

Name : _____ ()

Class : Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 6

Semestral Assessment 1 – 2013

SCIENCE

BOOKLET A

15 May 2013

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

30 questions

60 marks

Do not open this booklet until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

This paper consists of 21 printed pages.

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 (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Study the diagram given below.



Which of the following is/are not the function(s) of part X?

- A To make food for the plant
- B To provide shade for the plant
- C To control the amount of water in the plant
- D To allow for the intake of carbon dioxide during photosynthesis

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

2. The following statements describe what happens after the food we eat has travelled down the gullet into the stomach. They are not in the correct order.

- A Water is removed from the undigested food.
- B Nutrients from the digested food is absorbed.
- C Waste is stored in a muscular bag before discharge.
- D A large amount of digestion occurs but not completed.

Which one of the following shows the correct order?

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

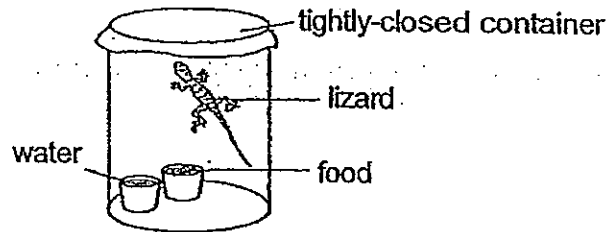
3. The table below shows the characteristics of 4 organisms A, B, C and D. A tick (✓) indicates that the organism has the characteristic.

Organism	Has fur / hair	Lives in water	Has 4 legs
A	✓	✓	
B		✓	
C	✓		✓
D			

Which one of the following statements about organisms A, B, C or D is incorrect?

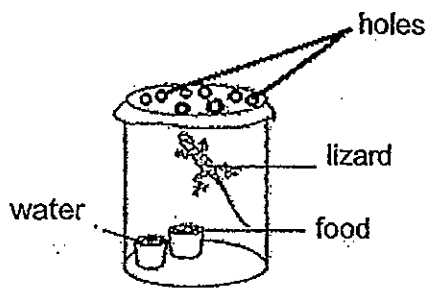
- (1) Organism B is possibly a fish.
- (2) Organism D is definitely not a bird.
- (3) Organism A is definitely a mammal.
- (4) Organism C is definitely not an insect.

4. Devi prepared the following set-up to show that living things need air to survive.

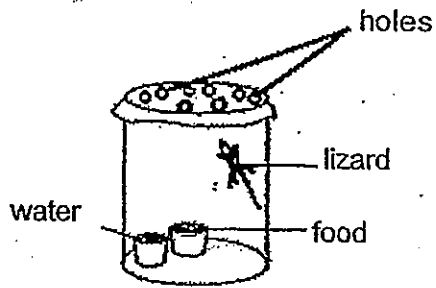


Which one of the following set-ups should Devi use as a control for the experiment?

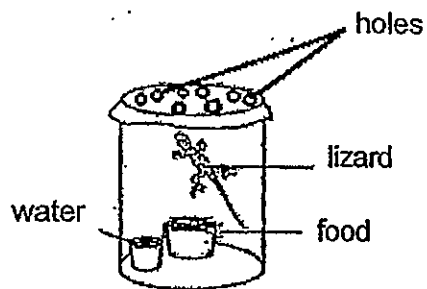
(1)



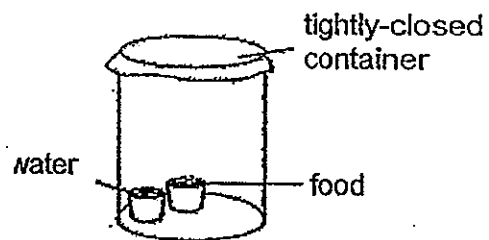
(2)



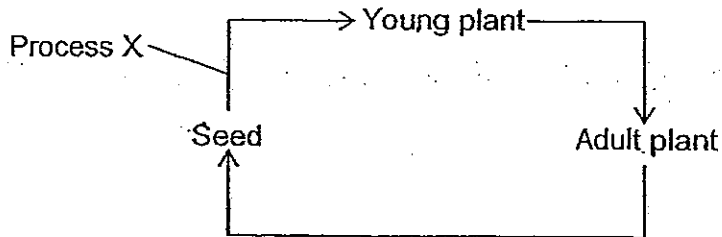
(3)



(4)



5. Study the life cycle of a flowering plant shown below carefully.

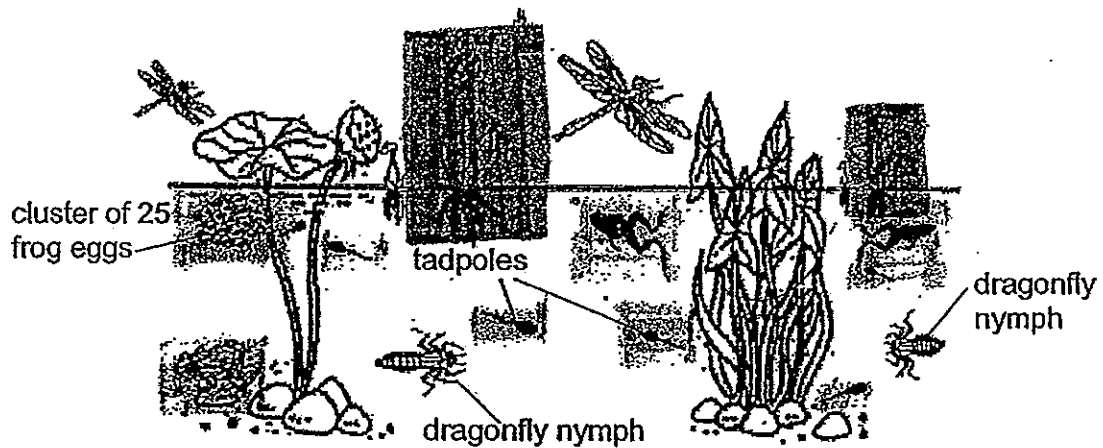


Which of the following conditions are necessary for process X to take place?

- A Air
- B Water
- C Warmth
- D Sunlight

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

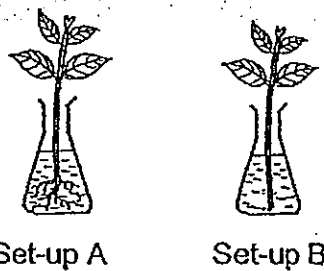
6. The diagram below shows a pond community.



How many populations are there in the community above?

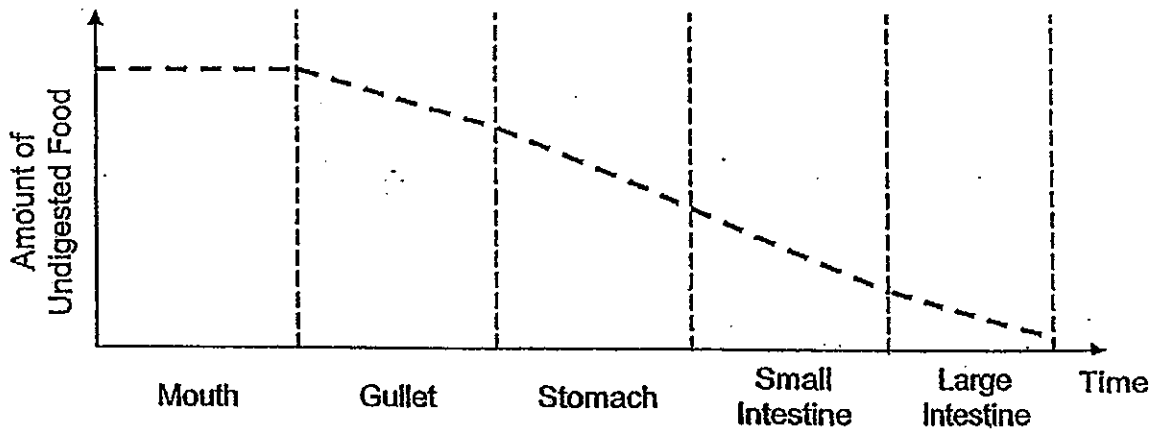
- (1) 4
- (2) 5
- (3) 12
- (4) 37

7. Sarah set up an experiment as shown below with two similar flasks of plants and an equal amount of coloured water in each flask. She then observed the colour of the leaves after a few hours.



Which of the following is/are possible aims of her experiment?

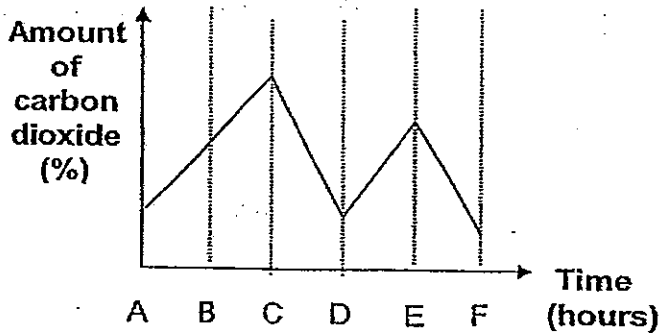
- A To find out whether plants can make food without water.
 - B To show that water can be absorbed by the stem of a plant.
 - C To find out how the roots of the plant affects the growth of plants.
 - D To find out if water can be transported to the leaves without the roots.
- (1) D only
 (2) B and D only
 (3) A, B and C only
 (4) A, B, C and D
8. The line graph below is drawn to represent the amount of undigested food in various parts of the human digestive system.



Which part(s) of the digestive system is/are wrongly represented above?

- (1) Gullet only
- (2) Mouth and Gullet Only
- (3) Stomach and Small Intestine only
- (4) Mouth, Gullet and Large Intestine only.

9. A pot of plant was placed in an enclosed glass jar. A light was shone on it at certain periods of time and switched off at other periods. The graph below records the amount of carbon dioxide in the glass jar over the duration of the experiment.



Which one of the following tables correctly shows whether the light is switched on or off over this time period?

(1)

Time period	Light is
A to B	switched on
B to C	switched on
C to D	switched off
D to E	switched on
E to F	switched off

(2)

Time period	Light is
A to B	switched off
B to C	switched off
C to D	switched on
D to E	switched off
E to F	switched on

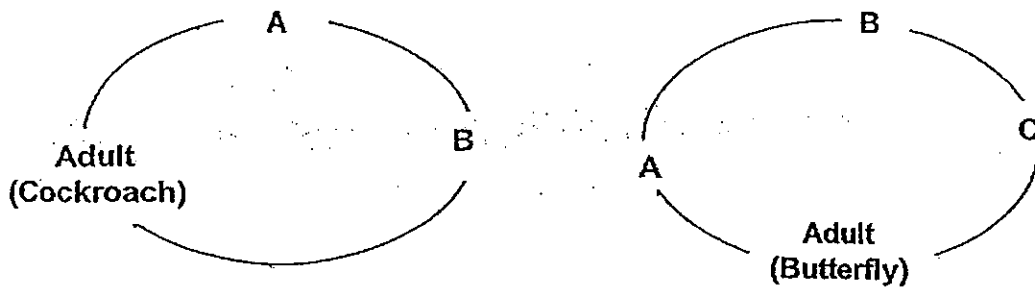
(3)

Time period	Light is
A to B	switched on
B to C	switched on
C to D	switched on
D to E	switched off
E to F	switched off

(4)

Time period	Light is
A to B	switched on
B to C	switched off
C to D	switched on
D to E	switched on
E to F	switched off

10. Study the life cycles below

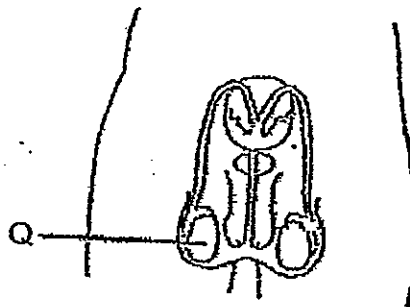


Which of the following statements about the 2 life cycles above is/are true?

- A Both adult animals can fly.
- B Stage B of both animals moult.
- C Stage A of both animals occur in water.
- D Stage B of both animals resemble their adult.

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

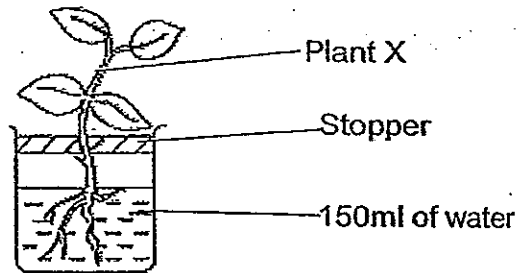
11. Study the diagram below.



Which one of the following parts of a flower performs a similar function to the part labelled 'Q' above?

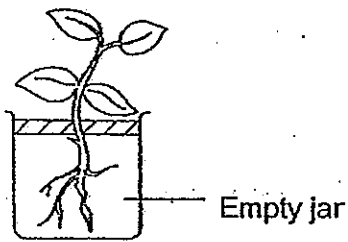
- (1) Ovary
- (2) Stigma
- (3) Anther
- (4) Pollen Tube

12. David wants to find out if water is lost by a plant through the leaves. He puts plant X into a container containing 150ml of water and a stopper as shown below.

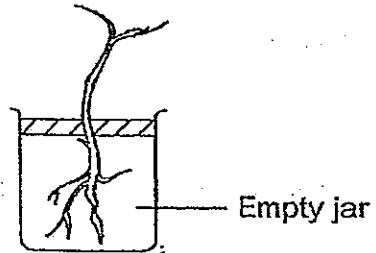


Which set-up should he compare it with in order to ensure that he conducts a fair test?

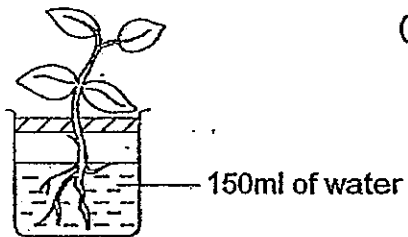
(1)



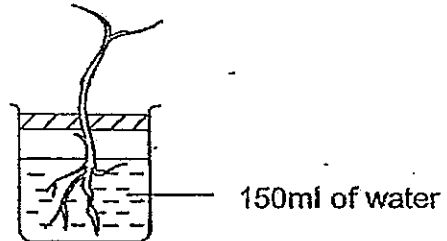
(2)



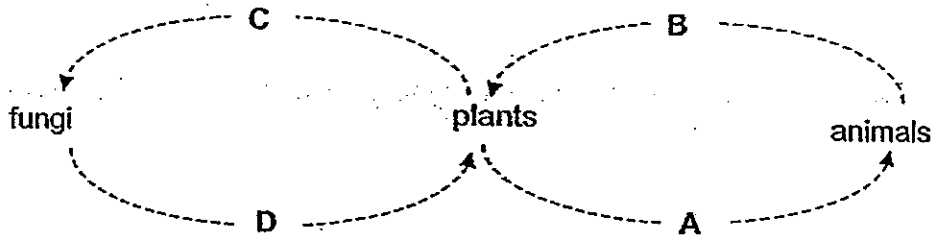
(3)



(4)



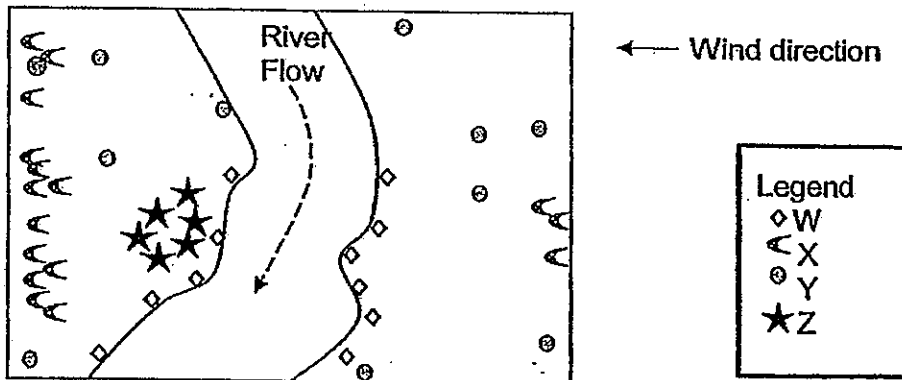
13. The diagram below shows the exchange of gases between plants, animals and fungi in the day.



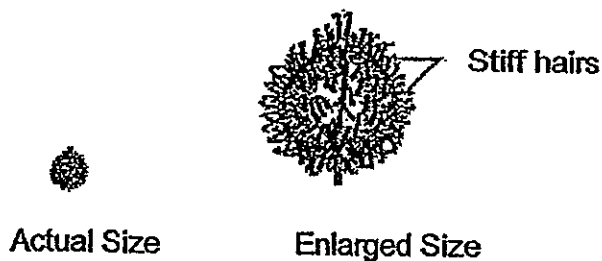
What do A, B, C and D represent?

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

14. The diagram below shows the patterns of fruit dispersal of four plants W, X, Y and Z. The wind blows mainly from the East.

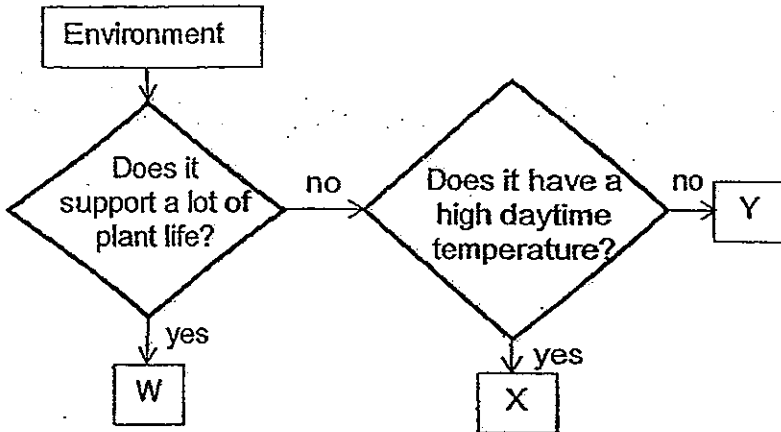


Based on the diagram above, from which plant would the fruit below most likely be taken?



- | | |
|-------|-------|
| (1) W | (2) X |
| (3) Y | (4) Z |

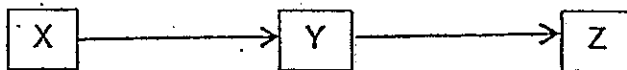
15. Study the chart below carefully.



What could W, X and Y represent?

	W	X	Y
(1)	Field	Jungle	Garden
(2)	Jungle	Desert	Arctic
(3)	Seashore	Pond	River
(4)	Rotting Log	Desert	Leaf Litter

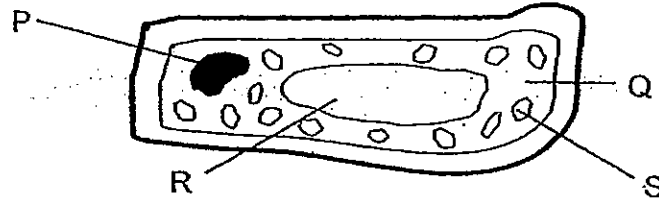
16. The food chain below can be found in a naturally occurring environment where organisms X, Y and Z can be found.



Based on the food chain above, which one of the following statements is incorrect?

- (1) X is not a food consumer.
- (2) When Y increases in number, both X and Z will get affected.
- (3) The population of organism Z is smaller than the population of organism X.
- (4) The amount of energy Z obtains from consuming one unit of Y is less than the amount of energy Y obtains from consuming one unit of X.

17. The diagram below shows a plant cell.



In which part of the cell P, Q, R or S can genetic materials of the plant be found?

- (1) P
- (2) Q
- (3) R
- (4) S

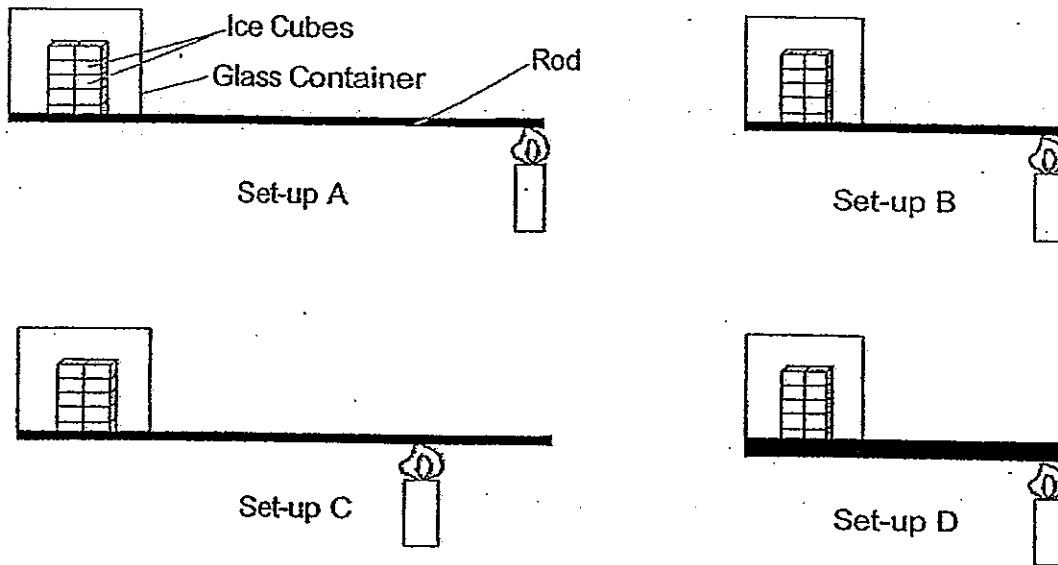
18. The table below records the observations when 4 pieces of materials were stretched with loads hung on them.

Material	Load hung (g)	Original length (cm)	New length (cm)
E	20	2	3
F	40	4	5
G	10	2	4
H	50	5	6

Which one of the materials above is the most elastic?

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

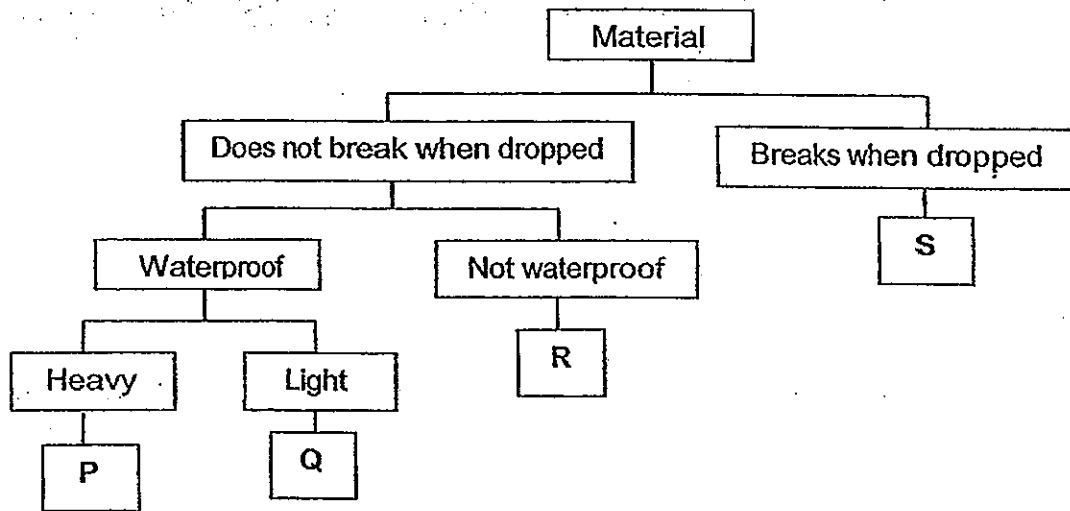
19. The diagram below shows 4 set-ups using rods of the same materials.



If you were to record the time taken for the ice cubes to melt completely, what can you use the set-ups to find out?

- A To find out how the length of a material affects its heat conductivity.
 - B To find out if the type of materials affects the rate of heat conductivity.
 - C To find out how the thickness of a material affects the heat conductivity.
 - D To find out how the distance between the ice and the heat source affects the time taken for it to melt.
- (1) A only
(2) A, B and C only
(3) A, C and D only
(4) B, C and D only

20. The classification chart below shows the properties of 4 different materials P, Q, R and S.

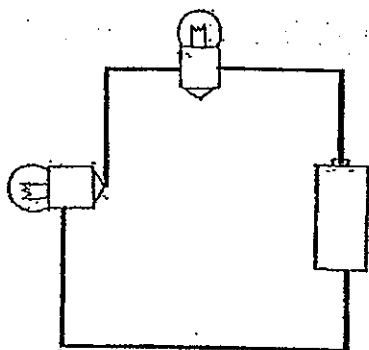


Which one of the following best represents materials P, Q, R and S respectively?

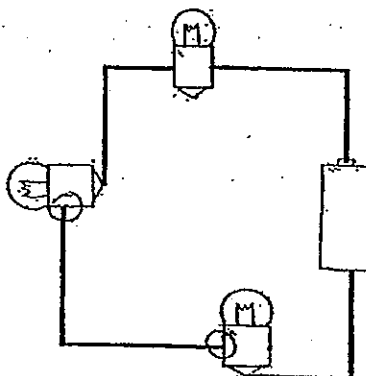
- (1) Iron, Silk, Leather, Plastic
- (2) Wood, Paper, Clay, Glass
- (3) Steel, Plastic, Wool, Porcelain
- (4) Rubber, Aluminum, Ceramic, Styrofoam

23. In which of the circuits below will only one bulb light up?

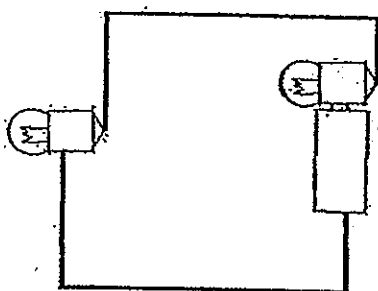
A



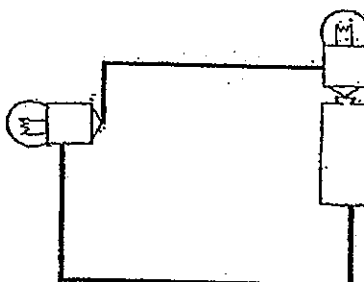
B



C

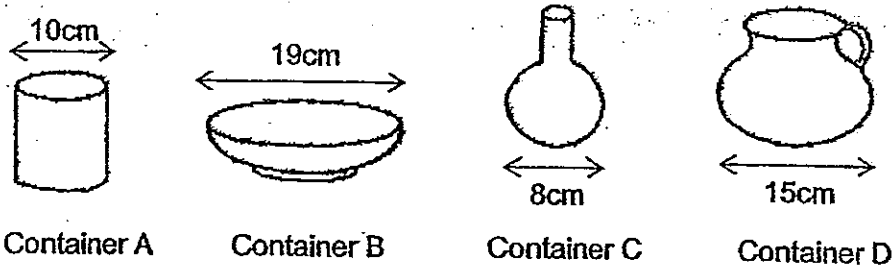


D

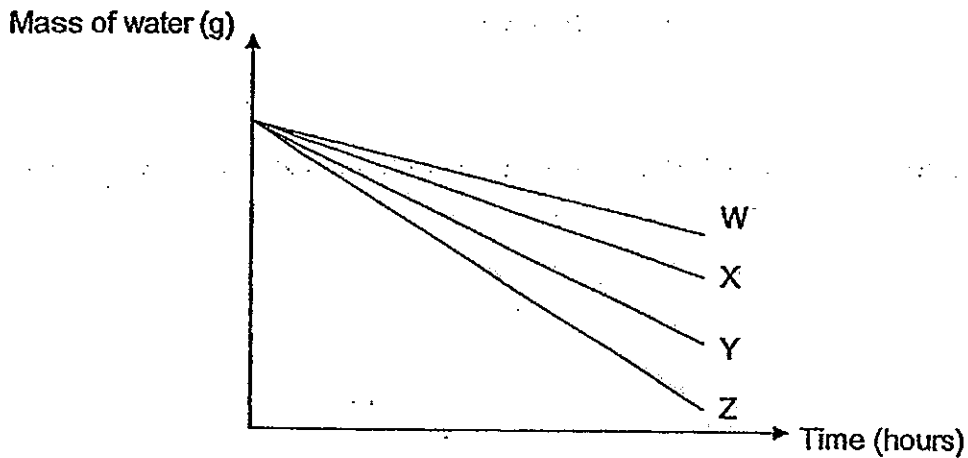


- (1) A only
- (2) A and B only
- (3) B and C only
- (4) C and D only

24. The diagram below shows 4 glass containers A, B, C and D of different shapes and sizes. The same amount of water was poured into each container. They were then left in the same room for a day.



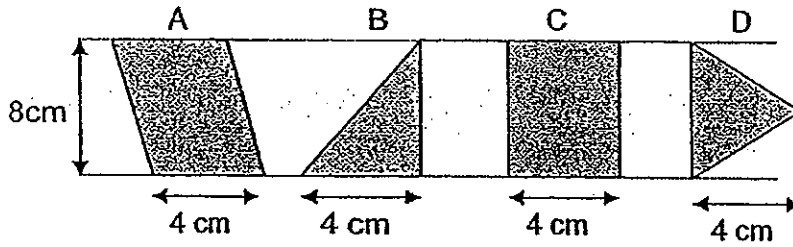
The amount of water left in each container was observed and the graphs were plotted as shown below.



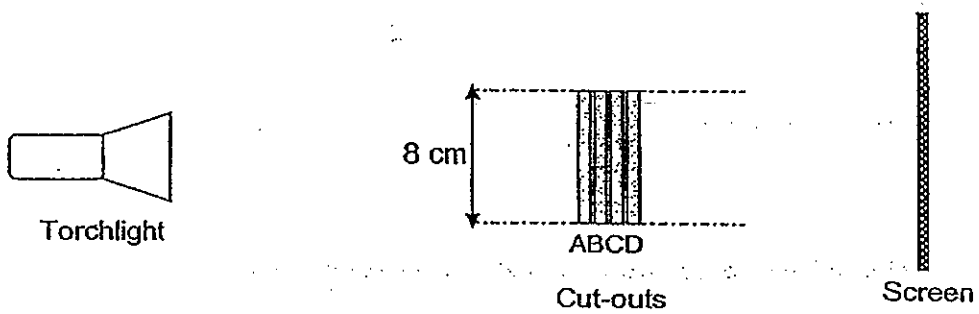
Which one of the above graphs W, X, Y and Z best matches the containers shown?

	Container A	Container B	Container C	Container D
(1)	X	Z	W	Y
(2)	Y	W	Z	X
(3)	Z	X	W	Y
(4)	X	Y	W	Z

25. Jimmy made 4 cut-outs A, B, C and D from different materials as shown below.



Jimmy then aligned all the cut-outs in a straight row as shown below, without changing their orientation.



The shadow formed on the screen was shown below.

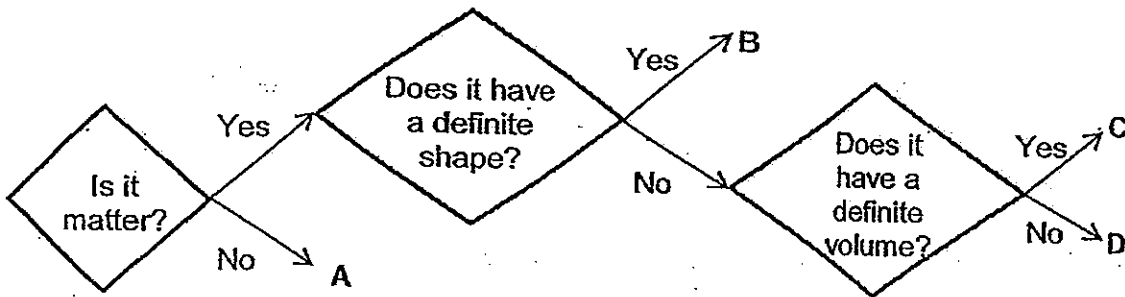


Based on the shadow formed on the screen, which 2 cut-outs were made from opaque materials?

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

26. The table below provides information about P, Q and R. A tick (✓) indicates the presence of the property.

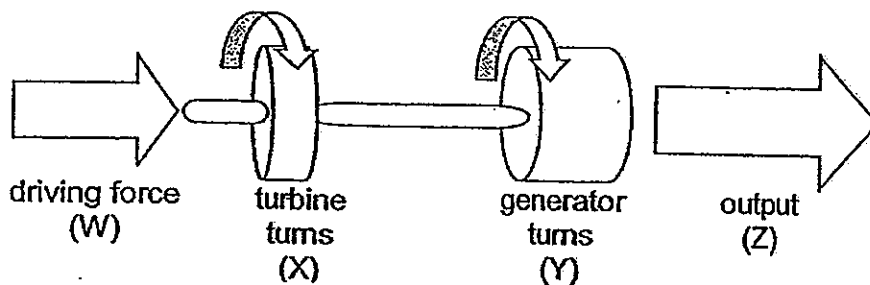
Property	P	Q	R
Occupies space	✓	✓	
Can be compressed		✓	
Takes the shape of the container it is in	✓	✓	



Using the flowchart above, which letter A, B, C or D would best represent P, Q and R respectively?

	P	Q	R
(1)	C	D	D
(2)	C	D	A
(3)	D	B	A
(4)	D	C	D

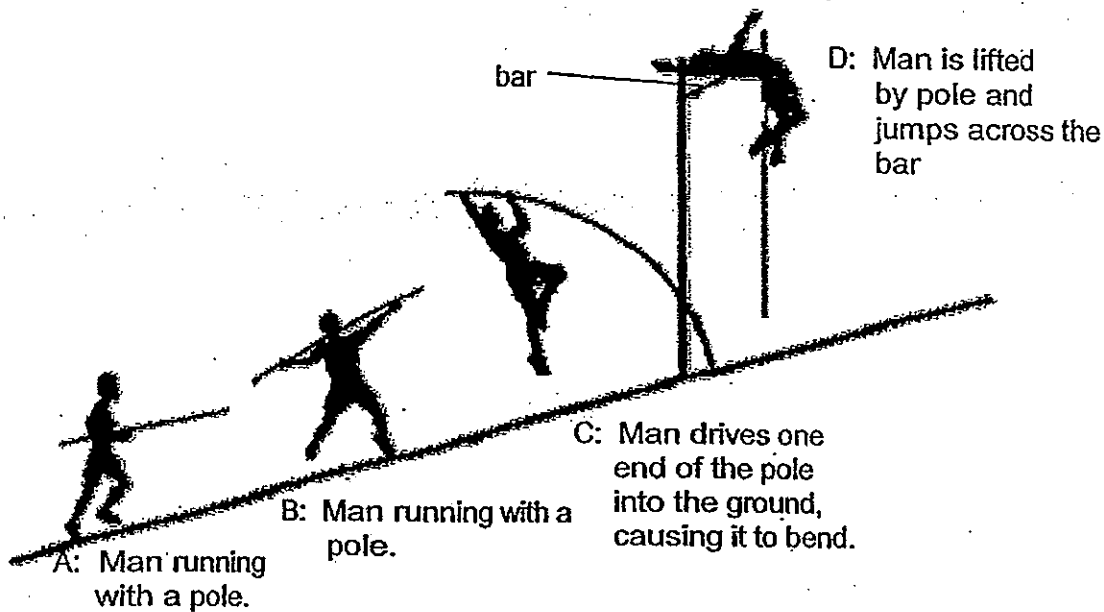
27. The diagram below shows the mechanism found in a power station.



Identify the forms of energy at stages W, X, Y and Z.

	W	X	Y	Z
(1)	Water energy	Movement Energy	Kinetic and Electrical Energy	Electrical and Heat Energy
(2)	Movement Energy	Chemical Potential Energy	Kinetic Energy	Electrical and Sound Energy
(3)	Heat Energy	Movement Energy	Heat and Electrical Energy	Heat and Sound Energy
(4)	Kinetic Energy	Kinetic Energy	Kinetic and Electrical Energy	Electrical Energy

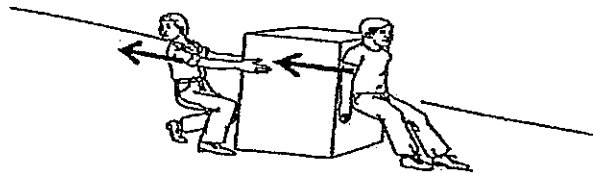
28. The illustrations below show the various stages of a pole vault jump.



Based on the above illustrations, which one of the following best represents the energy change from B to D?

- (1) Movement Energy \rightarrow Elastic Potential Energy \rightarrow Movement Energy
- (2) Chemical Potential Energy \rightarrow Kinetic Energy \rightarrow Elastic Potential Energy
- (3) Kinetic Energy \rightarrow Elastic Potential Energy \rightarrow Gravitational Potential Energy
- (4) Kinetic Energy \rightarrow Elastic Potential Energy \rightarrow Kinetic Energy + Gravitational Potential Energy

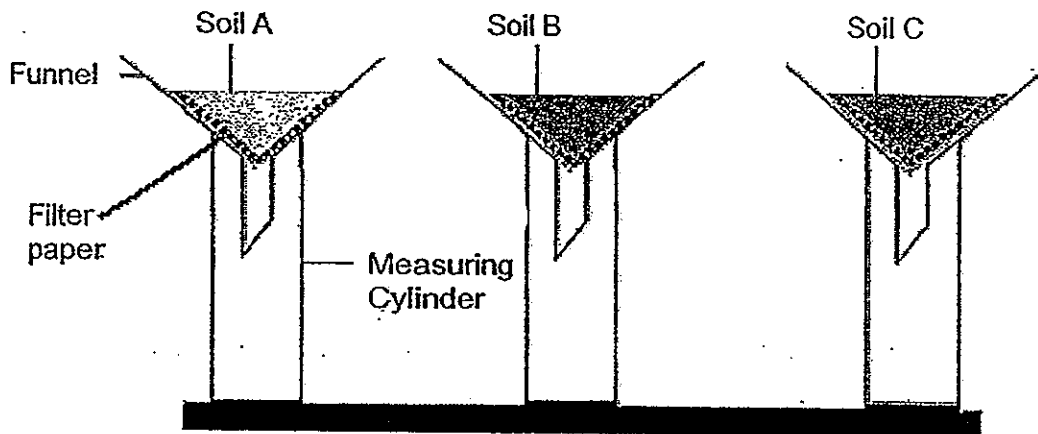
29. The diagram below shows two boys trying to move a box up a slope. The arrows show the direction of their forces.



Which of the following statements about the forces involved are correct?

- A Both boys are exerting a push force on the box.
 - B The angle of the slope will affect the amount of forces needed.
 - C The surface of the slope will affect the amount of forces needed.
 - D The force needed to move the box must be equal to the gravitational force acting on the box.
- (1) A and D only
 - (2) B and C only
 - (3) A, B and C only
 - (4) A, B, C and D

30. Mark collected three soil samples A, B and C, from different locations. He weighed equal amount of each type of soil and poured them into funnels lined with similar filter papers as shown below. He then poured equal amount of water into each funnel and left the set-ups to drain.



After 10 minutes, he removed each filter paper and all its content from the funnel and weighed them on a weighing scale. The mass of each filter paper and its content are recorded in the table below.

	Soil A	Soil B	Soil C
Mass of filter paper and content (g)	50	70	90

If the soil tested are of different types, what could soil A, B and C be based on the results of the experiment?

	A	B	C
(1)	sandy	garden	clayey
(2)	garden	clayey	sandy
(3)	garden	sandy	clayey
(4)	sandy	clayey	garden

End of Booklet A



Name : _____ ()

Class : Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 6
Semestral Assessment 1 – 2013
SCIENCE
BOOKLET B
15 May 2013

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

14 questions
40 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

This paper consists of 15 printed pages.

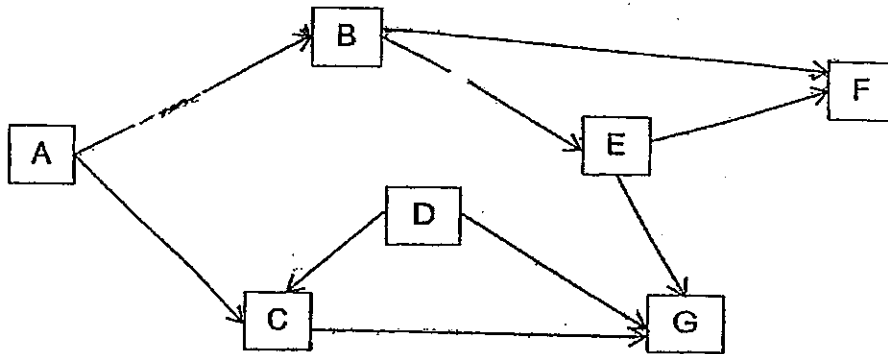
Booklet A	60
Booklet B	40
Total	100

Parent's Signature/Date

Section B (40 marks)

For questions 31 - 44, write your answers in this booklet. The number of marks available is shown in brackets [] at the end of each question or part question.

31. Study the food web below carefully.

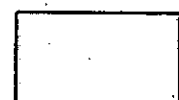


(a) In the food web above, identify the herbivores and carnivores. [2]

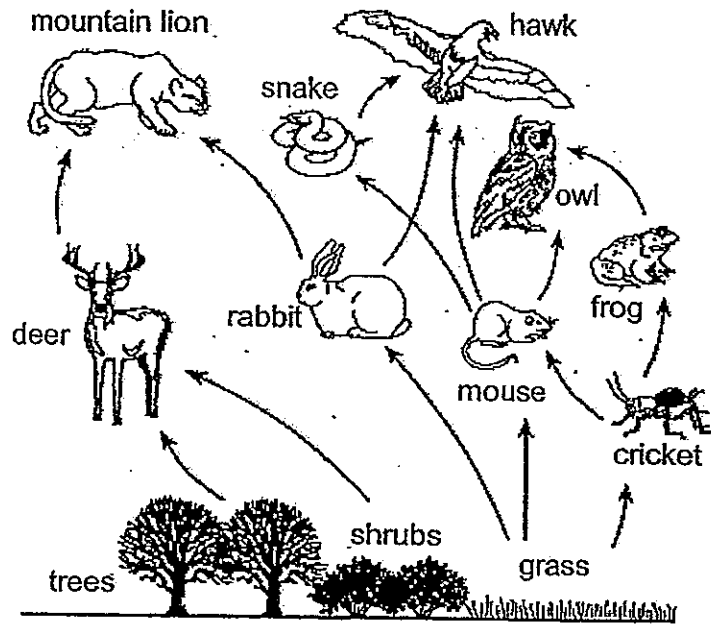
Herbivores: _____

Carnivores: _____

(b) How many food chains are there in this food web? [1]



32. The diagram below shows a food web.



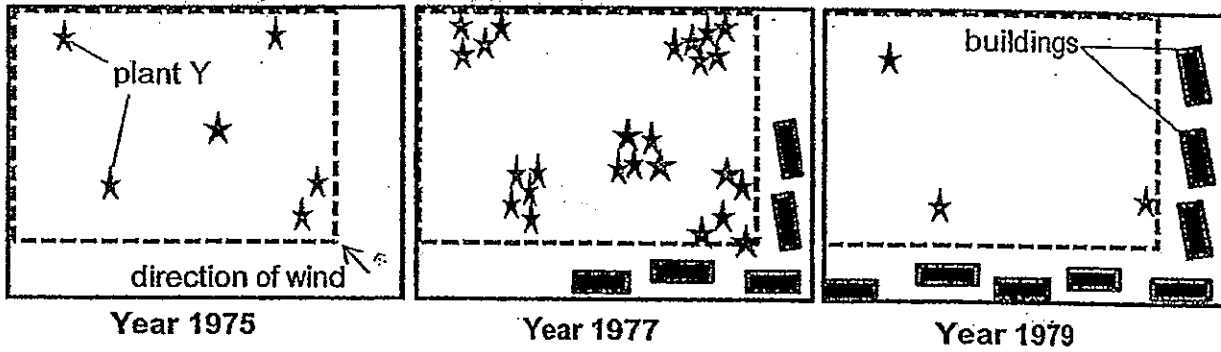
(a) Based on the above food web, list two similarities between the hawk and owl in terms of their diet. [1]

(b) Based on the food web, what will happen to the population of the mountain lion when there is a period of drought in this environment? [½]

(c) Explain your answer in (b). [1½]



33. The maps below show the number of plant Y found on a piece of protected land (marked with the dotted lines) over a period of time. From 1977 to 1979, there were many buildings constructed around the edges of this plot. No activities or construction was allowed on the protected land at all. Study the maps carefully and answer the questions below.



(a) Based on the above maps, if the fruits of plant Y are dispersed by wind only, explain how its dispersal appeared the way it was as shown in 1977. [1]

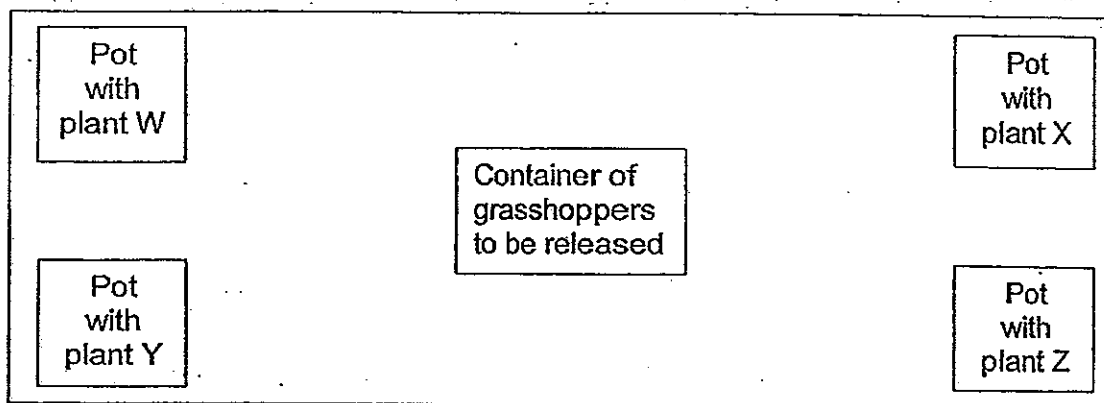
(b) Between 1977 and 1979, how did the population of Y change? [½]

(c) Explain your answer in (b) based on the method of dispersal for plant Y. [1½]



34. John noticed many grasshoppers in his garden. He hypothesized that plant X in his garden was attracting all the grasshoppers. He set up an experiment to investigate this.

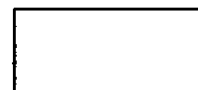
In an empty room, John took 4 pots of plants W, X, Y and Z from his garden and placed them in each corner. In the middle of the room, he released a container of grasshoppers. He left the room and returned 1 minute later to make his observation.



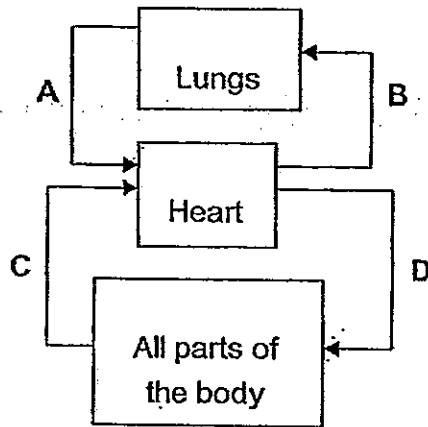
(a) What was John observing in this experiment? [½]

(b) After he had made his observation, John concluded that none of the plants was attracting the grasshoppers. Do you agree with his findings? Why? [1]

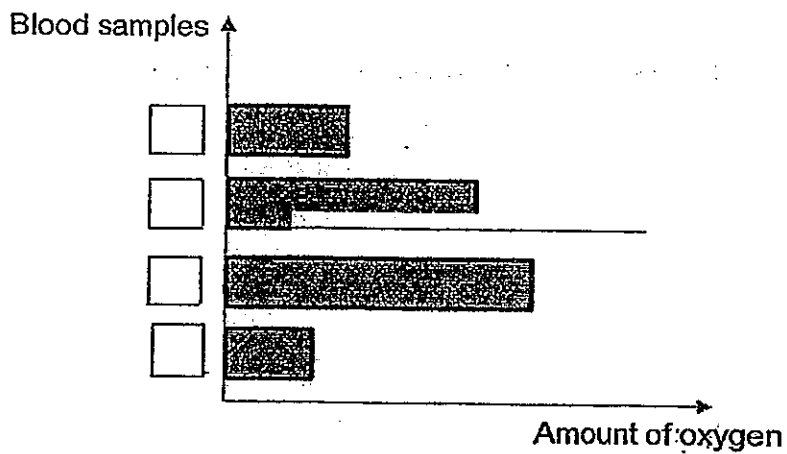
(c) Name one other variable to do with the plants that must be kept constant so that the test is a fair one. Explain your answer. [1½]



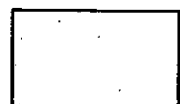
35. The diagram below shows the flow of blood in our circulatory system.



Blood samples are taken from A, B, C and D and the amount of oxygen present in each sample is recorded in the graph shown below.



- (a) In the graph above, label the blood samples by writing the letters A, B, C or D in the boxes provided. [2]
- (b) Besides gases, name two other things our blood transports in the body. [1]



36. Sally was given three bar magnets A, B and C. She wanted to investigate which magnet had the greatest magnetism. She carried out her experiment as follows.

1. Place a paperclip at one end of a ruler.
2. Place magnet A at the opposite end.
3. Slide magnet A slowly towards the paper clip until the paper clip is attracted.
4. Stop and record the distance between the magnet and the original position of the paper clip.
5. Repeat steps 1 to 4 using magnet B and then C.

(a) What is the relationship between the distance recorded and the magnetic strength of the magnets? [½]

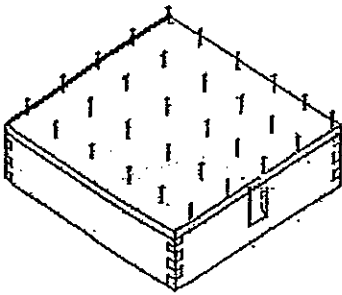
(b) If you were given the same bar magnets and a box of paper clips only, how would you find out which magnet is the strongest. In the space below, record the steps you would take for your investigation. [2]

1. Put the box of paper clips on the table.
2. Place magnet A _____
3. Remove _____
4. Record the _____
5. Put all the clips _____
6. Repeat steps 1 to 4 using magnet B and then C.

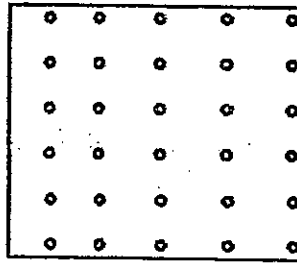
(c) Based on the experiment, how do you find out which is the strongest magnet? [½]



37. The diagrams below show a board full of nails viewed from an angle as well as from the top.



Angled view



Top view

With the board, similar rubber bands were then stretched over the nails to form various shapes as shown below.

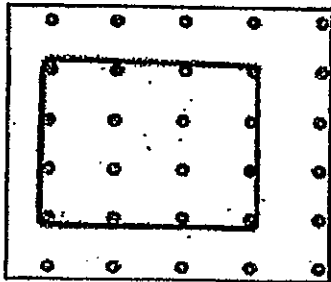


Figure X

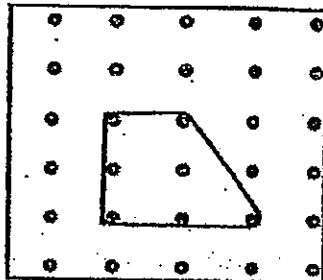


Figure Y

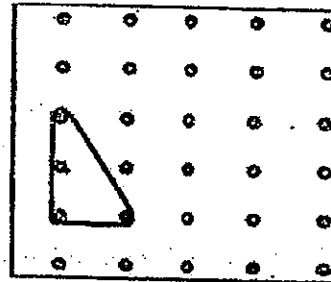


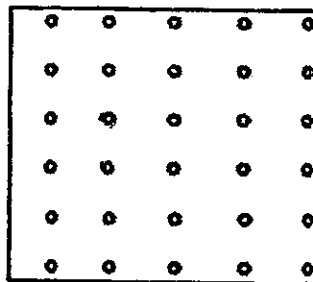
Figure Z

(a) What kind of force (push, pull or both push and pull) are the rubber bands exerting on the nails involved? [½]

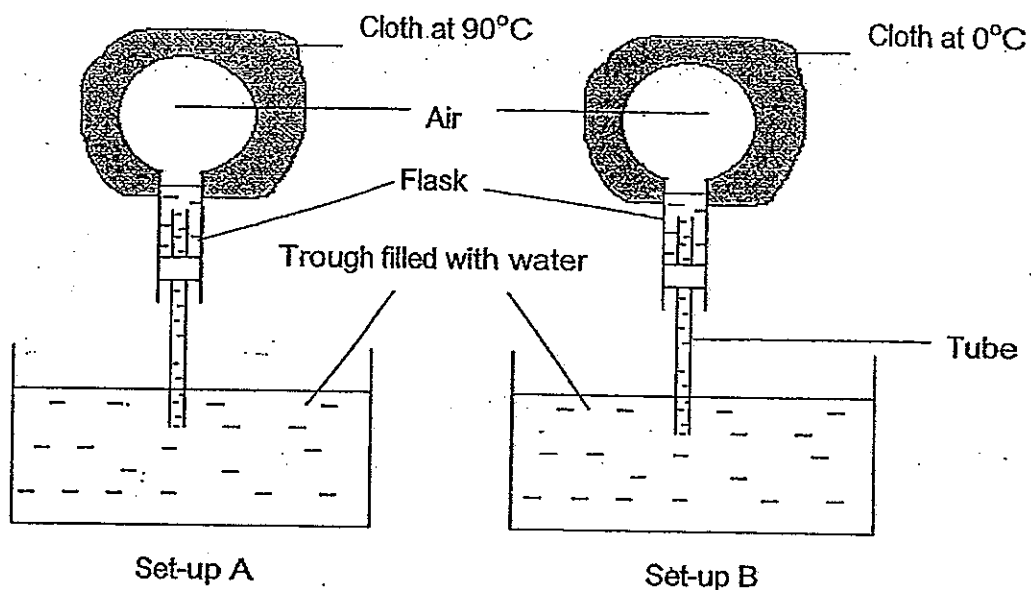
(b) Which figure above would require the greatest amount of force to create? [½]

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

(d) On the board below, draw lines stretching over the nails to show the figure you would create with a rubber band that would require the least force as compared to X, Y and Z. [1]



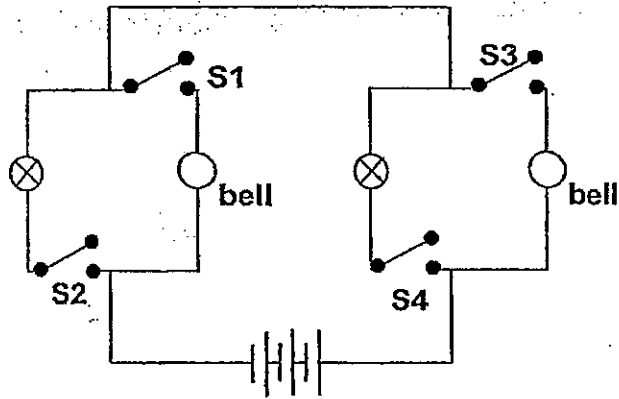
38. Two flasks containing some water were inverted into a trough of water and two pieces of cloth, of different temperatures, were wrapped around them as shown below. Observations were made of both set-ups at regular intervals.



- (a) After a while, it was observed that the water levels in both troughs had changed. How did the water levels in the troughs change? [1]
-
- (b) Explain your observation for set-up A. [1½]
-
- (c) Based on your answer in (b), identify the property of matter that is demonstrated. [½]
-

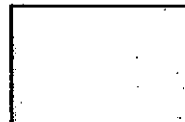


39. The diagram below shows a simple circuit. As the switches are opened and closed in various combinations, the number of light bulbs lighting up and the bells ringing will change accordingly.

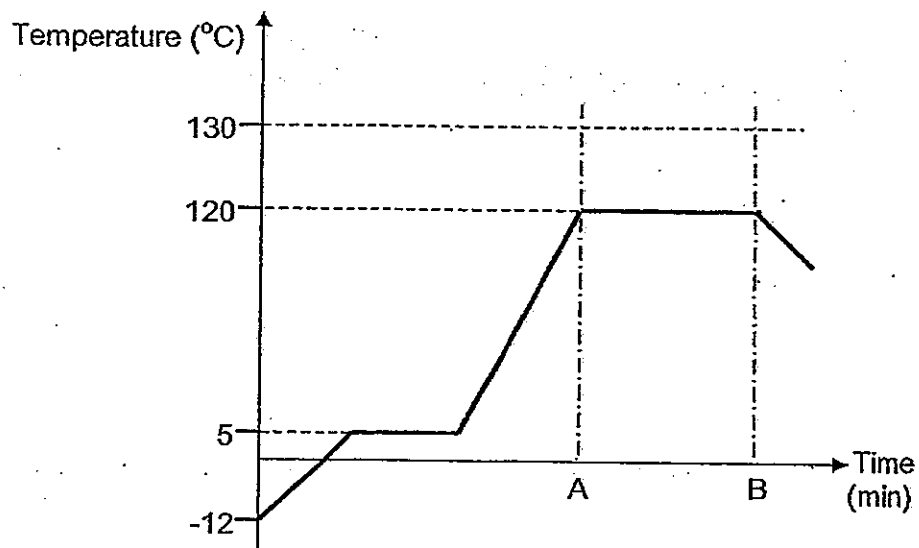


For each of the switches combination shown in the table below, put a tick (✓) to indicate the number of light bulbs that will light up and the bells that will be ringing. The first one has been done for you. [2]

S1	S2	S3	S4	0 bulb lighted	1 bulb lighted	2 bulbs lighted	0 bell rang	1 bell rang	2 bells rang
open	open	open	open	✓			✓		
open	closed	open	closed						
closed	open	open	closed						
closed	closed	open	open						
closed	closed	closed	closed						



40. A substance was heated consistently over a period of time and its temperature recorded in the graph below.

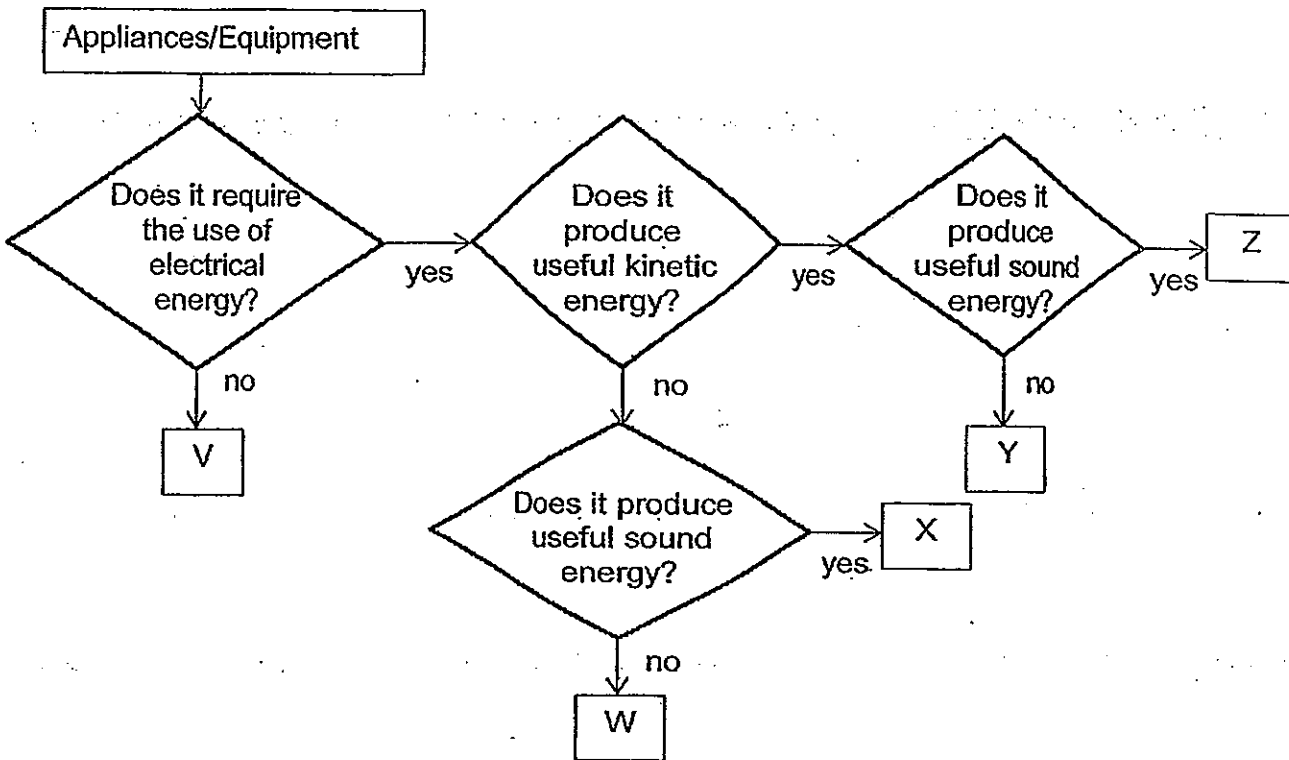


- (a) Based on the graph above, what is the melting point of the substance? [1]

- (b) Between time period A and B, what changes in state can be observed of the substance? [1]



41. Study the flowchart below.



(a) Based on the graph above, what do W and Y have in common? [1]

(b) In the chart above, which letter best represents the ceiling fan and the mechanical pencil? [1]

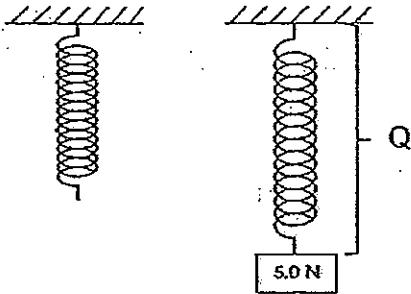
Ceiling Fan : _____

Mechanical Pencil: _____

(c) Based on the flowchart above, write down the energy conversion for ceiling fan in the space below. [1]

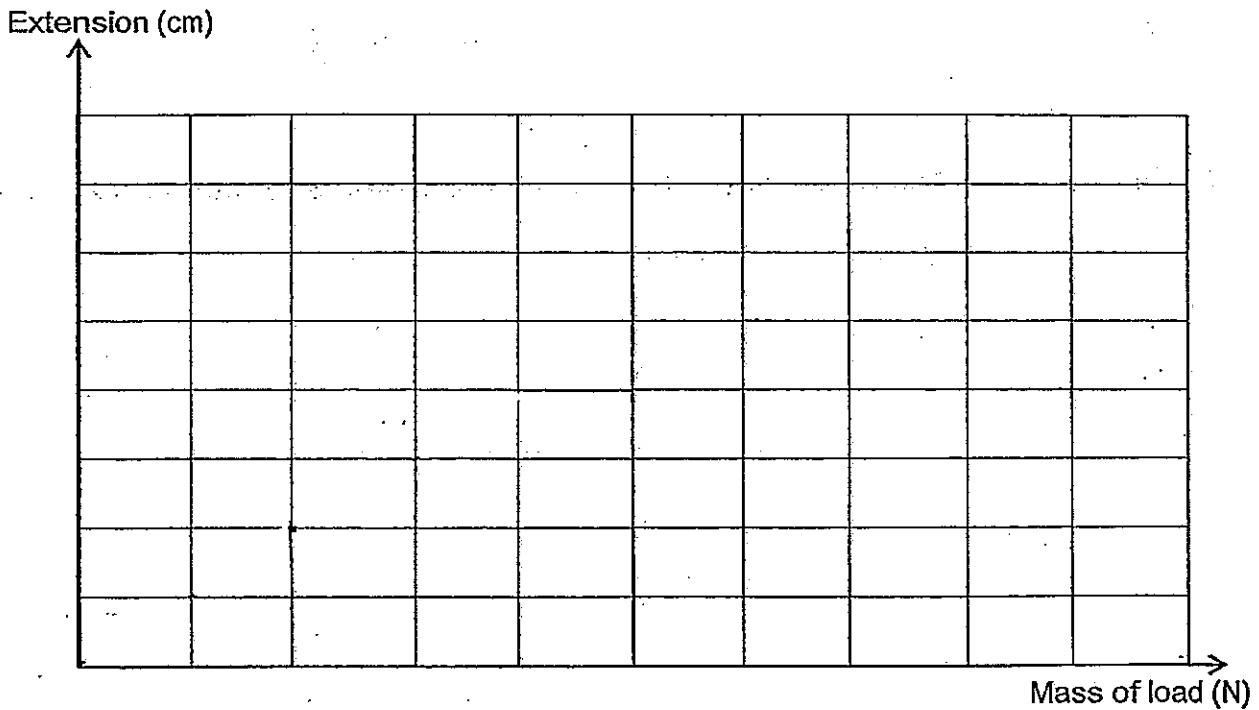


42. A piece of spring was hung and a load is added onto it. The length of the spring (Q) is recorded in the table below.



Mass of load (N)	Q (cm)
5	8
10	10
15	12
20	14
25	14

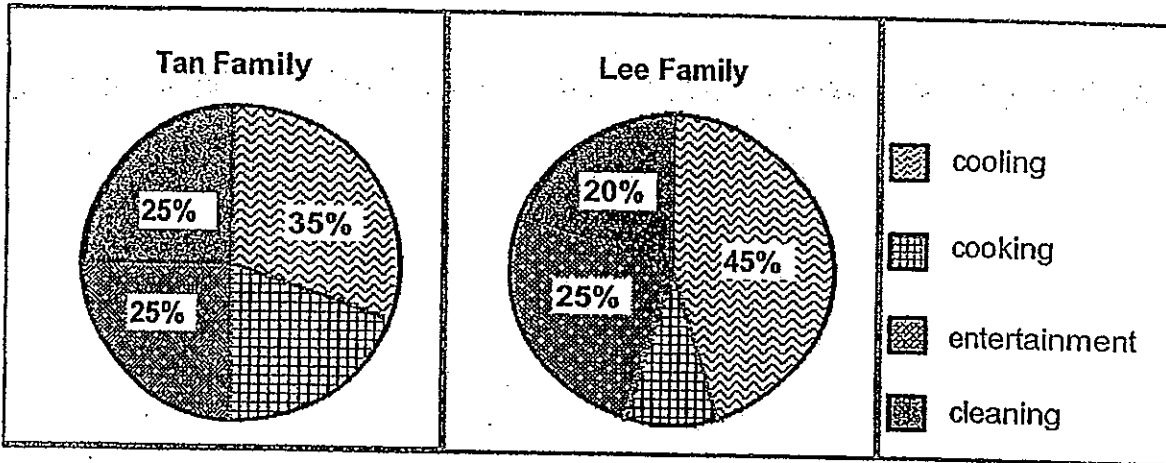
(a) In the space provided below, draw the extension graph for the spring. [2]



(b) What is the relationship between the mass of load hung and the extension of the spring? [2]

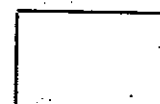


43. The charts below compare 4 main areas of household electricity consumption of two families.

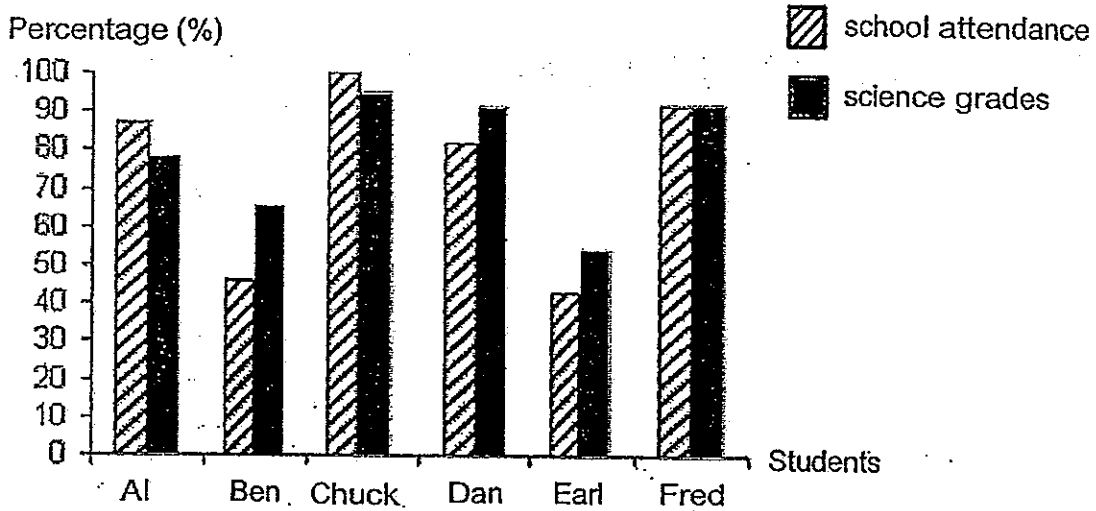


Based on the charts above, put a tick (✓) in the respective boxes to indicate if the statement is "True", "False" or "NP: Not Possible to Tell". [2]

Statements	True	False	NP
The amount of electricity the Lee Family consumes for cooling is more than that consumed by the Tan Family.			
The proportion of total household electricity consumption for entertainment is the same for both families.			
The Tan Family is larger as they do a lot more cooking.			
Less than half of the Lee Family's electricity consumption is for cleaning, entertainment and cooling.			



44. A simple study was conducted on a class of students over a period of time to find out how the attendance of a student affects his Science grades. The results of the study are recorded in the table below.



(a) Based on the data collected, who are the top 2 boys and bottom 2 boys in terms of attendance? [½]

Top 2 in attendance: _____

Bottom 2 in attendance: _____

(b) Based on the data collected, who are the top 2 boys and bottom 2 boys in terms of Science grades. [½]

Top 2 in grades: _____

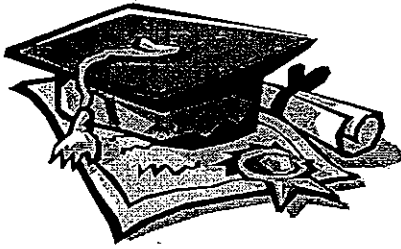
Bottom 2 in grades: _____

(c) Based on the data collected, what can you conclude from the study? Explain. [2]

End of Paper







ANSWER SHEET

EXAM PAPER 2013

SCHOOL : CHIJ

SUBJECT : PRIMARY 6 SCIENCE

TERM : SA1

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

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

31)a)Herbivores : B
Carnivores : E, F

b)6

32)a)They both eat mice, and get their energy indirectly from the grass.

b)It will decrease.

c)The drought cause a decrease in population of the trees, shrubs and grass, which will then result in a decrease in population of the deer and rabbit due to lack of food and in turn there will be lesser food for the mountain, and its birth rare will be lower than the death rate, resulting in a decrease in the population of the mountain lion.

33)a)The buildings block the wind and hence, there will be no would to disperse the seeds, forcing the seeds to fall and germinate near the parent plant.

b)It decreased.

c)The buildings had surrounded the land, not allowing any wind to enter and disperse the seeds, thus more seeds had fallen and germinated near the parent plant. After a period of time, overcrowding occurred, and there was no enough nutrients for all plants, causing decrease in the population of Y.

34)a)The number of grasshoppers attracted to each plant.

b)No, as he had only waited for 1 minute before checking the experiment, thus there might not be enough time for the grasshopper to move to a plant before John made his observation.

c)Size of plant. A bigger plant may attract more grasshoppers.

35)a)C D A B

b)Blood also transports digested food and waste.

36)a)The further the distance or which paperclip is attracted, the stronger the magnet.

b)2) Into the box of paperclips.

3) the magnet.

4) number of paperclips attracted.

5) back in the box.

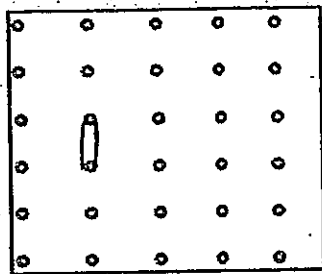
c)The magnet that attracts the most paperclips in the strongest.

37)a)Pull

b)X.

c)X is the biggest so the rubber band is stretched the most.

d)



38)a)The water level in A lose while the water level in B decreased.

b)The air in A gained near and expanded hence water in the flask was pushed down into the trough and replaced by air.

c)Matter expands when heated.

39)

S1	S2	S3	S4	0 bulb lighted	1 bulb lighted	2 bulbs lighted	0 bell rang	1 bell rang	2 bells rang
open	open	open	open	✓			✓		
open	closed	open	closed			✓	✓		
closed	open	open	closed		✓			✓	
closed	closed	open	open	✓			✓		
closed	closed	closed	closed			✓			✓

40)a)5°C

b)Liquid to gas.

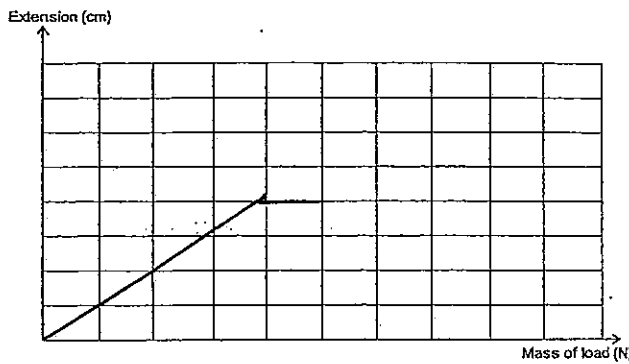
41)a)They both require use of electrical energy and does nor produce useful sound energy.

b)Y

V

c)Electrical energy→Kinetic energy→Sound energy

42)a)



b)The greater the mass of the load hung, the greater the extension of the spring until it reaches 20w. After which the extension of the spring remains constant as the mass of the load increases.

43)NP

True

Np

False

44)a)Chuck, Fred

Ben, Earl

b)The higher the attendance, the higher the grades the top 2 in attendance is also the top 2 in grades while the bottom 2 in attendance are the bottom 2 in grades.

