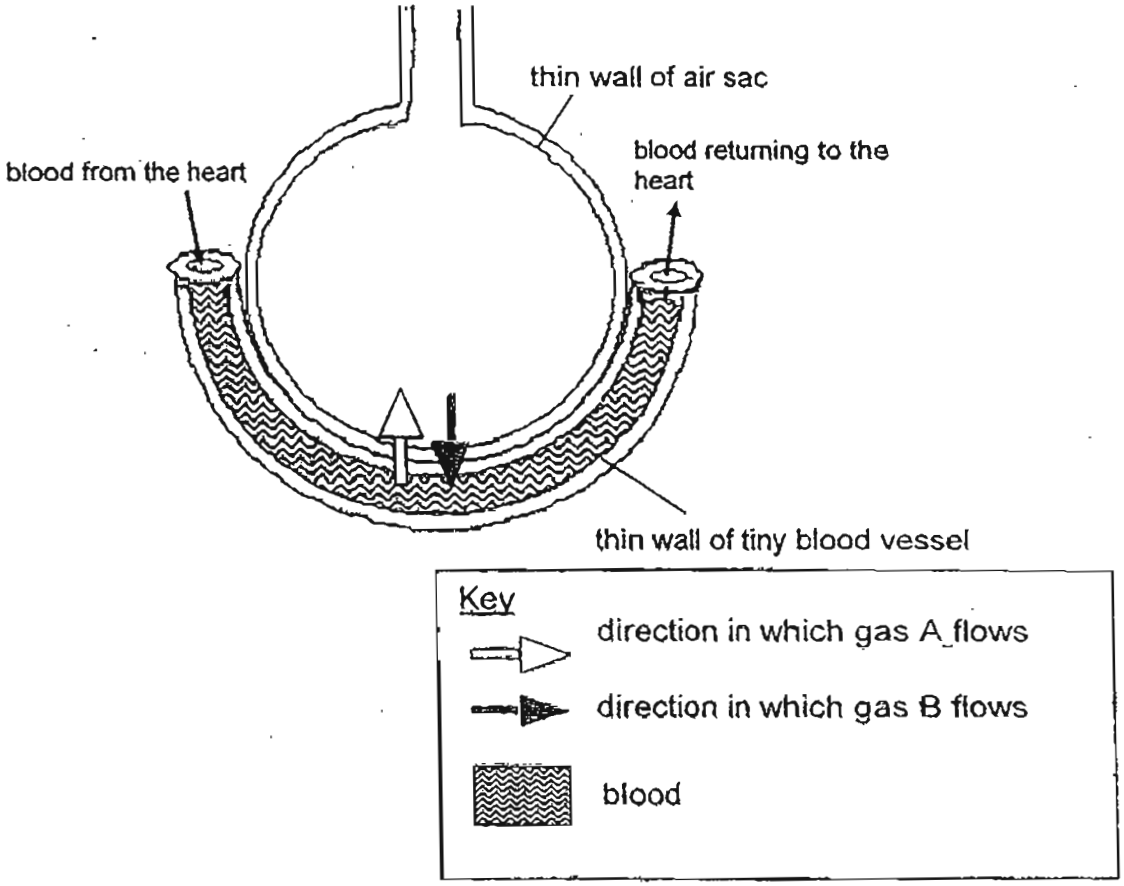
Fruits A, B and C were released, one at a time, from the same height.

The time taken for each fruit to land on the ground was recorded in the table below.

Which one of the following sets of readings was most likely correct?

	time taken for each fruit to reach the ground (s)		
	A	B	C
(1)	6.5	10.2	8.3
(2)	8.3	6.5	10.2
(3)	10.2	6.5	8.3
(4)	10.2	8.3	6.5

8. The picture below shows a magnified cross-section of an air sac in Jon's lungs.



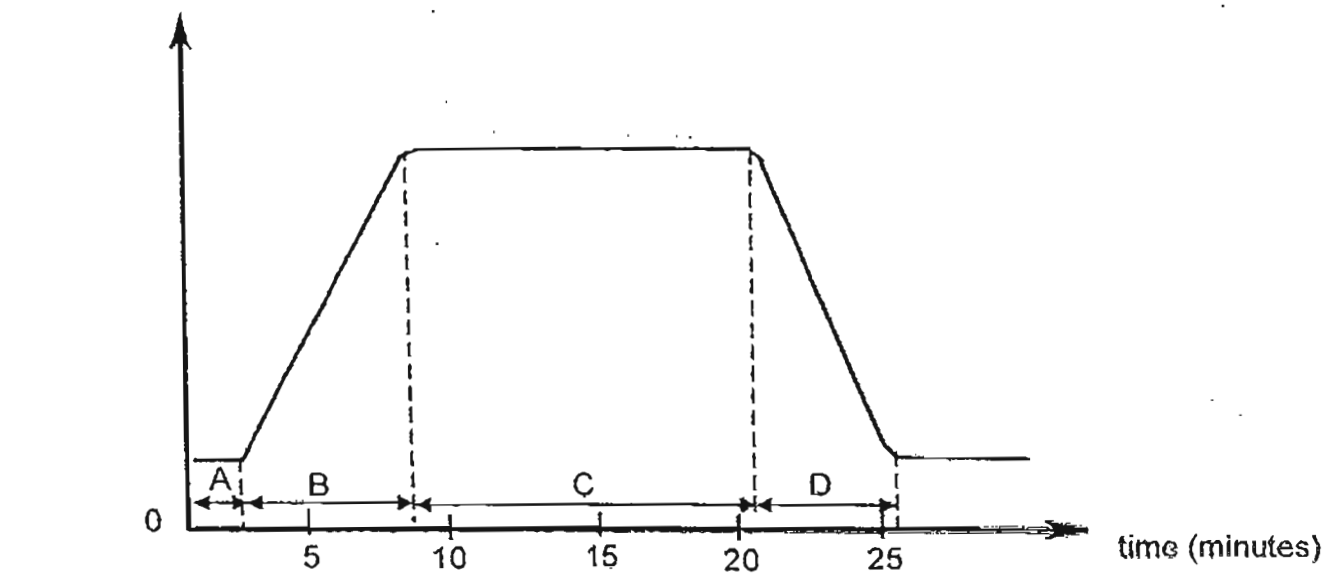
The air sac had just been filled with air when Jon inhaled.

The transfer of gases was occurring continuously between the air sac and the tiny blood vessel.

Which one of the following identifies the correct gases moving in and out of the air sac when Jon inhaled?

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

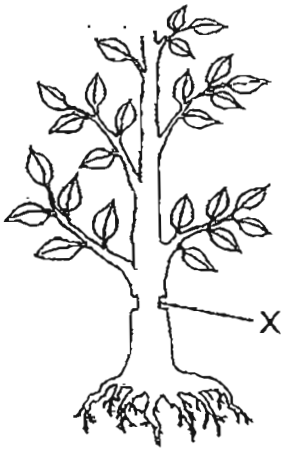
9. The graph below shows how Ahmad's heartbeat rate changed during each period of time, A, B, C and D.



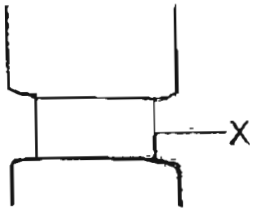
Based on the graph above, in which period was the greatest amount of carbon dioxide being given out by Ahmad?

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

10. A small ring-like layer that contained food-carrying tubes was carefully removed from the outer part of the stem at part X, leaving the water-carrying tubes behind.

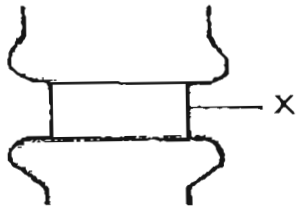


The enlarged view of part X of the stem is shown below.

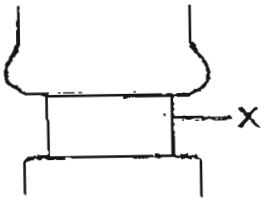


Which diagram shows the most likely change on the stem at part X after a period of time?

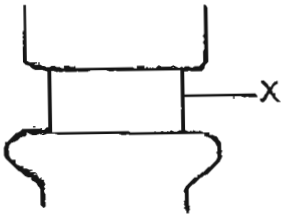
(1)



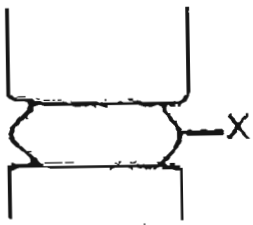
(2)



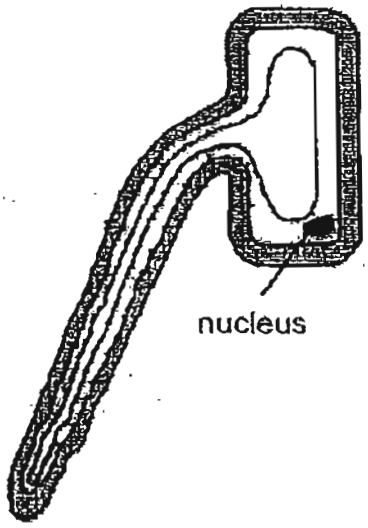
(3)



(4)



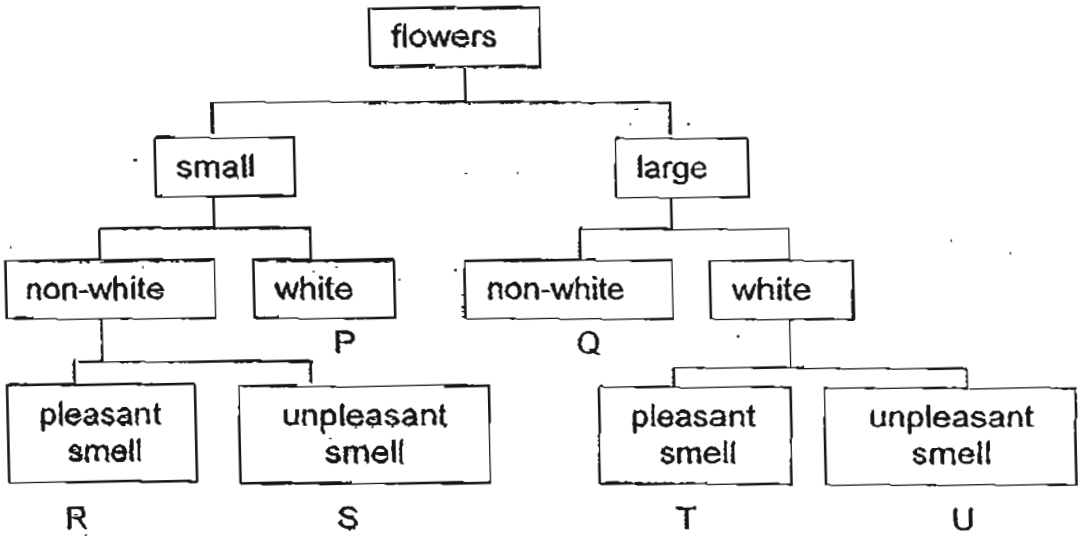
11. The following cell is taken from an organism, Z.



Based on the diagram above, which one of the following about organism Z and its cell is correct?

	Z is ...	The above cell has...
(1)	a plant	a cell wall but does not contain chloroplasts
(2)	a plant	a cell wall and contains chloroplasts
(3)	an animal	a cell wall and contains chloroplasts
(4)	an animal	no chloroplasts and no cell wall

12. The six types of flowers, P, Q, R, S, T and U, are classified as shown below.



The table below shows the characteristics of some flowers that attract specific animals.

animal	characteristics of flower that attract the animal
A	is small, red or yellow, has a pleasant smell
B	is large, is white, has a pleasant smell

Which type of flowers will attract animals A and B?

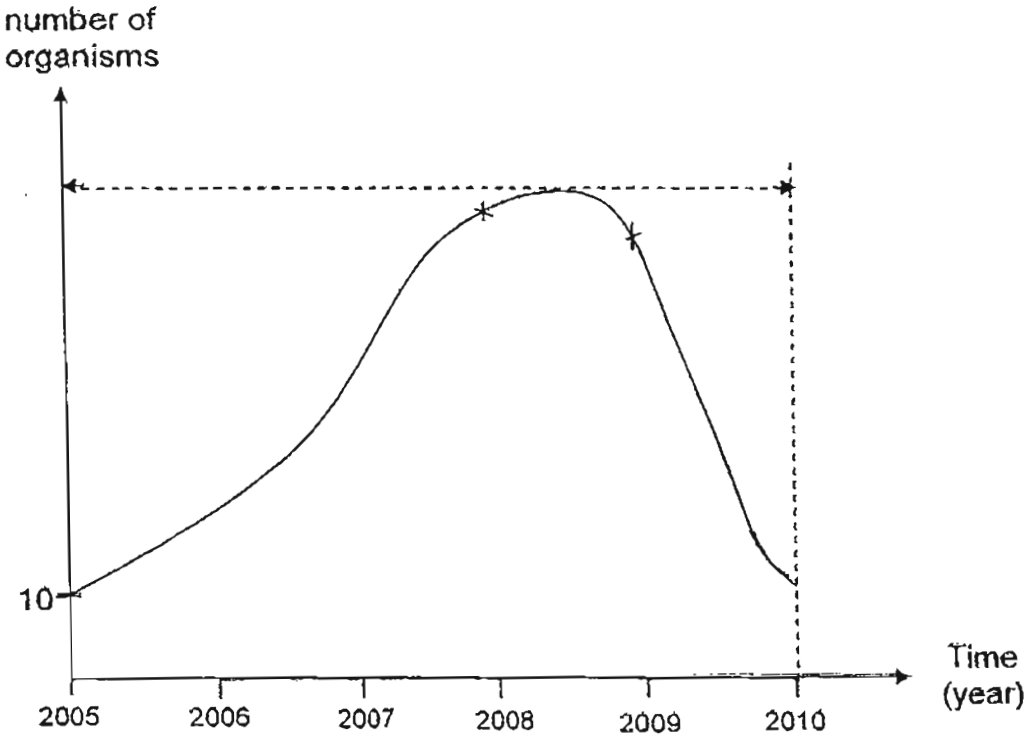
(1) P and Q only

(2) R and S only

(3) R and T only

(4) S and U only

13. The graph below shows changes in the population size of an organism in a certain habitat during the observation period, 1 Jan 2005 – 1 Jan 2010.



Based on the graph, which one of the following statements cannot be true?

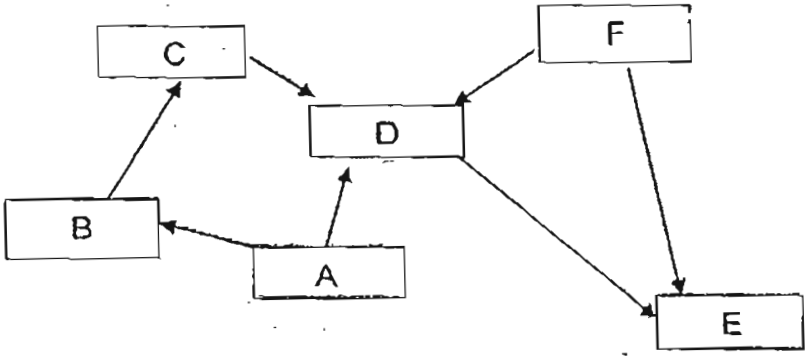
(1) The organisms are dying from a disease in 2009.

(2) From 2008 to 2009, there was no change in the population size.

(3) The largest population size was reached between 2007 and 2009.

(4) The birth rate of the organism could be greater than its death rate between 2006 and 2007.

Natasha constructed a food web consisting of plants and animals to show the relationships between and/ or/ among some organisms in a particular community.



Based on the information given above, answer **questions 14 and 15**.

14. Which one of the following statements is correct?

(1) B is a predator and prey.

(2) This food web consists of only 3 food chains.

(3) There is only a food producer in this food web.

(4) Only 2 organisms feed on both plants and animals.

15. To reduce the population of C, Natasha's friends made the following suggestions:

Ally : Introduce more organisms E to the habitat

Megan: Introduce more organisms D to the habitat

Claire : Reduce the number of organisms A in the habitat

Tara : Reduce the number of organisms E in the habitat

Which of Natasha's friends suggested correctly?

(1) Ally only

(2) Ally and Megan only

(3) Megan, Claire and Tara only

(4) Ally, Megan and Tara only

16. Nicole researched on the Internet and tabulated the information gathered in the table below.

organism	average mass of foetus (g)	average number of days a foetus takes to develop in its mother's womb
A	1000	180
B	4500	270
C	25000	240
D	1500	120
E	45	193

Nicole's friends made the following conclusions:

Ashley : The foetus of organism B remained in the mother's womb for the longest period of time.

Christine : The larger the mass of the foetus, the longer it will remain in its mother's womb.

Gladys : The offspring of an organism with a larger mass may not require a longer period of time to develop in its mother's womb than the offspring of another organism with a smaller mass.

Which of Nicole's friends made the correct statement(s)?

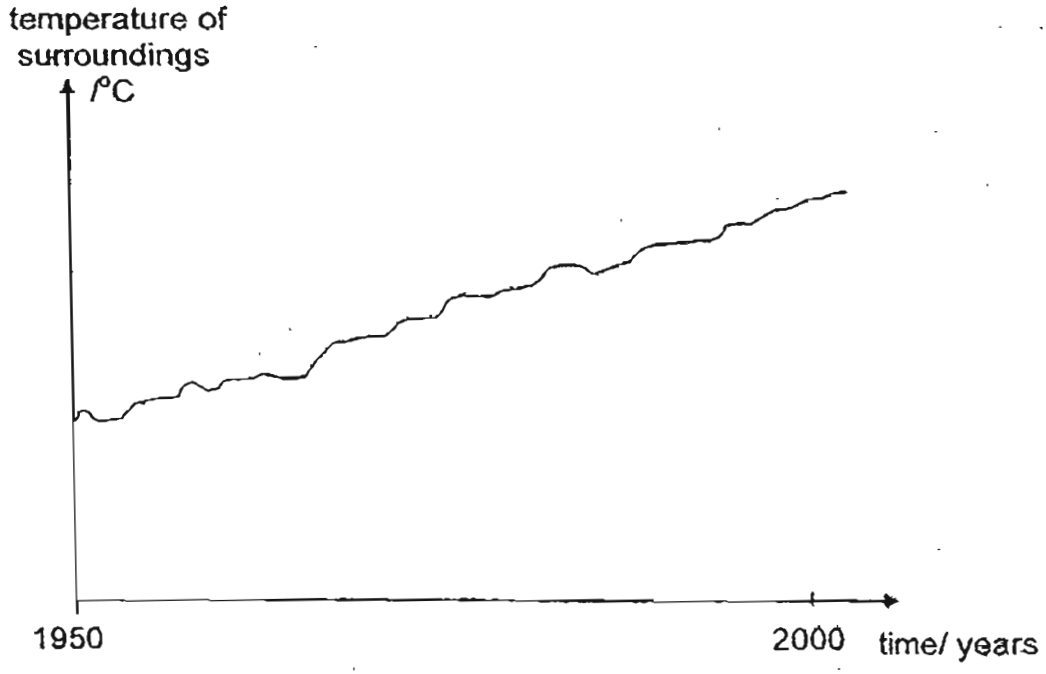
(1) Gladys only

(2) Christine only

(3) Ashley and Gladys only

(4) Ashley , Christine and Gladys

17. The graph below shows the changes in the temperature of the surroundings in a place, X, over a period of time.



Based on the graph above, which of the following activities could have contributed to the change in temperature?

A an increased number of forest fires

B more recycling activities were conducted

C an increased number of vehicles on the road

D a decreased usage of energy from burning coals

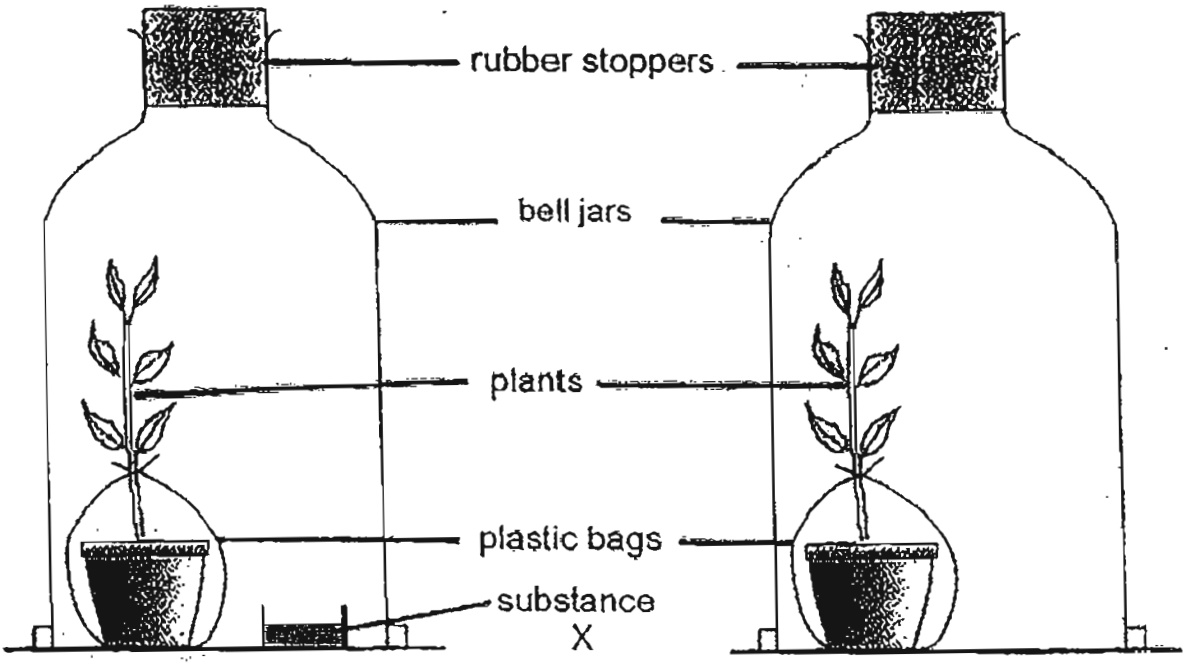
(1) A and B only

(2) A and C only

(3) C and D only

(4) B, C and D only

18. Jane used the following set-ups as shown below to find out if plants need carbon dioxide to carry out photosynthesis.



What were the purposes of the plastic bag and substance X in the set-up?

	plastic bag	substance X
(1)	to prevent water vapour from escaping from the soil in the pot	to allow carbon dioxide to enter the jar
(2)	to allow the plants to take in carbon dioxide	to allow water vapour to enter the jar
(3)	to prevent carbon dioxide produced by the organisms in the soil from escaping	to remove carbon dioxide in the jar
(4)	to ensure that the water droplets formed on the inner surface of the jar is not from the soil in the pot	to allow carbon dioxide to leave the jar

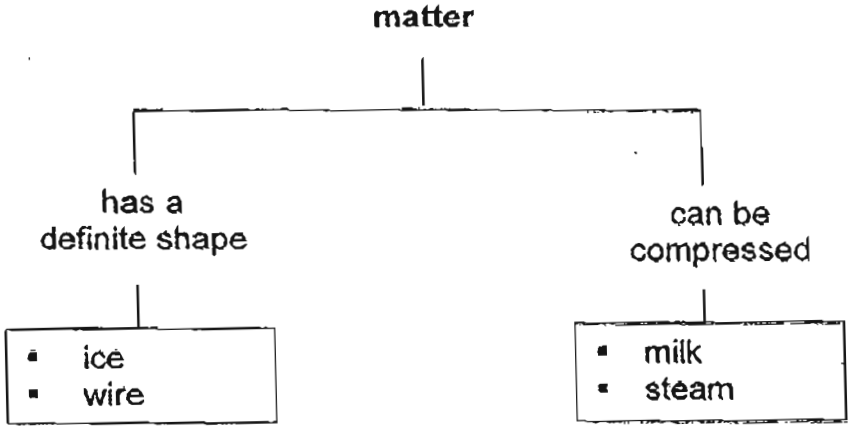
19. The properties of a new man-made material are listed below:

- It is inflexible.
- It is waterproof.
- It does not get scratched easily.
- It can withstand heating at 200°C.
- It breaks when dropped from a height.

This material is most suitable for making _____.

(1) crayons
(2) raincoats
(3) test tubes
(4) basketballs

20. Some forms of matter have been classified using the classification chart below.

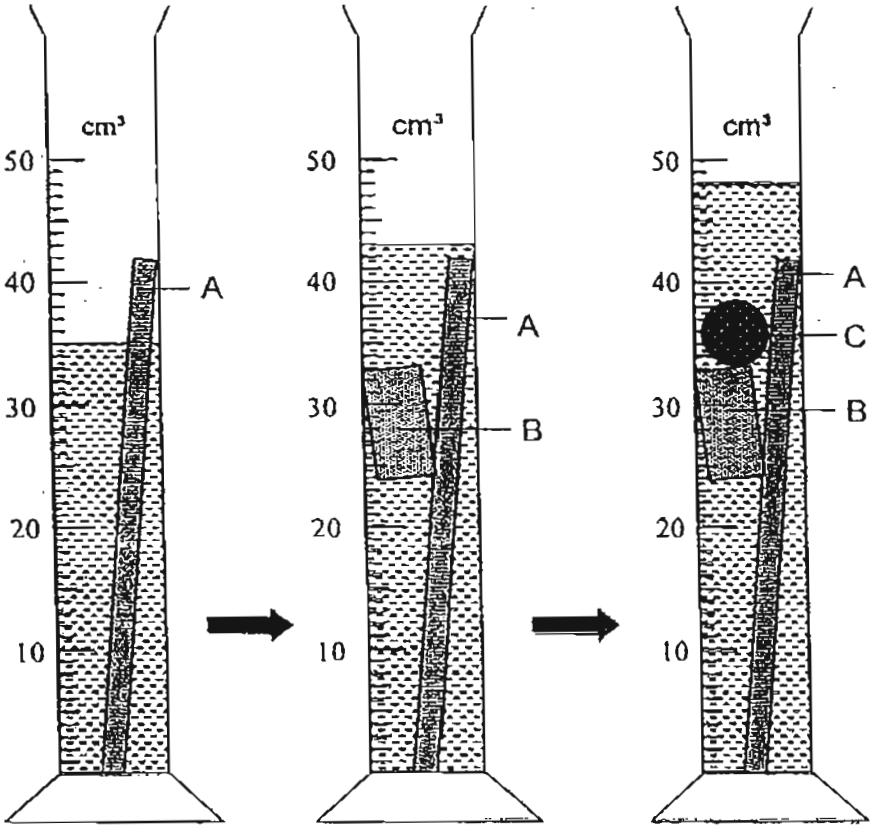


Based on the chart above, which one of the following is classified correctly?

(1) steam only
(2) wire and milk only
(3) ice, wire and steam only
(4) ice, wire, milk and steam

21. Peter had 3 objects, A, B and C. He put A in a measuring cylinder containing some water. Then, he put B in, followed by C.

The diagrams below show how the water level changed after each object was put in.



Which of these objects would Peter be able to find its/ their volume(s)?

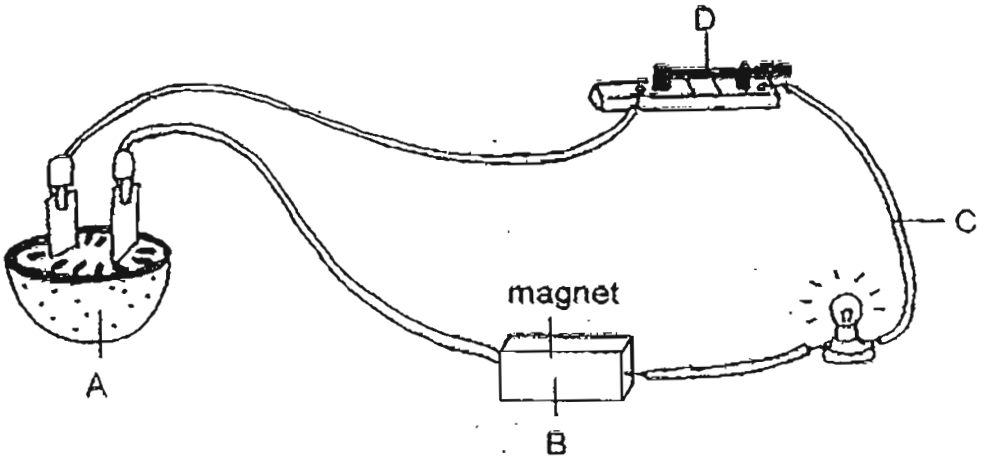
(1) C only

(2) A and B only

(3) B and C only

(4) A, B and C

22. Caroline set up a circuit as shown below.

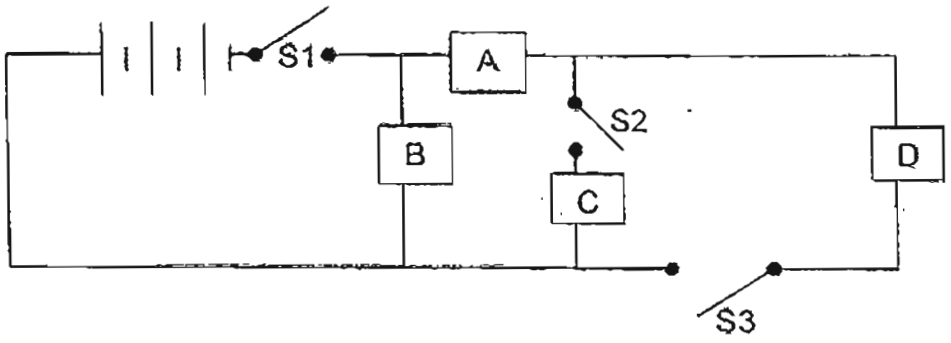


When the switch was closed, the bulb lit up.

Based on the circuit above, which one of the following provided the source of electricity?

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

23. Peter constructed a circuit as shown below.



A wooden ruler, a bulb, a metal paper clip and an eraser were placed at various points, A, B, C and D, in the circuit. S1, S2 and S3 were switches.

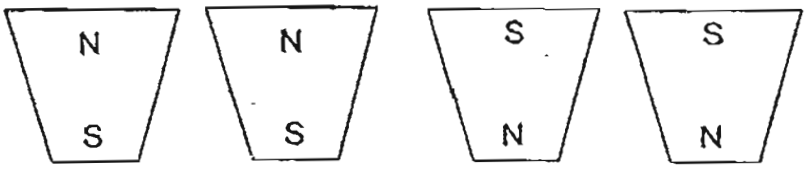
Peter closed some switches and recorded his observations in the table below:

closed switches	**Did the bulb light up?**
S1 and S2	yes
S1 and S3	no

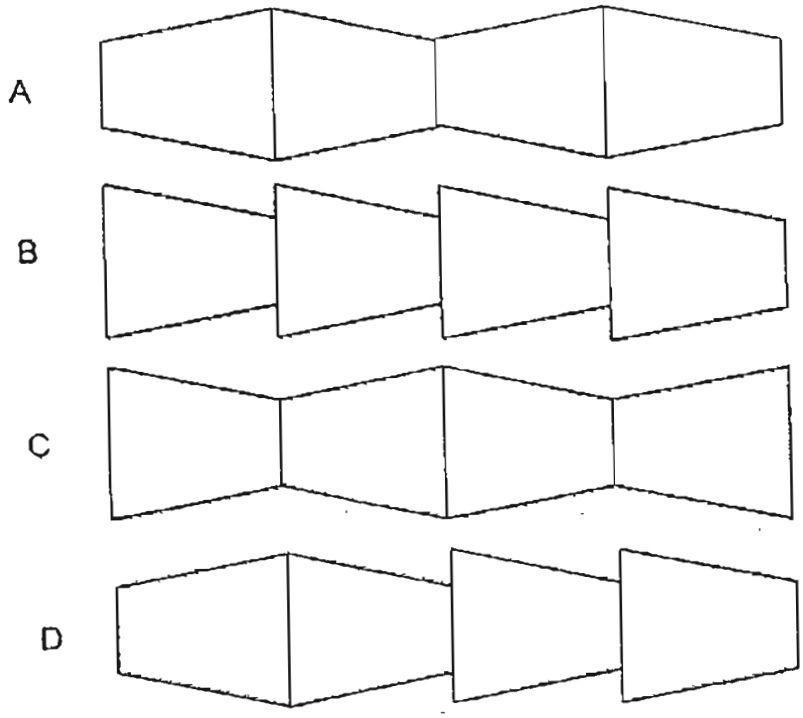
Based on Peter's observations, which one of the following identifies A, B, C and D correctly?

	A	B	C	D
(1)	bulb	paper clip	wooden ruler	eraser
(2)	bulb	wooden ruler	eraser	paper clip
(3)	eraser	wooden ruler	bulb	paper clip
(4)	paper clip	eraser	bulb	wooden ruler

24. Rani labelled the poles of four magnets as shown below.

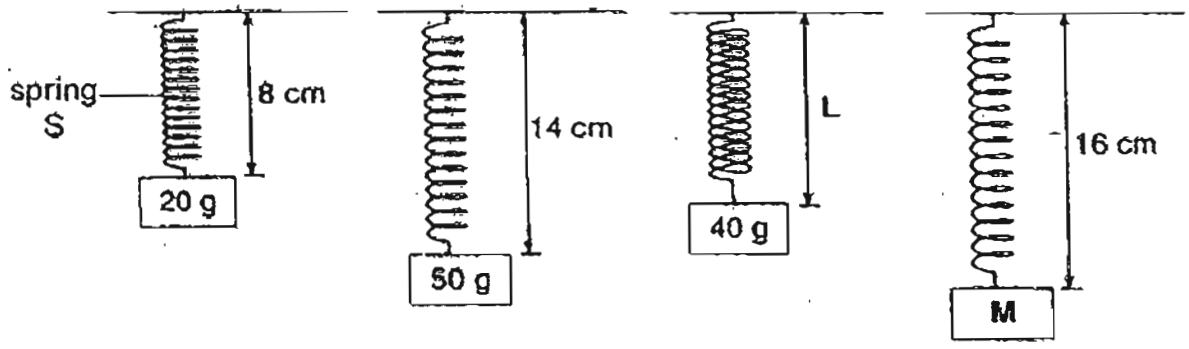


Which of these arrangements of the magnets are correct?



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

25. The diagrams below shows the length of spring S when a different load is hung from it , one at a time.



Which one of the following shows the correct values of L and M?

	L (cm)	M (g)
(1)	10	60
(2)	10	70
(3)	12	60
(4)	12	70

26. Two solid steel balls hit each other while rolling in the directions shown by the arrows.

Which of the following changes could have been observed after the balls hit each other?

(1) mass and shape of the balls

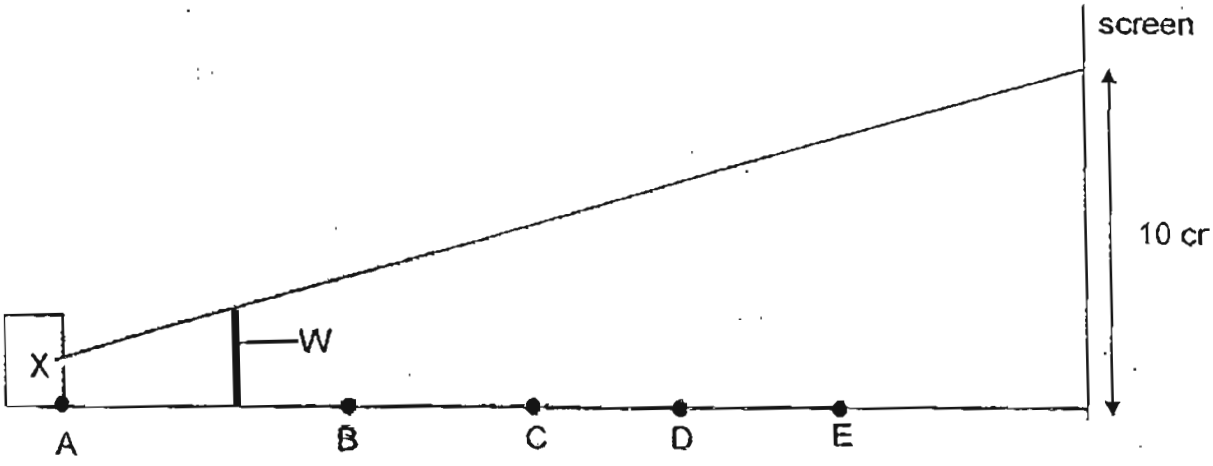
(2) shape and volume of the balls

(3) direction and speed of movement of the balls

(4) direction of movement and volume of the balls

27. Alex wanted to find out the effect of the positions of a light source and an object, W, on the length of the shadow cast by the object, W.

He marked A, B, C, D and E on a table before the screen. Object W was placed between the light source, X, and the screen as shown below.

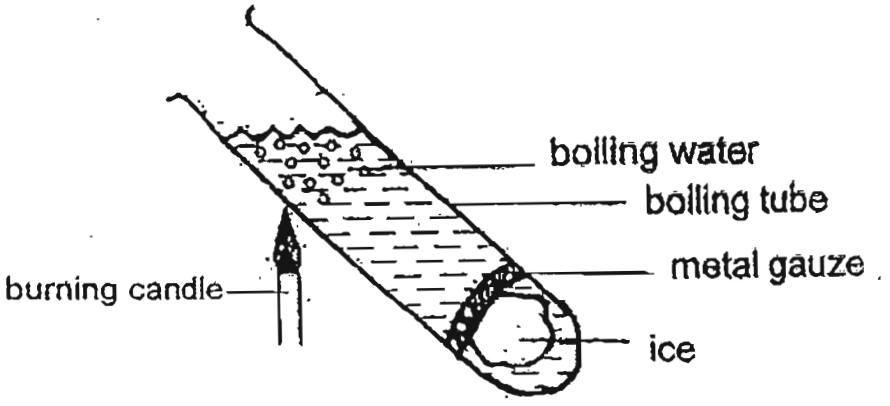


When Alex switched on the torch, he observed a 10 cm long shadow of object W was cast on the screen. Next, he placed the light source, X, and object W at different positions and recorded his observations.

Which one of the following sets of observations was correctly made by Alex?

	position of light source X	position of object W	length of shadow/ cm
(1)	A	C	6
(2)	A	D	10
(3)	B	D	12
(4)	B	E	15

28. The diagram below shows water boiling near the water surface.



Which one of the following best explains why ice at the bottom of the boiling tube takes a longer time to melt?

(1) Heat is transferred to the flame.

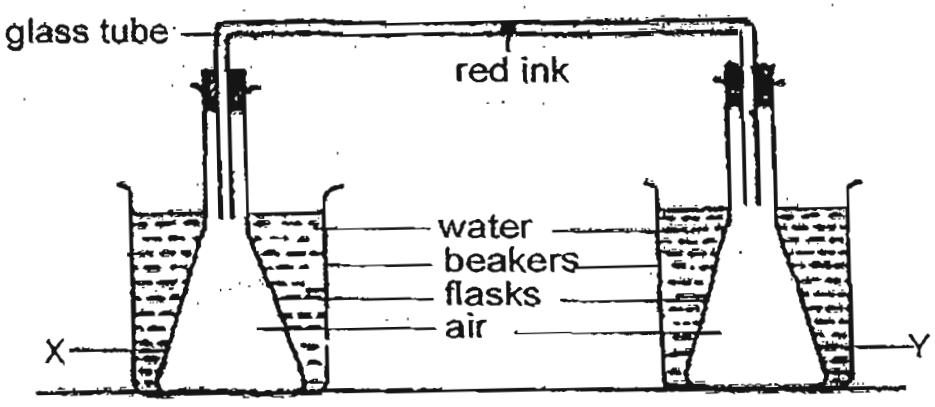
(2) Heat cannot travel through water.

(3) Water conducts heat away slowly.

(4) The metal gauze prevents heat from reaching the ice.

29. In the set-up below, each of the two flasks, X and Y, was placed in a beaker of water at a different temperature.

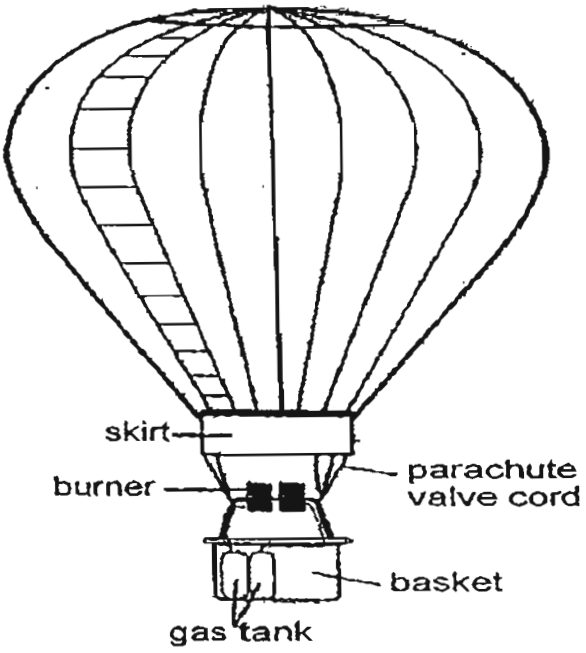
A drop of red ink was placed in the middle of the glass tube connecting the 2 flasks.



Which one of the following would allow the drop of red ink to move the longest distance towards flask Y?

	When X was placed in a beaker of water at	When Y was placed in a beaker of water at
(1)	5 °C	25 °C
(2)	5 °C	90 °C
(3)	25 °C	5 °C
(4)	90°C	5 °C

30. The hot air balloon shown in the diagram below started to float up from the ground when a flame was created just beneath the balloon.



Which one of the following best represents the energy conversion involved in making the hot air balloon float into the sky when the fuel was burnt?

(1) heat energy ⟶ kinetic energy ⟶ sound energy + light energy

(2) heat energy ⟶ light energy ⟶ kinetic energy + potential energy

(3) potential energy ⟶ light energy ⟶ kinetic energy + heat energy

(4) potential energy ⟶ heat energy ⟶ kinetic energy + potential energy

Name : _____ Index No : _____ Class : P6 _____

40

SECTION B (40 marks)
For questions 31 to 44, write your answers clearly in the spaces provided.

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

31. The picture below shows organism Z which reproduces in the same way as bread mould.

organism Z

Several clusters of organism Z were found growing on a wooden plank left under a fruit tree.

(a) Besides providing organism Z with a place to grow on, describe another way the wooden plank helps the growth of organism Z. [1]

_____

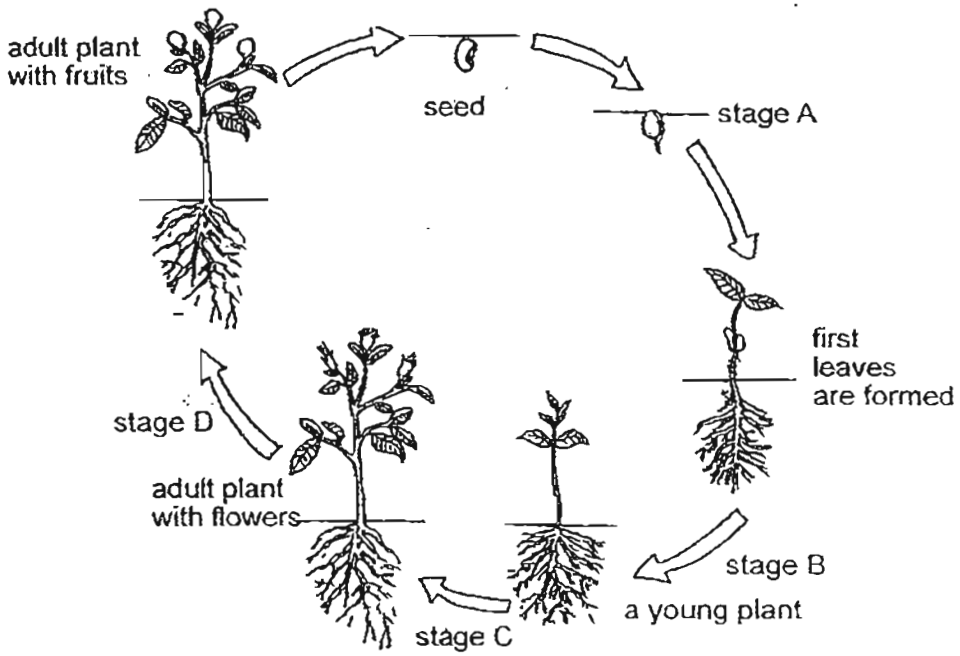
_____

(b) Explain how the presence of organism Z on the wooden plank helps to make the soil better for the fruit tree to grow on. [1]

_____

_____

32. The diagram below shows the various stages, A, B, C, D and E, in the life cycle of a flowering plant.



(a) Name the process(es) that occur(s) at each of the following stages : [2]

stage	process(es)
A	
D	

(b) Name the part(s) of a flower involved at stage D. [1]

33. On a hot day, a plant wilted as shown below.

When a plant wilts, the stomata close or reduce the size of their openings.

(a) How does "wilting" help a plant on a hot day? [1]

_____

_____

(b) Does "wilting" increase or decrease the rate of photosynthesis of the plant?

Give a reason for your answer. [1]

_____

_____

34. The table below shows the parts of cells A, B and C. Each of these living cells has been taken from different organisms.

A tick (√) in a box indicates a part which is found in the cell.

cell	nucleus	cell membrane	cell wall
A		√	
B		√	√
C	√	√	√

One of the above cells is described as follows:

It is [redacted] and [redacted]

Based on the information above, answer the following questions:

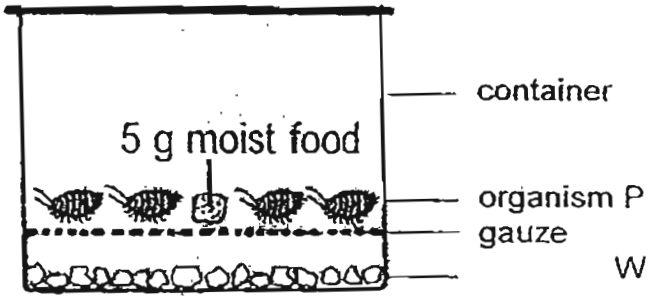
The above description matches cell A.

(a) How does the information in the table above help you to identify cell A? [1]

Zachery identifies the cell shown below as cell C.

(b) Based on your observation of the cell above, do you agree with Zachery? Give a reason for your answer. [1]

35. Tessa used the following set-up to find out if pesticide W is able to kill organisms P.



(a) To set up a control, what items should Tessa place in **ANOTHER** identical box? [1]

_____

_____

(b) Describe in details what Tessa must do to ensure that her results were reliable. [1]

_____

_____

To be continued on the next page

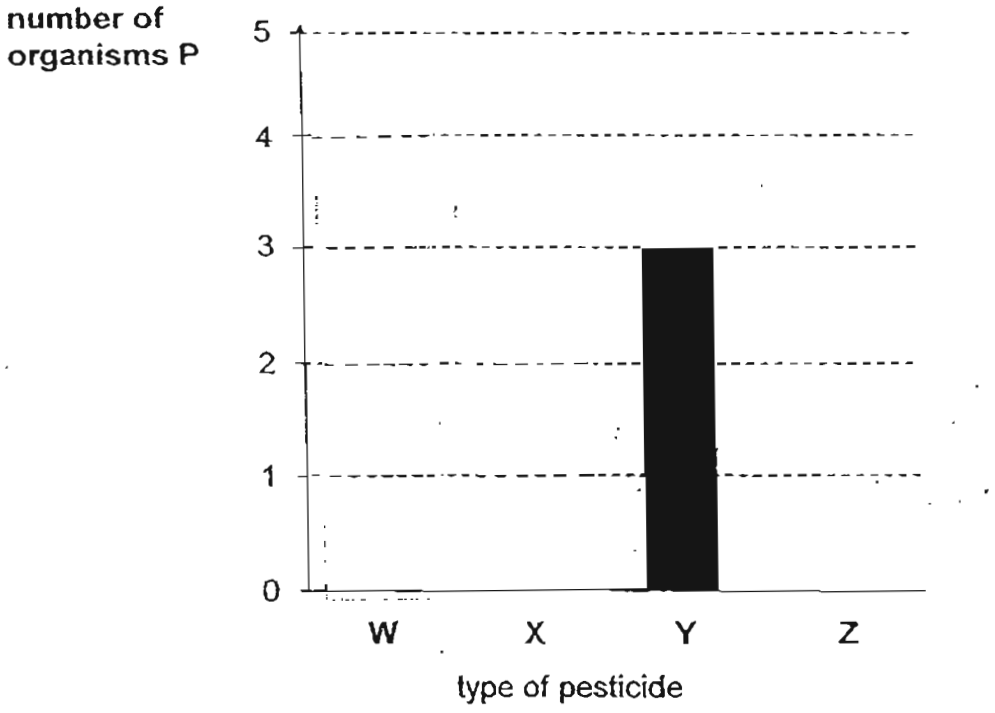
Tessa wanted to compare the effectiveness of pesticide W with three other types of pesticides: X, Y and Z.

Using 5 of such organisms P for three other identical boxes at the start of the experiment, Tessa recorded the number of organisms P which were still alive in these boxes at the end of her experiment.

She found that pesticide X was more effective than pesticides Y and W. However, pesticide W was the least effective. All organisms P died in the box with pesticide Z.

(c) Based on the information above, complete the bar graph below.

Indicate clearly the number of organisms P which were still alive in the boxes, each with a type of pesticide: W, X and Z. [1]



36. In the table below, Priya recorded her observations of fruit X based on her findings.

description of fruit X	observation of fruit X
has a fibrous husk	no
has a wing-like structure	no
is juicy and fleshy	yes
is bright red when ripe	yes
is edible	yes

Based on the information above, answer the following questions:

(a) Suggest the most likely method of dispersal of fruit X.
Explain your answer. [1]

method of dispersal of fruit X	explanation

To be continued on the next page

continued from the previous page

Priya took the seeds of fruit X and attempted to germinate them under identical conditions.

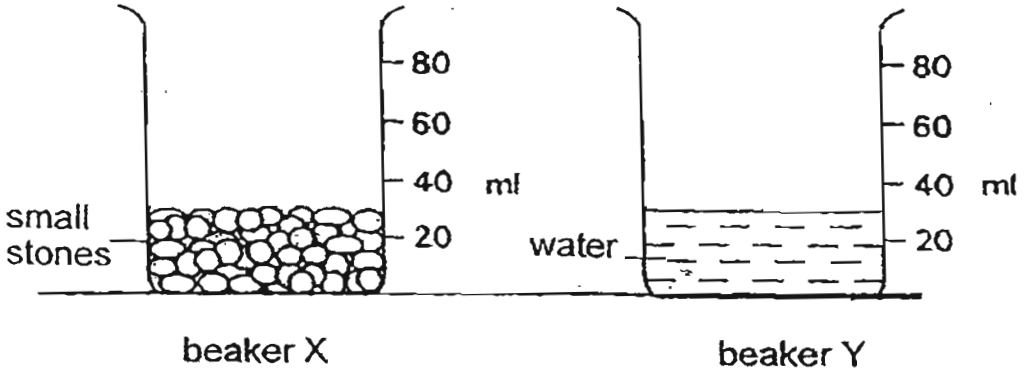
The table below shows the results of her investigations:

seeds taken from	number of seeds germinated		
	1st try	2nd try	3rd try
fruit X that was green and not ripe	0	1	0
fruit X that was partially red and partially green	5	3	4
fruit X that was red and ripe	9	10	10

Fruit X at its early stage of development is green in order to blend in with its surroundings. However, fruit X turns bright red when it is fully developed.

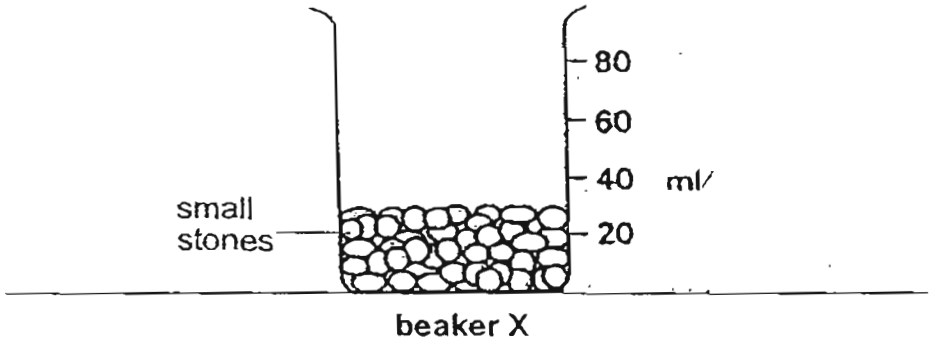
(b) Explain how this adaptation enhances the chances of germination of its seeds. [2]

37. The diagrams below show two beakers, X and Y.
Beaker X contained small stones and beaker Y contained water up to 30 ml mark.



The water in beaker Y was poured into beaker X.

(a) (i) In the diagram below, draw a line to show the final volume in beaker X after water from beaker Y had been poured into it. [1]



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

_____

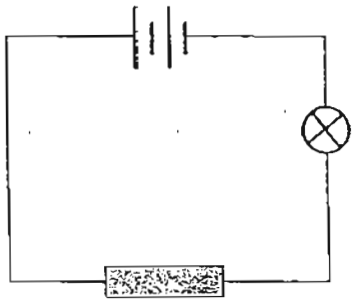
_____

(b) Explain why the water level increased when the small stones were replaced by the same amount of clayey soil. [1]

_____

_____

38. Ali set up a circuit tester as shown below to find out if object A is a conductor of electricity.



object A

The bulb in the circuit did **NOT** light up.

Ali believed that object A was **NOT** the cause of the bulb failing to light up.

(a) Using all or some of the components from the existing set-up only, design a modified version of Ali's circuit to verify his hypothesis.

In the box below, use the appropriate electrical symbols to draw your set-up. [1]

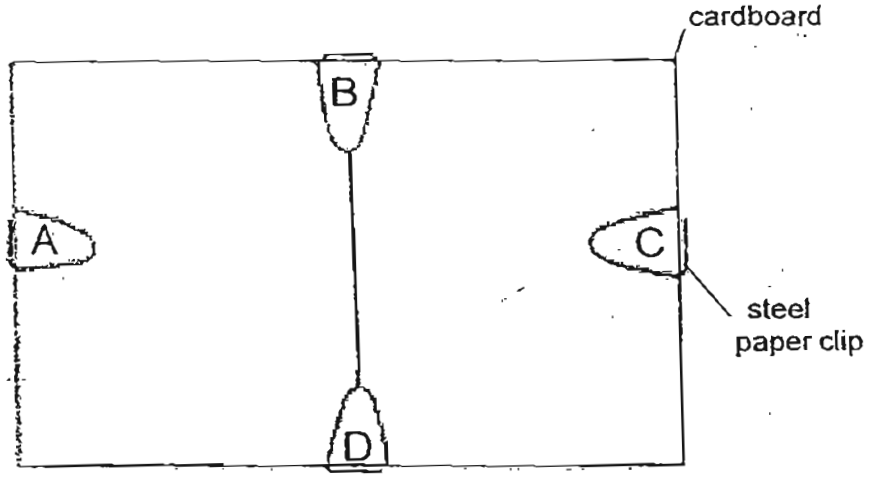
To be continued on the next page

continued from the previous page

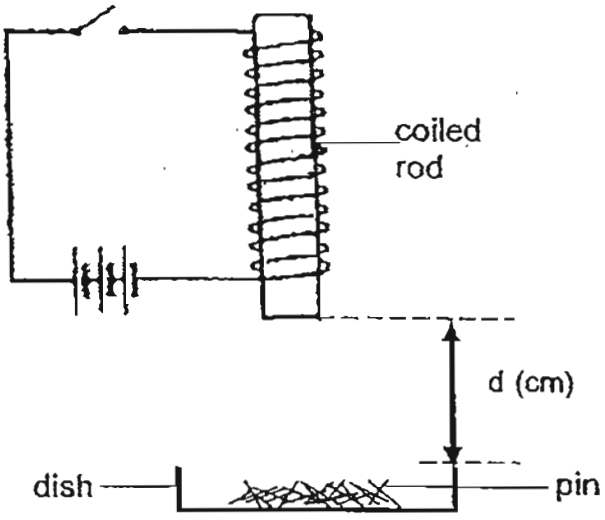
Using a circuit tester, Ali recorded his results in the table below :

clips connected to paper clips on circuit tester	Did the bulb light up?
A and B	no
A and C	no
A and D	no
B and C	yes
B and D	yes
C and D	yes

(b) Based on the information above, draw two lines in the diagram below to show how the wires were connected in the circuit tester. [1]



39. James used the set-up shown in the diagram below to conduct his experiment.



When James closed the switch, the coiled rod made of material Q was able to attract some tiny steel pins at d (cm) distance from the dish.

James moved the dish away from the coiled rod and recorded the number of pins attracted to the rod when the switch was closed.

He tabulated his results in table 1 as follows:

table 1

d (cm)	number of pins attracted to coiled rod
6	12
4	42
2	71

(a) Give a reason for the change in the number of pins attracted as d decreased. [1]

To be continued on the next page

continued from the previous page

James observed that when coiled rod made of material Q was 4 cm from the dish of pins, many pins fell off from the coiled rod immediately once the switch was open.

After the switch was left open for 30 seconds, James recorded the number of pins remaining on the coiled rod in table 2.

James replaced the coiled rod of material Q with ANOTHER similar rod made of ANOTHER material R and P one at a time. He carried out the experiment using the same procedure.

Table 2 below shows James' observations and results:

table 2

coiled rod of material	number of pins attracted to the coiled rod	
	when switch was closed	when switch was open
Q	42	29
R	80	8
P	0	0

Based on the information in table 2, answer the following questions:

(b) Which coiled rod lost its magnetism the most easily?
Give a reason for your answer. [1]

_____

_____

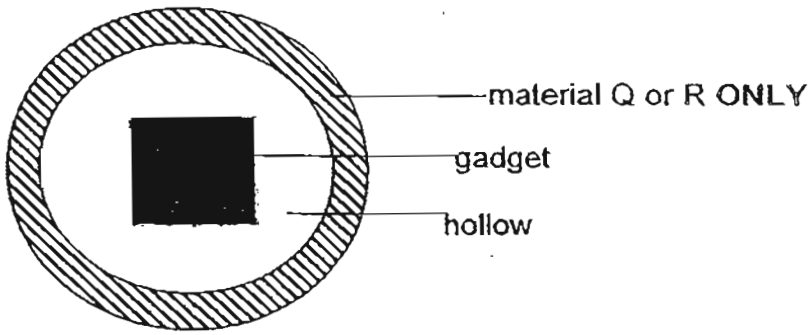
To be continued on the next page

continued from the previous page

James bought an electronic gadget which was unable to give accurate readings whenever a strong magnet was brought close to it.

The gadget was placed in a closed container made of **ONLY** material Q or R to prevent it from giving inaccurate readings when used.

top view of the closed container



(c) Give a reason why material P is **NOT** suitable to make the container.

[1]

40. Ianni used a magnet and a piece of nickel to investigate the effect of heat on nickel, a magnetic material. She recorded her observations in the table below.

temperature of nickel (°C)	observation
at room temperature	Magnet attracted nickel piece.
above 50	Magnet did not attract nickel piece.
at room temperature	Magnet attracted nickel piece.

The table below shows the procedures for her experiment but the steps were **NOT** in order:

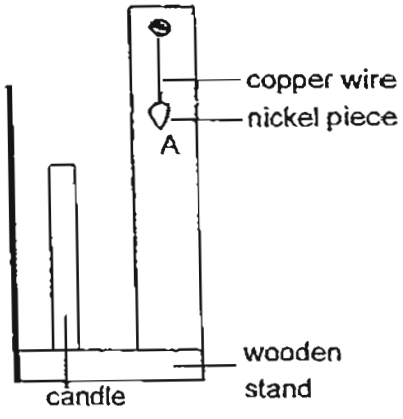
step	procedure
A	Bring the magnet towards the nickel piece. Record observation(s).
B	Cool the nickel piece to room temperature.
C	Heat the nickel piece for 1 minute.
D	Bring the magnet towards the heated nickel piece immediately. Record observation(s).
E	Bring the magnet towards the cooled nickel piece.
F	Record observation(s).

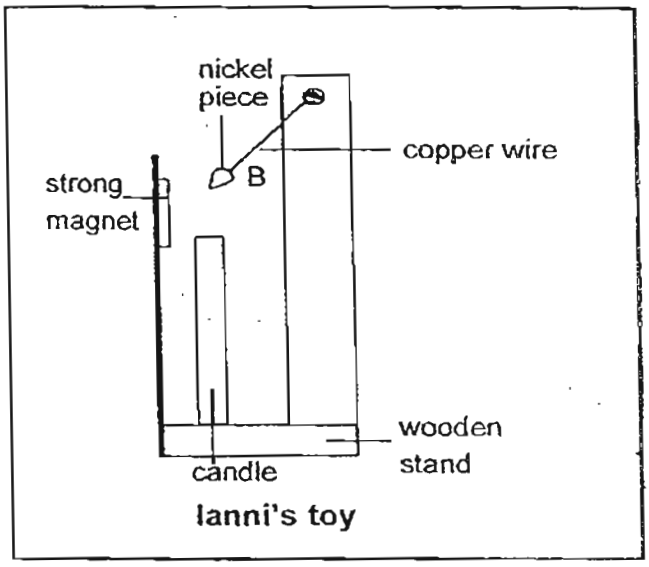
(a) Complete the table below.
Write the correct sequence of the steps required for Ianni's experiment.
Write letters A, B, C, D and E **ONCE** only.
Letter F has been filled in for you. [1]

step	letter
1	
2	
3	
4	
5	
6	

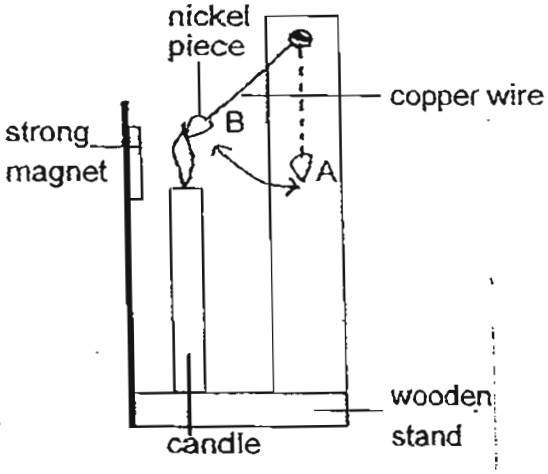
To be continued on the next page

Based on Ianni's earlier observations, she built a toy using the apparatus as shown below.





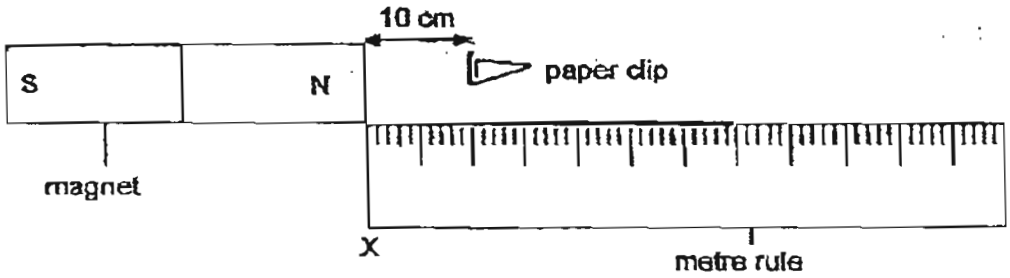
In the presence of the strong magnet when Ianni lit the candle, the nickel piece swung continuously to and fro, from B to A. When the candle flame was blown out, the nickel piece remained suspended at B.



(b) Explain how Ianni's toy worked when the candle was lit. [2]

To be continued on the next page

Ianni removed the magnet from her toy. She observed that the magnet was able to attract the paper clip at a greatest distance of 10 cm as shown below.

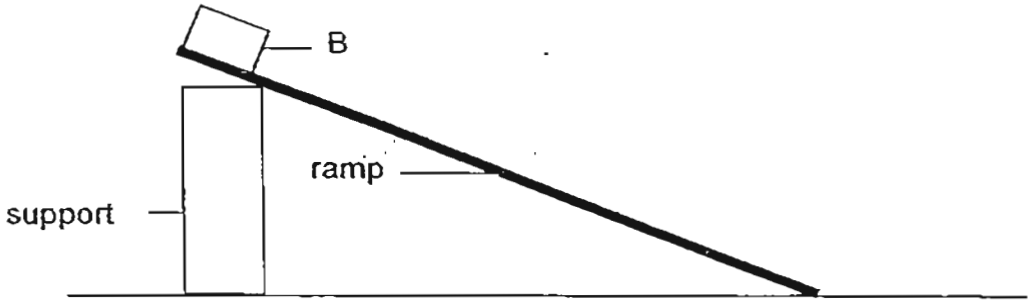


Next, Ianni heated the magnet over the candle flame after a minute.

(c) Would the heated magnet be able to attract the paper clip from the same distance of 10 cm?

Explain your answer. [1]

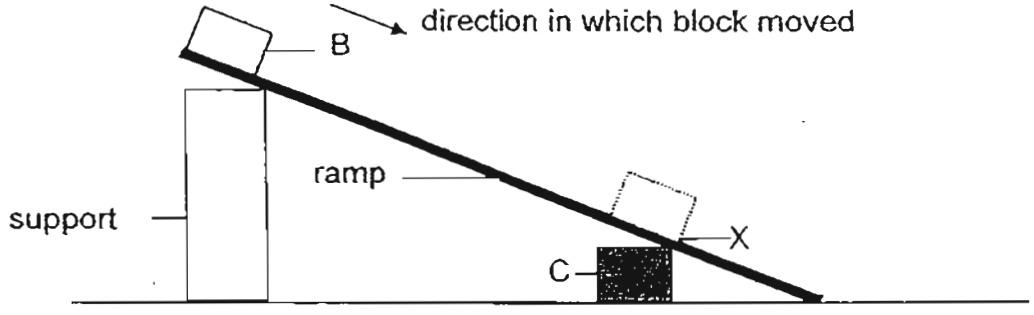
41. Alex placed an iron block, B, at the top of the ramp as shown below.



When Alex let go of block B, it slid down the ramp.

(a) Other than air resistance, name two forces acting on block B. [1]

When object C was placed at a point below the ramp as shown in the diagram below, block B took a shorter time to move down the ramp and come to rest at point X on it.



(b) Suggest what object C could be and how it affected the time taken for block B to reach point X on the ramp. [1]

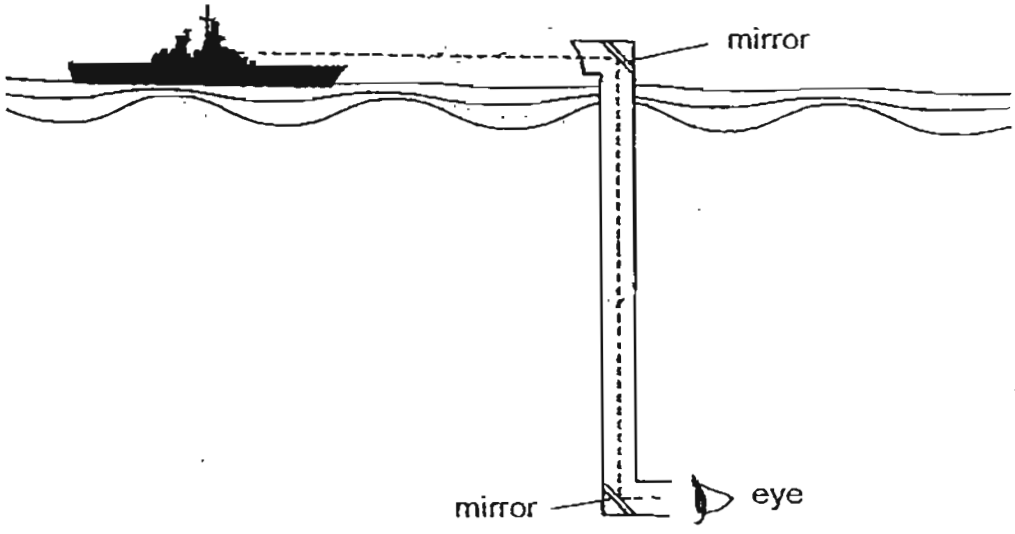
To be continued on the next page

(c) If Alex would like to further reduce the time block B took to reach point X on the ramp, suggest what could be done **WITHOUT** removing object C and changing the ramp.

Give a reason for your answer. [2]

suggestion	reason

42. The diagram below shows how a sailor in a submarine made use of a periscope to detect the presence of the enemy's vessel.



(a) In the diagram above, draw 3 arrowheads (➔) on the dotted lines to illustrate how the light ray enabled the sailor to see the enemy's vessel. [1]

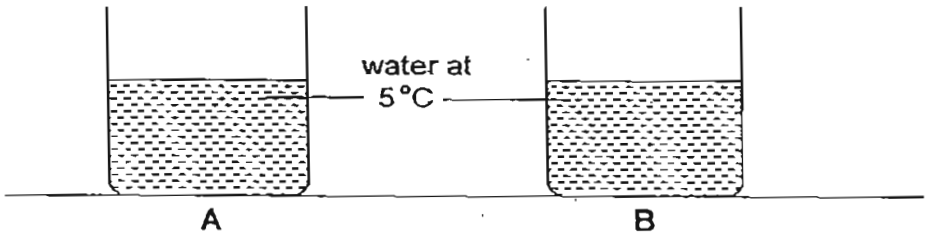
(b) Explain why the sailor was able to see the image of the enemy's vessel more clearly during the day than at night. [1]

(c) When two mirrors of the periscope were replaced with 2 pieces of thin clear glass, would the sailor be able to see the enemy's vessel clearly?

Give a reason for your answer. [1]

43. Containers A and B, each made of a different material, were filled with the same amount of water at 5°C at the same time.

Container A felt colder than B when touched and water vapour condensed on container A more quickly than on B.



Both containers were left in a classroom at 25°C. The temperature of the water in both containers was measured after every five minutes.

The table below shows the changes in the temperature of water in container B over a period of 20 minutes.

time / min	0	5	10	15	20
temperature of water / °C	5	8	11	14	18

(a) Predict the temperature of the water in container A at the 20th minute. Explain your answer. [2]

_____

_____

_____

(b) Which container, A or B, would be more suitable to use it as a lunchbox for keeping food warm?

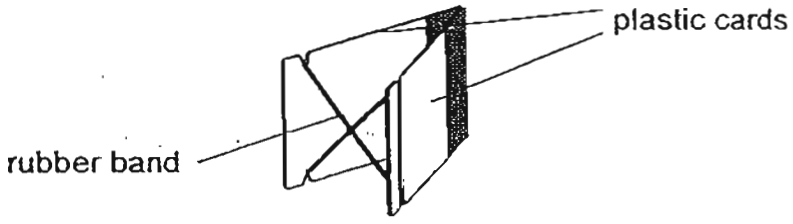
Explain your answer. [1]

_____

_____

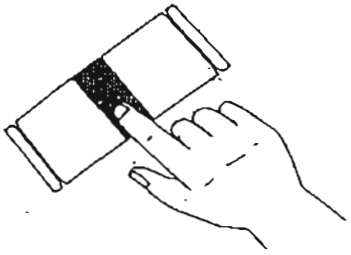
_____

44. Shannan made a jumping toy using two pieces of strong plastic cards and a rubber band as shown in the diagram below.



She wanted to find out how the number of rubber bands used to make the toy affects the height it jumps to.

Shannan stretched the rubber band and pressed it down before releasing the toy.



The toy snapped and jumped to a certain height which Shannan measured and recorded in the table below.

She repeated the activity by increasing the number of rubber bands used at one time.

number of rubber bands used	1	2	3	4
maximum height toy reached / cm	7	12	18	23

Based on the information above, answer the following questions:

(a) Why would Shannon use only the same plastic cards and same type of rubber bands ? [1]

_____

_____

_____

To be continued on the next page

continued from the previous page

(b) When the jumping toy reached the greatest height before falling back to the ground, what type of energy did it possess? [1]

_____

(c) What could Shannan conclude from her experiment? [1]

_____

_____

– END OF PAPER –

Setters: Miss Ho Hsien Lin, Mdm Thong Kar Fong, Mr Tan Siew Whatt

Answer Ke

EXAM PAPER 2011

SCHOOL : RAFFLES GIRL'S
SUBJECT : PRIMARY 6 SCIENCE

TERM : PRELIMINARY

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

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

31)a)The wooden plank is a decaying matter and organism Z feeds on it.
b)When the wooden plank is decomposed by organism Z, organism Z breaks it down into simple substances such as carbon dioxide, water and nutrients,carbon dioxide helps the fruit tree photosynthesize and the roots can absorb water and nutrients to grow healthily.

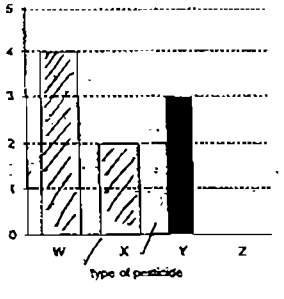
32)a)A: Germination D: Pollination and fertilization
b)Anther, stigma, ovules, ovary

33)a)By closing the stomata, it reduces the plant's water loss, thus keeping it cool.
b)Less carbon dioxide enters the plant for photosynthesis to take place./The plant receives less sunlight as the leaves have less exposed surface area.

34)a)A cell must have a nucleas for reproduction and a cell wall for a rigid shape, cell A does not have a nucleas or a cell wall.
b)No. cell C has nucleas, cell membrane and cell wall but the cell above does not have a cell wall.

35)a)Tessa should place a gauze, 5g moist food and the same number of organism P in another identical box.
b)Tessa must repeat the experiment at least 3 more times and take the average of all the results, using a new batch of similar 4 organism P at one time in another identical box.

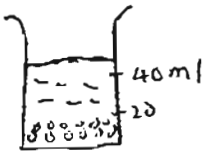
c)



36)a)Animal / It is juicy and fleshy, bright red when ripe and is edible, thus animals will be attracted to eat it.

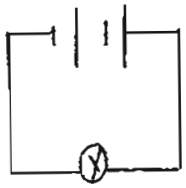
b)When fruit X is green to blend in with its surroundings, animals will not eat it as they will not spot it, fruit X is left to turn red then the animals will eat it, if it is eaten when it is fully developed, it increases its chance of survival.

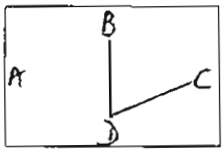
When the fruit is green, they are not fully developed. When the fruit id red, they are fully developed.

37)a)i) 

ii)Stone is a solid and does not take the shape of the container, when water is poured in, it occupies the space in the air spaces between the stones.

b)There is very little air spaces in clayey soil, thus water cannot occupy much space in them.

38)a) 

b) 

39)a)The magnetism is stronger, when the distance between the coiled rod and pins decrease thus more pins will be attracted to the coiled rod.

b)Rod R. The difference in the pins attracted in Q is 13 while the difference in the pins attracted in R is 72 thus the most number of pins dropped from R.

c)Material P is made of a nonmagnetic material, magnetism can pass through non-magnetic material but cannot pass through magnetic materials like Q and R.

40)a)A C D B E F

b)Heated nickel could not be attracted by magnet, nickel pies move back to position A due to gravitational force. Nickel piece cooled and was attracted to the magnet and moved back to position B.

c)No. Heating a magnet causes it to loss its magnetism, the heated magnet will only be able to attract the paper clip at a distance shorter than 10cm.

41)a)Gravitational force and frictional force.

b)Object C is a magnet. It attracted B, which is an iron block, towards it, when there is magnetic force pulling block B, it slide down the ramp faster.

c)Add lubricant on the ramp. / It can reduce friction between block B and the ramp thus allowing it to slide faster.

42)a) 

b)During the day, a greater intensity of light can reflect the mirror into the enemy's vessel into the sailor's eyes but there is lesser light during the night.

c)No. Glass does not reflect light but lets it pass through.

43)a)22℃. Container A is a better conductor of heat then B thus it can gain heat from the surroundings faster, so it reached a higher temperature than B at 20th minute and finally reached equilibrium with the room temperature.

b)Container B. It is a poorer conductor of heat thus heat passes through it slowly, the food will lose heat slower.

44)a)It is to ensure a fair test as the only changed variable is the number of rubber bands used.

b)Gravitational potential energy.

c)The more number of rubber bands used the greater the maximum height the toy reached.