METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2013
PRIMARY 6
SCIENCE

BOOKLET A1

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

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 6._____

Date: 28 August 2013

This booklet consists of 8 printed pages including this page.

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. [30 marks]

---

1 Which of these stimuli will the roots of a plant respond to?

A: Sunlight
B: Water
C: Gravity
D: Touch

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

2 The table below shows some of the features that the Chan family has.

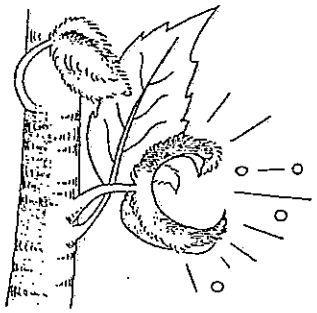
	Eyes	Ears	Hair	Nails
Mr Chan	Black	Detached	Straight	Short
Mrs Chan	Brown	Detached	Curly	Short
Erin	Brown	Detached	Straight	Long
Fay	Brown	Attached	Straight	Short
Gina	Black	Detached	Straight	Short
Harry	Brown	Detached	Curly	Short

One of the four children is adopted. Who is most likely to be the adopted child?

(1) Erin
(2) Fay
(3) Gina
(4) Harry

(Go on to the next page)

3 The diagram shows the dispersal of the seeds of a balsam plant.



What will happen if the balsam plant does not disperse its seeds further away?

A: The balsam plant will die.
B: Young balsam plants will grow near each other.
C: Young balsam plants will compete with each other.
D: Young balsam plants will grow bigger than the parent balsam plant.

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

4 The table below shows the stages of development of a fertilized human egg.

Period	Stages
End of 1st week	Fertilized egg implants itself in the womb
End of 4th week	Brain, Spinal cord and nervous system are formed
End of 8th week	Face and limbs are visible
Around 12th week	Foetus starts to move
End of 16th week	Entire body is formed
End of 28th week	Head and body are proportionate
End of 38th week	Foetus is ready to be born

From the table above, when is the earliest time the parents are able to find out the gender of their baby?

(1) After 1st week
(2) After 8th week
(3) After 16th week
(4) After 38th week

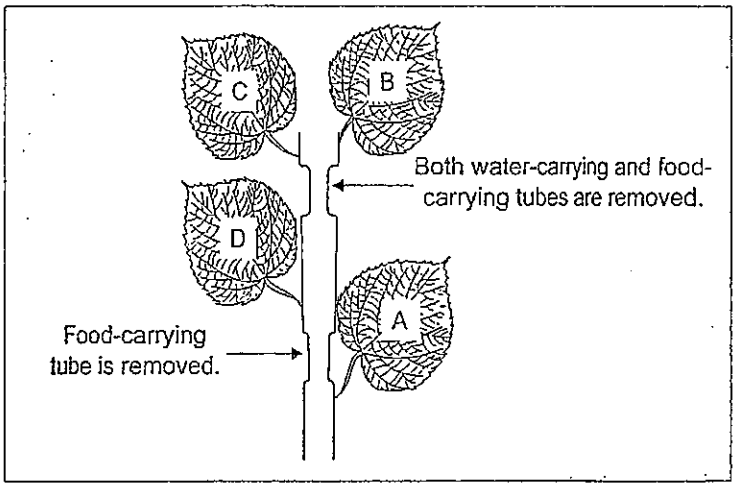
(Go on to the next page)

5 The diagram below shows three organisms.

Which of the following characteristics are common to all the three organisms?

	Parent look like their young	4-stage life cycle	Lay eggs	Same habitat
(1)	Yes	Yes	No	No
(2)	No	Yes	Yes	No
(3)	Yes	No	No	Yes
(4)	No	No	Yes	Yes

6 In the picture below, different thickness of the stem are cut and removed as shown.

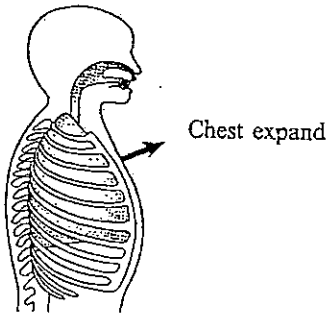


Identify the leaves which are still able to make their own food.

(1) A only
(2) A and D only
(3) B and C only
(4) None of them

(Go on to the next page)

7 The diagram below shows the chest movement during breathing.

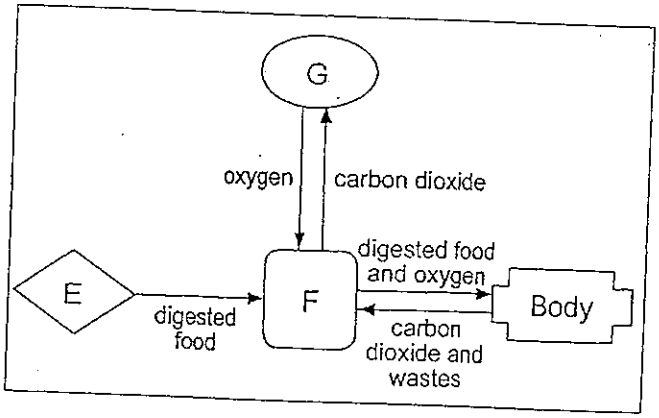


Which of the following statements are true about the given diagram?

A: Shows exhalation process
B: Shows inhalation process
C: Diaphragm moves upwards
D: Diaphragm moves downwards

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

8 The diagram below shows the different systems in the human body working together. Study it carefully and answer questions 8 and 9.



Based on the diagram above, what are systems E, F and G?

	Systems		
	E	F	G
(1)	Circulatory	Digestive	Respiratory
(2)	Digestive	Circulatory	Respiratory
(3)	Digestive	Respiratory	Circulatory
(4)	Respiratory	Circulatory	Digestive

(Go on to the next page)

9 What is the relationship between systems E and F?

(1) System E helps to break the food down into simpler substances in order for system F to absorb and transport it to the rest of the body

(2) System F transports the food to System E to break it down into simpler substances

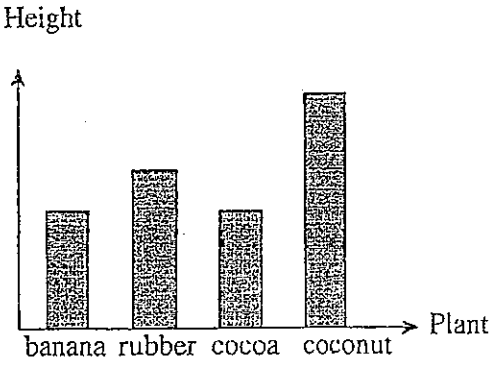
(3) System E breaks down the food into smaller pieces to let System F digest it completely

(4) System F produces digestive juices for System E to carry out digestion

10 Which one of the following cells can be seen without using a microscope?

(1) Chicken egg
(2) Hair
(3) Pollen grain
(4) Skin

11 The diagram below shows the average height of four types of plants.



Based on the bar chart, which pair of plants are best planted together to avoid competition for light?

(1) Cocoa and banana
(2) Coconut and cocoa
(3) Rubber and banana
(4) Coconut and rubber

(Go on to the next page)

12 The following information shows the interdependence of several animals.

- The grasshoppers eat grass
- The grasshoppers are eaten by frogs and chickens
- The chickens and frogs are eaten by snakes

Which animals compete for food?

A: Chickens and snakes
B: Frogs and Chickens
C: Snakes and grasshoppers

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

13 Haikal wants to plant a tree in an area which is exposed to sunlight but has a limited water source. What is the characteristic of a tree that is **not** suitable to be planted in this area?

(1) Long roots
(2) Many leaves
(3) Small sized leaves
(4) Stem that can store water

14 A lot of paddy plants are destroyed when attacked by the rats before harvesting season. J, K, L and M represent the consequences of the situation.

J	-	Humans get less food
K	-	Paddy plants are destroyed
L	-	Meat-eater animals die
M	-	Plant-eater animals die

Based on the food chain, rearrange the consequences in the correct order.

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

(Go on to the next page)

15 Mary wanted to find out if overcrowding is a factor which would affect the fishes living in an aquarium. The fishes were placed in four similar tanks W, X, Y and Z.

Tank	Amount of water(cm^3)	Number of fish	Type of fish
W	500	20	swordtail
X	5000	10	goldfish
Y	5000	20	goldfish
Z	10000	20	swordtail

Which of the following tanks W, X, Y and Z are possible combinations that she should use to carry out a fair experiment?

A: W and Y
B: W and Z
C: X and Y
D: X and Z

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

End of Booklet A1

METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2013
PRIMARY 6
SCIENCE

BOOKLET A2

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

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

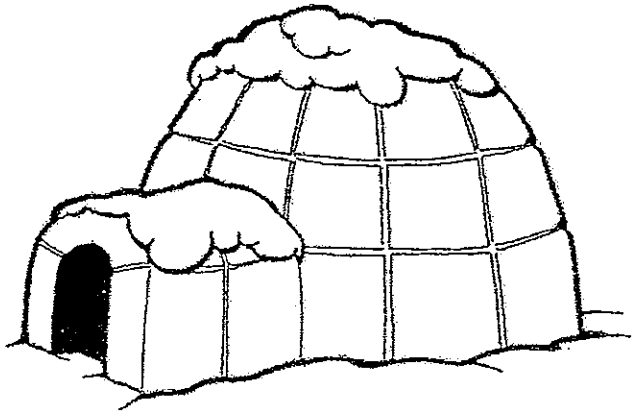
Name: _____ ( )

Class: Primary 6_____

Date: 28 August 2013

This booklet consists of 15 printed pages including this page.

16 In the Arctic regions, Eskimos build igloos for shelter as shown in the following diagram.



Which one of the following explains how the igloos keep the Eskimos warm?

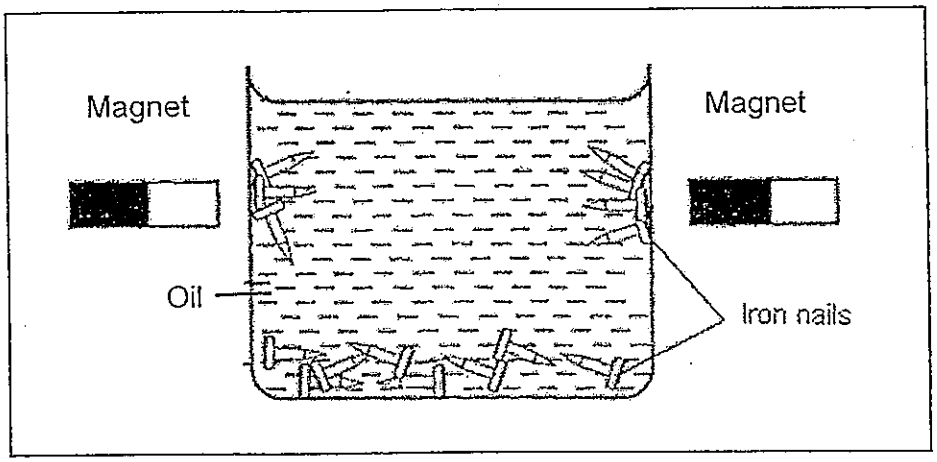
(1) Some of the cold air inside the igloo can escape from the opening of the igloo.

(2) Some of the cold air outside cannot enter the igloo as snow is a poor conductor of heat.

(3) All the heat from the inside of igloo is trapped totally so no heat can escape as snow is a poor conductor of heat.

(4) Most of the heat from the inside of the igloo cannot be conducted out of the igloo as snow is a poor conductor of heat.

17 Mrs. Lee set up the following as shown in the diagram. The diagram shows some iron nails in a glass beaker containing oil. Two magnets were placed at a short distance beside the exterior of the container.



Four students made some statements based on the above experiment.

Andy: The magnetic force of the magnet can pass through the oil only.

Ben: The iron nails are attracted by the magnetic force from the magnet.

Carl: There is no gravitational force acting on the nails attached at the side of the glass beaker as they are attracted by the magnet.

Dan: Both gravitational and magnetic forces are acting on the nails attached at the side of glass beaker.

Which of the following statements made by the 4 students are correct?

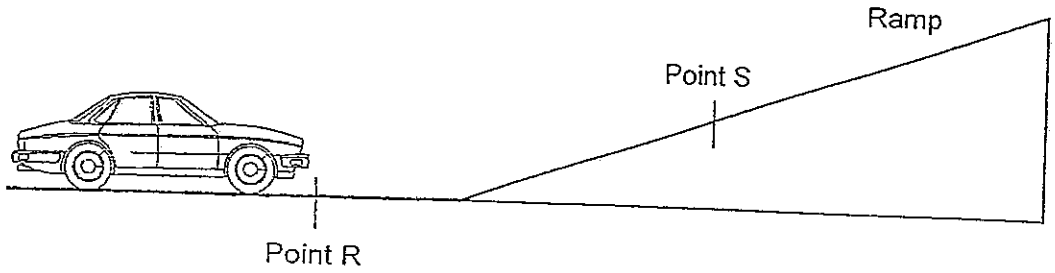
(1) Andy and Carl

(2) Ben and Carl

(3) Ben and Dan

(4) Andy, Ben and Dan

18 Study the following and answer Questions 18 and 19.



Tracy wound up a toy car a few times before releasing it at the starting point R, as shown above. The car moved up the ramp and reached Point S before it rolled backwards. What type of force/s caused the toy car to roll backwards?

(1) Frictional force

(2) Gravitational force

(3) Gravitational force and frictional force

(4) Elastic spring force and frictional force

19 Tracy wanted to make the toy car travel further and beyond Point S. Which one of the following can be done to achieve her aim?

(1) Increase the length of the ramp

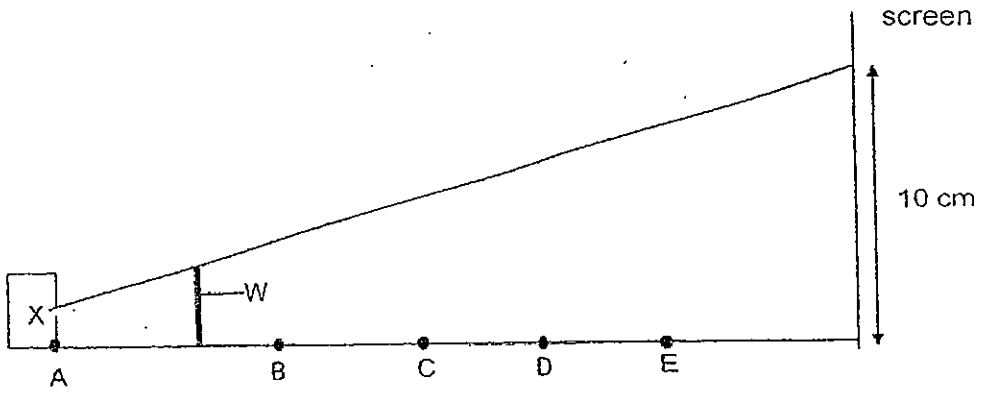
(2) Increase the size of the car wheels

(3) Increase the steepness of the ramp

(4) Increase the number of times the car was wound.

20 Alicia wanted to find out the effect of the positions of a light source, X and a wooden stick, W, on the length of the shadow being cast.

She set up the following in front of a screen and placed the wooden stick between the light source and the screen. The diagram below is not drawn to scale

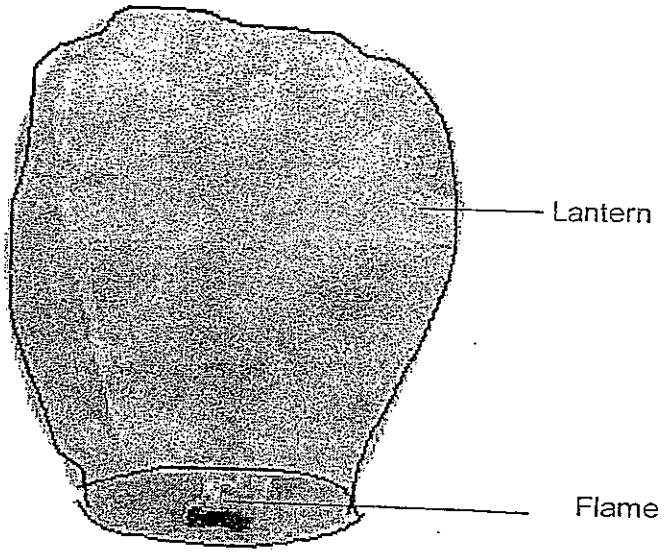


Based on the above set up, the length of the shadow of the wooden stick was 10cm. She then placed the light source and wooden stick at different positions, B, C,D and E and recorded her observations.

Which one of the following sets of observations was correct?

	Position of light source	Position of wooden stick	Length of shadow/ cm
(1)	A	C	6
(2)	A	D	10
(3)	B	D	12
(4)	B	E	15

21 The following shows a sky lantern. It works like a small hot air balloon which is made of paper. The sky lantern has an opening at the bottom where fuel is burnt to produce a flame. As the flame is created beneath the balloon, the lantern floats up into the air.



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

(1) Heat energy → kinetic energy → sound + light energy

(2) Heat energy → light energy → kinetic + gravitational potential energy

(3) Chemical potential energy → light energy →kinetic energy + heat energy

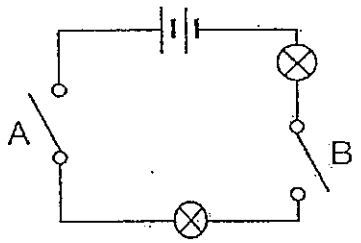
(4) Chemical potential energy → heat energy + light energy → kinetic energy

22 Jenny tested the switches of an electrical circuit and recorded the results in a table.

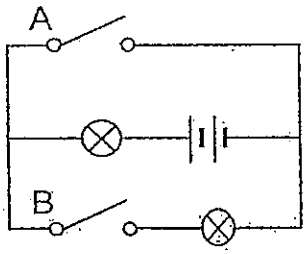
Switch A	Switch B	Number of bulbs lighted up
Off	Off	0
On	Off	1
Off	On	1
On	On	2

Which one of the following electrical circuits will produce all the results recorded in the table above?

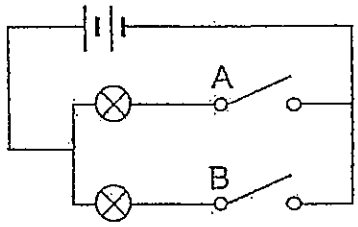
(1)



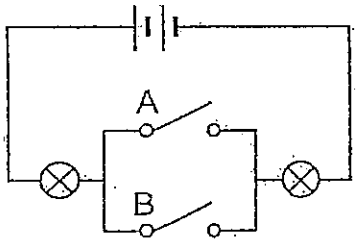
(2)



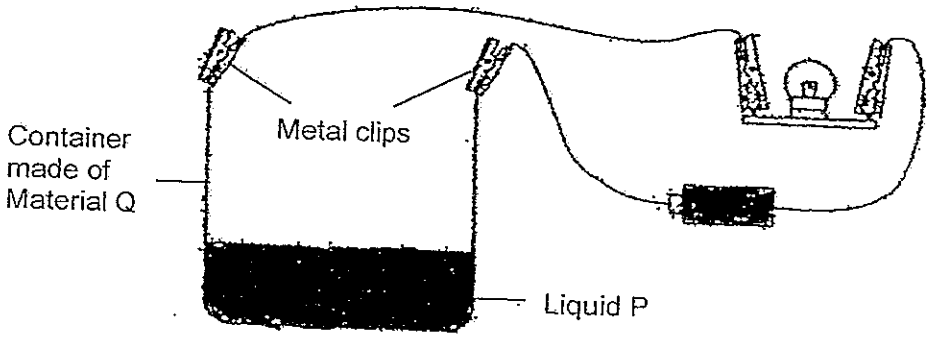
(3)



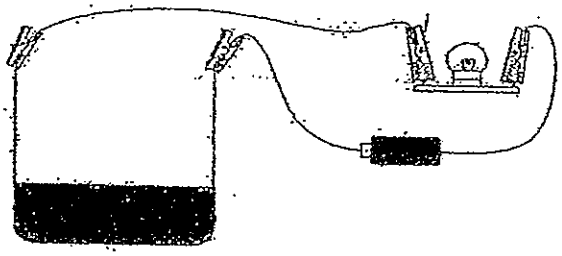
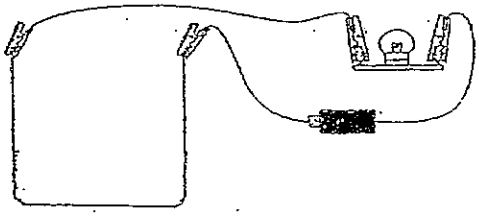
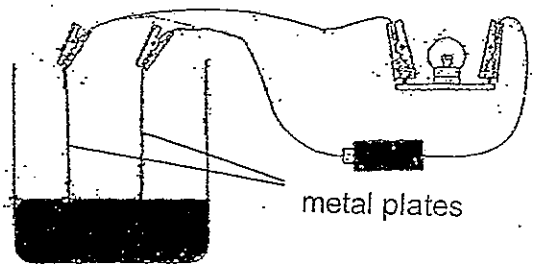
(4)



23 Linda set up the experiment as shown. When the metal clips were connected to the circuit, the bulb lit up. She concluded that Material Q is a conductor of electricity but Jasmine concluded that Liquid P is a conductor of electricity.



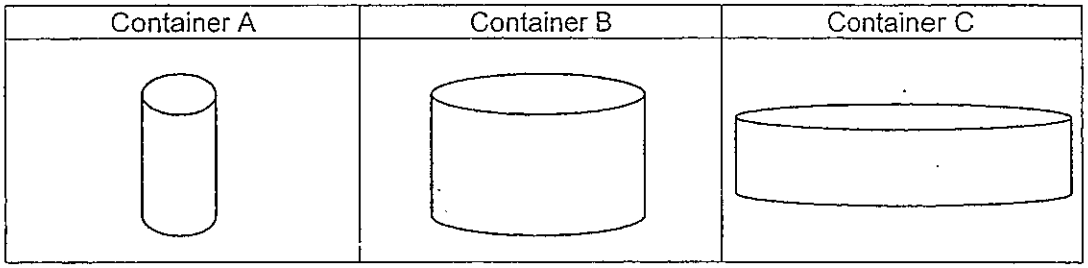
Both of them are correct. Three experimental set-ups A, B and C, are shown below.

Experiment A	
Experiment B	
Experiment C	

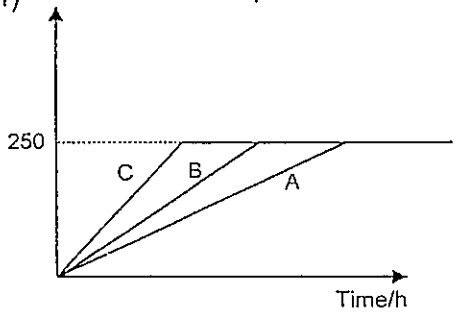
Which one of the following correctly states the 2 set-ups they should use to show that Liquid P and Material Q are conductors of electricity?

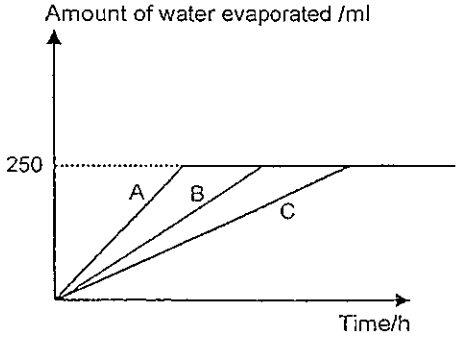
	Set-up to show that Liquid P is a conductor of electricity	Set-up to show that Material Q is a conductor of electricity
(1)	A	B
(2)	A	C
(3)	B	C
(4)	C	B

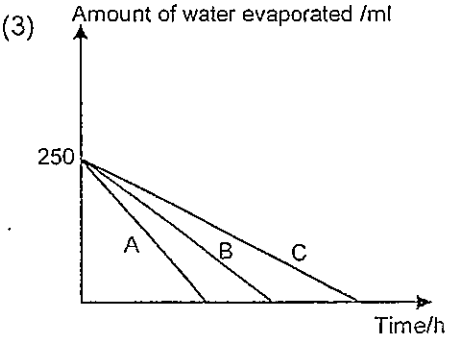
24 Containers A, B and C were filled with 250 ml of water each as shown. The containers were placed in a room to allow water to evaporate **completely**. A graph was plotted to show the time taken for the water in each container to evaporate.

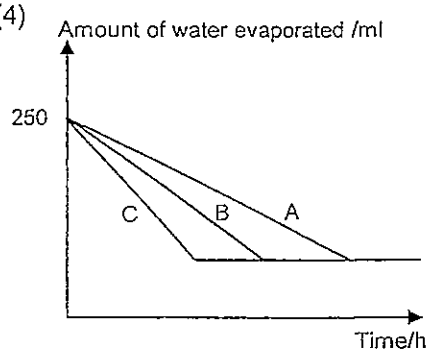


Which one of the following graphs shows the results correctly?

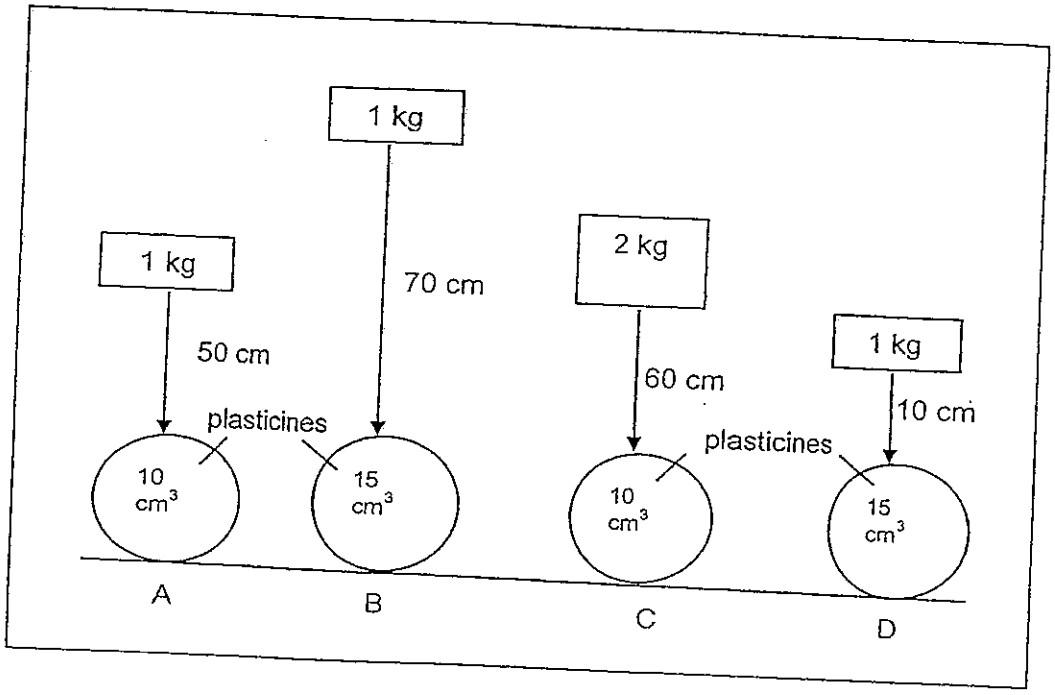
(1)


(2)


(3)


(4)


25 Peter set up an experiment as shown below. Different objects were each placed above a ball of plasticine of different volumes. The masses were dropped directly on the balls of plasticines to create a dent on them.



Peter wanted to find out whether an object has more gravitational potential energy if it dropped from a greater height.

Based on his aim, which of the following two set-ups should he choose in order to conduct a fair test?

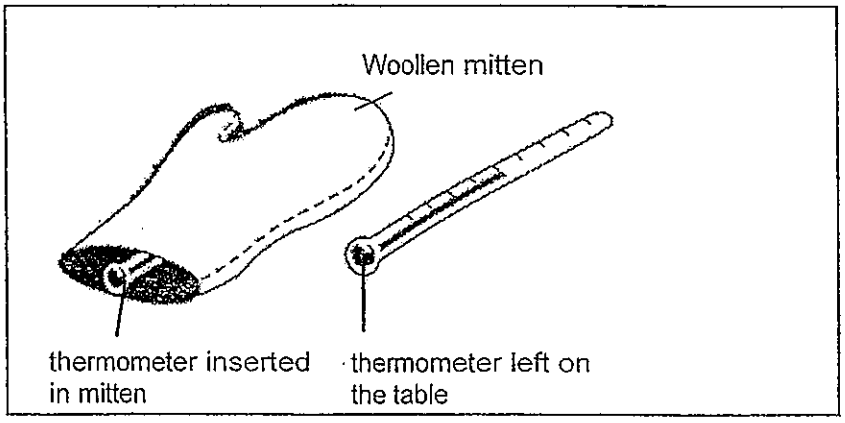
(1) A and C

(2) B and C

(3) B and D

(4) C and D

26 James set up the following experiment as shown. A thermometer which is used to measure the temperature of the room is inserted into a woollen mitten. In another set-up, the thermometer is left on the table. James then recorded the temperature shown on the thermometer after an hour.



Which one of the following is likely to be observed after one hour?

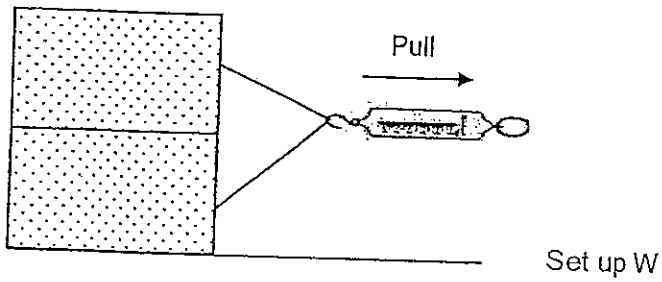
(1) The thermometer in the mitten shows a lower temperature reading than the one on the table.

(2) The thermometer in the mitten shows a higher temperature reading than the one on the table.

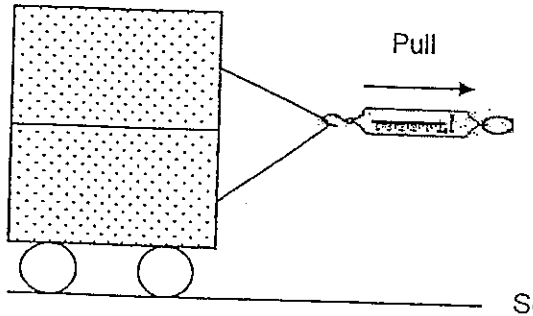
(3) Both thermometers will have the same temperature reading.

(4) It is impossible to tell which thermometer has a higher or lower reading.

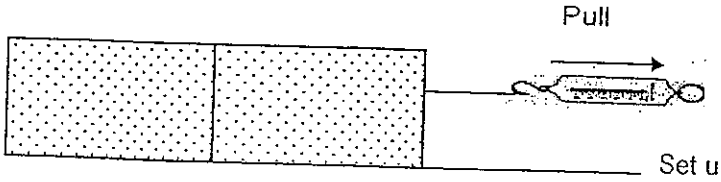
27 Sarah set up the following to investigate how two blocks of wood can be pulled across the same table surface. The two pieces of wood are glued together for all the set-ups



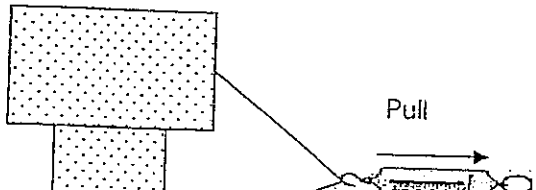
Set up W



Set up X



Set up Y



Set up Z

Based on the above set- ups, arrange them in <u>ascending</u> order of the amount of friction produced between the surface of the wood and the table.

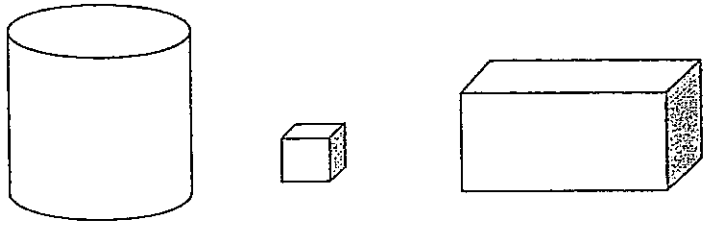
(1) X, Z, W, Y

(2) X, W, Z, Y

(3) Y,W, Z, X

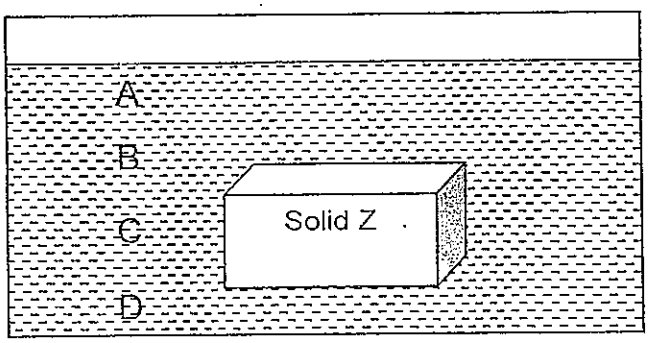
(4) Z, W, Y, X

28 The following diagram shows three solids, X, Y and Z which are made of the same material but have different volumes.



Solid X Solid Y Solid Z

Rama dropped solid Z into the container of water and it stayed at position C.



Which one of the following shows the correct positions of solids X and Y after they were dropped into the tank of water?

	Solid X	Solid Y
(1)	Position D	Position B
(2)	Position D	Position A
(3)	Position C	Position A
(4)	Position C	Position C

29 The following shows the freezing point of substance W, X, Y and Z.

Substance	Freezing point (°C)
W	0
X	5
Y	35
Z	-40

Four students then made some statements based on the information given in the table above.

Ariel: Substance X and Y are both liquids at 30°C

Benny: Substance Y and Z are both solids at 20°C

Callista: Substance X, Y and Z are solids at 2°C

Darren: Substance Z can be a gas or liquid at -40°C

Which of the following student(s) has/have made the correct statement(s)?

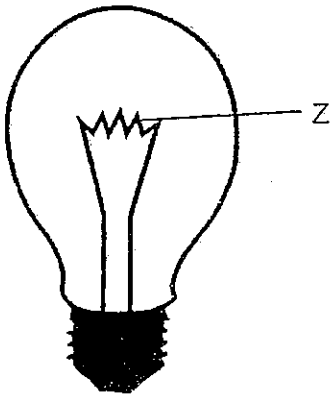
(1) Ariel only

(2) Callista

(3) Ariel and Darren

(4) Benny and Callista

30 The following diagram shows a light bulb.



Which of the following statements about the part labelled Z is/are true?

A: It determines the brightness of the bulb.

B: It must be made of a material of a high melting point.

C: It melts when there is too much electrical current passing through it.

D: It gives off light energy only when an electric current passes through it.

(1) D only

(2) A, B and C

(3) B, C and D

(4) All of the above

End of Booklet A

METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2013
PRIMARY 6
SCIENCE

BOOKLET B1

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

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Name: _____ ( )

Class: Primary 6._____

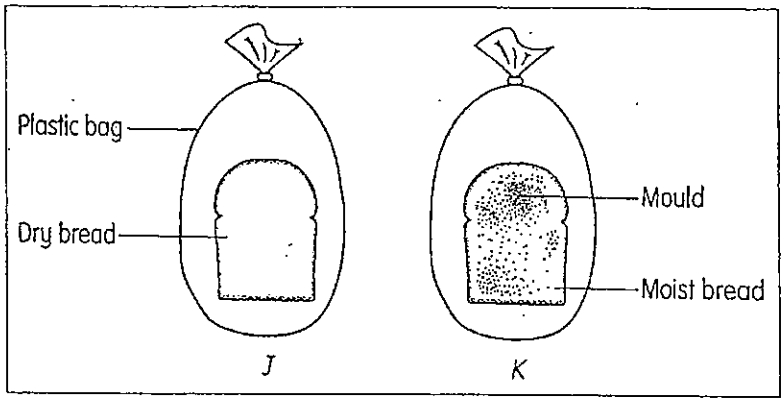
Date : 28 August 2013

20

This booklet consists of 8 printed pages including this page.

For questions 31 to 44, write your answers in the spaces provided. [20 marks]

31 Jeffery carries out an investigation by putting two slices of bread J and K in separate plastic bags at room temperature. Both pieces of bread are of the same size. The size and type of plastic bags are also similar. The diagram below shows the condition of the two slices of bread after 5 days.



(a) What is the variable in this investigation? [1]

(b) State the process that had taken place in this investigation. [1]

(c) What will be the likely result of Jeffery's investigation if both bread J and K are placed in the refrigerator for 5 days instead of room temperature?. [1]

(Go on to the next page)

32 Lenny researched on two animals X and Y. He found that 10% of animal X's offspring could live until adulthood while 90% of animal Y's offspring could do so.

(a) Based on his research, which animal takes care of its offspring? [1]

_____

[1]

(b) Give one reason for your answer in (a)

_____

(c) Give an example of animal X and Y. Each has a 3-stage life cycle. [1]

Example of animal X : _____

Example of animal Y : _____

33 Many plants and animals can be found in a tropical rainforest.

(a) How does the height of the tall forest trees help them to survive well in the forest? [1]

_____

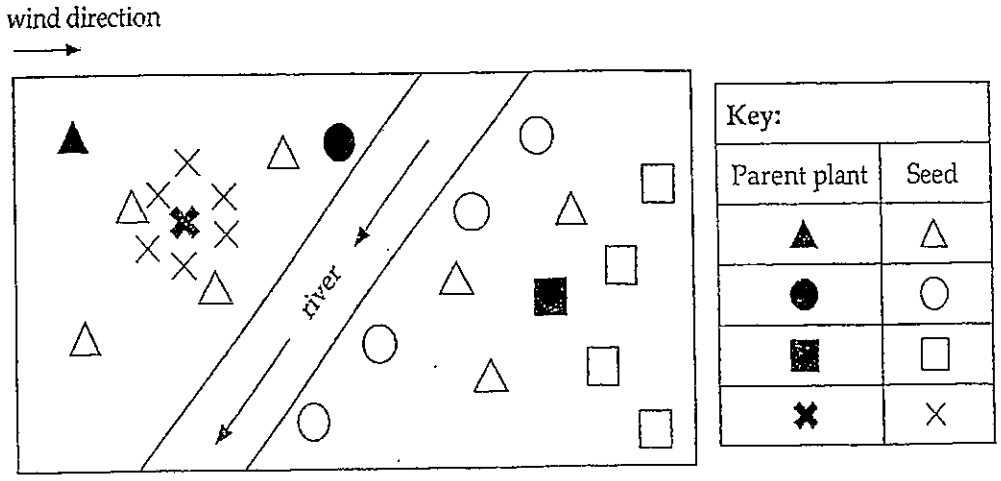
_____

(b) Among the fallen leaves on the forest floor are organisms like mushrooms and bracket fungi. How are these organisms important to plants and animals in the forest? [1]

_____

_____

34 The diagram below shows the locations where seeds of four different plants were dispersed relative to the location of their parent plant.



(a) Two children made the following statements:

Gayle: ▲ is dispersed by some wild boars because wild boars eat its fruits and its seeds have been scattered randomly around the area.

Dolly: ▲ is dispersed by man and animals but certainly not by wild boars.

Who do you agree with? Explain your answer. [1½]

_____

_____

_____

(b) What is the most likely method of dispersal for the following seeds? [1½]

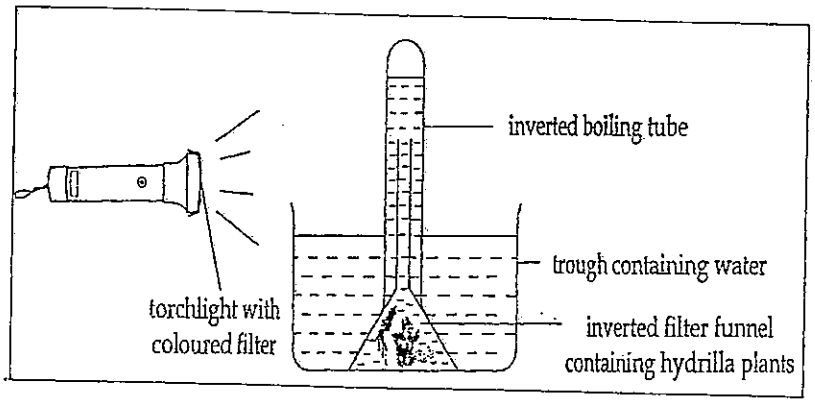
■ : _____

● : _____

✖ : _____

(Go on to the next page)

35 Jim sets up the experiment as shown below.



He places a coloured filter in front of the torchlight and shines the torch at the hydrilla plant for 15 minutes. He observes the number of bubbles given out by the plant during that time and records it in the table below. He then repeats the experiment using another coloured filter.

Study the table below which shows the results that Jim has obtained.

Coloured filter	Number of bubbles produced
red	17
blue	26
green	10
transparent	35

(a) What is the purpose of conducting the experiment using a transparent filter?

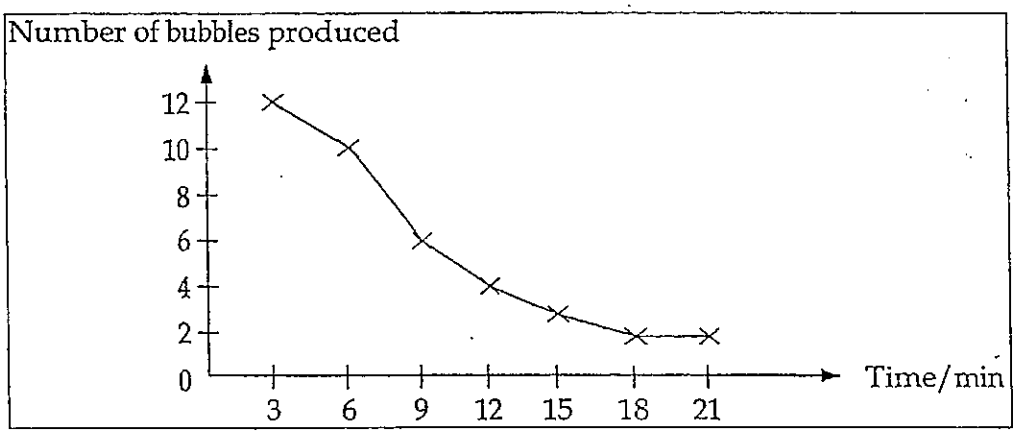
[1]

(b) Which coloured filter has resulted in the production of the least number of bubbles? Explain your answer.

[1]

(Go on to the next page)

The graph below shows the number of bubbles produced per 3-minute interval using the transparent filter.

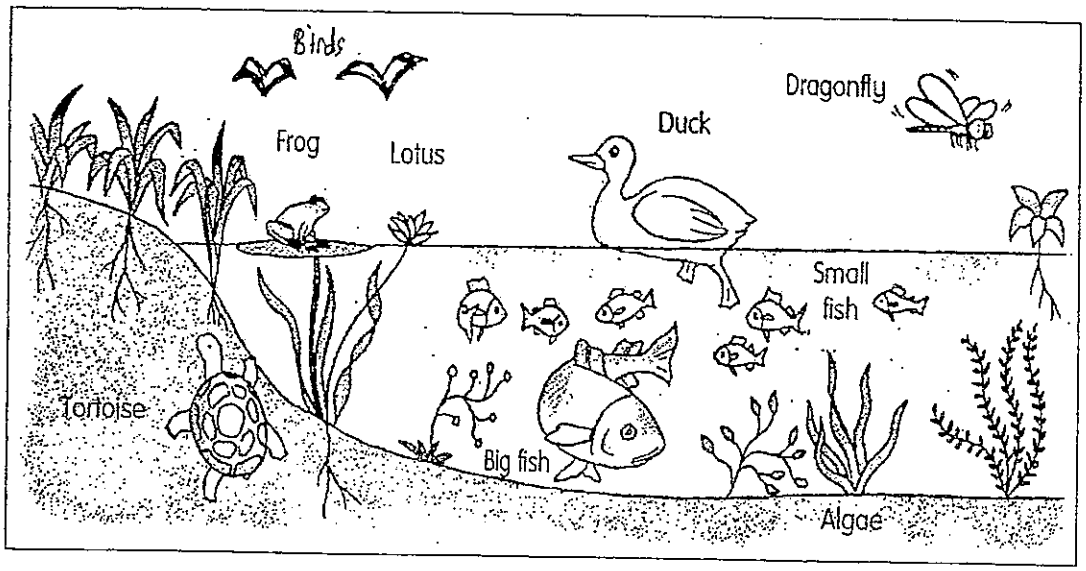


(c) From the graph, what can you say about the number of bubbles produced over the period of time? [1]

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

(Go on to the next page)

36 The diagram shows the different types of living things that can be found in and near a pond.



(a) Complete the food chains based on the given habitat. [1]

(i) Algae ⟶ ( ) ⟶ ( )

(ii) Lotus ⟶ ( ) ⟶ ( )

(b) What will happen to the population of the following organisms when a few anglers come to the pond? Explain your answers. [2]

(i) Fishes

_____

_____

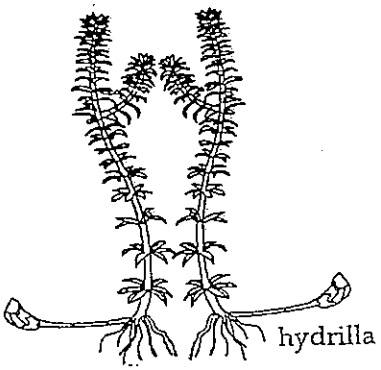
(ii) Algae

_____

_____

(Go on to the next page)

37 The diagram below shows a hydrilla plant.



(a) How is the hydrilla plant able to maintain its upright position underwater? [1]

_____

_____

(b) How does the presence of the hydrilla plant benefit the underwater aquatic animals which do not feed on it? [1]

_____

_____

End of Booklet B1

METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2013
PRIMARY 6
SCIENCE

BOOKLET B2

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

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.

Name: _____(

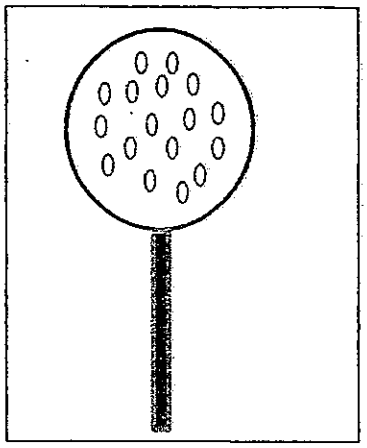
Class: Primary 6._____

Date: 28 August 2013

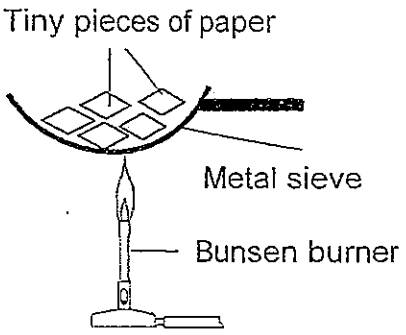
Booklet A	/ 60
Booklet B1	/ 20
Booklet B2	/ 20
Total	/ 100

This booklet consists of 9 printed pages including this page.

38. Jessica set up an experiment to investigate the effect of heat. In the diagram below, tiny pieces of paper were placed in a metal sieve with holes. It is then heated over a Bunsen burner.



Top view of metal sieve



a) After 3 minutes, she observed that the tiny pieces of paper had turned brown but did not burn. Give a reason for her observation. (1m)

_____

_____

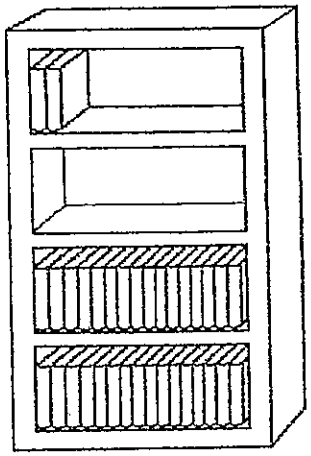
b) Jessica then repeated the experiment with a similar sieve with **bigger** holes. Would the tiny pieces of paper take a longer or shorter time to turn brown? Explain your answer. (2m)

_____

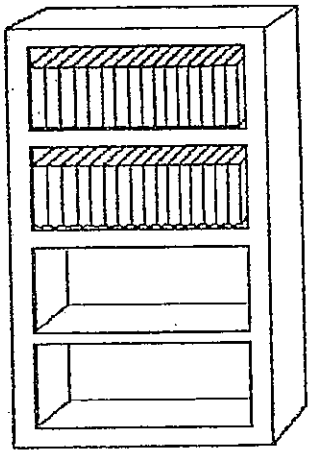
_____

_____

39. Xavier arranged an equal number of similar books in two identical bookshelves, A and B as shown in the figure below. He tilted each bookshelf forward in the same manner of different angles and counted the number of books which dropped from them.



Bookshelf A



Bookshelf B

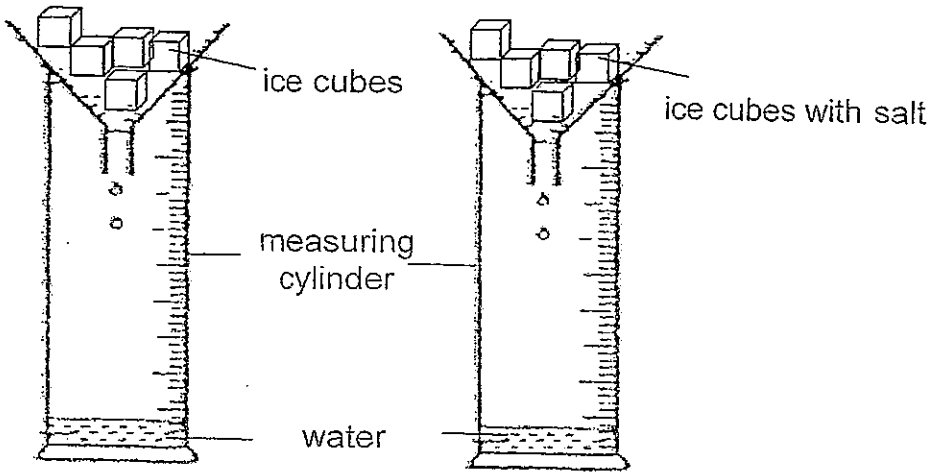
Angle that shelf is tilted (°)	No. of books dropped from Bookshelf A	No. of books dropped from Bookshelf B
10°	0	2
20°	2	6
30°	5	10

a) What is the relationship between the angle of the tilted bookshelf and the number of books which dropped? (1m)

b) What kind of energy do the books in Bookshelf B possess? (1m)

c) Based on the above results in the table, give a reason why passengers are strongly discouraged to stand on the upper deck of a double decker bus if the seats in the lower deck are not fully occupied. (1m)

40. Alison wanted to find out the effect of salt on ice. She has two similar set-ups, A and B, as shown below but she added some salt in the ice in set-up B. After 10 minutes, she recorded her results in a table



Set-up	Amount of water in measuring cylinder (ml)
A	10
B	25

a) Based on the above experiment, what is the effect of adding salt in ice? (1m)

_____

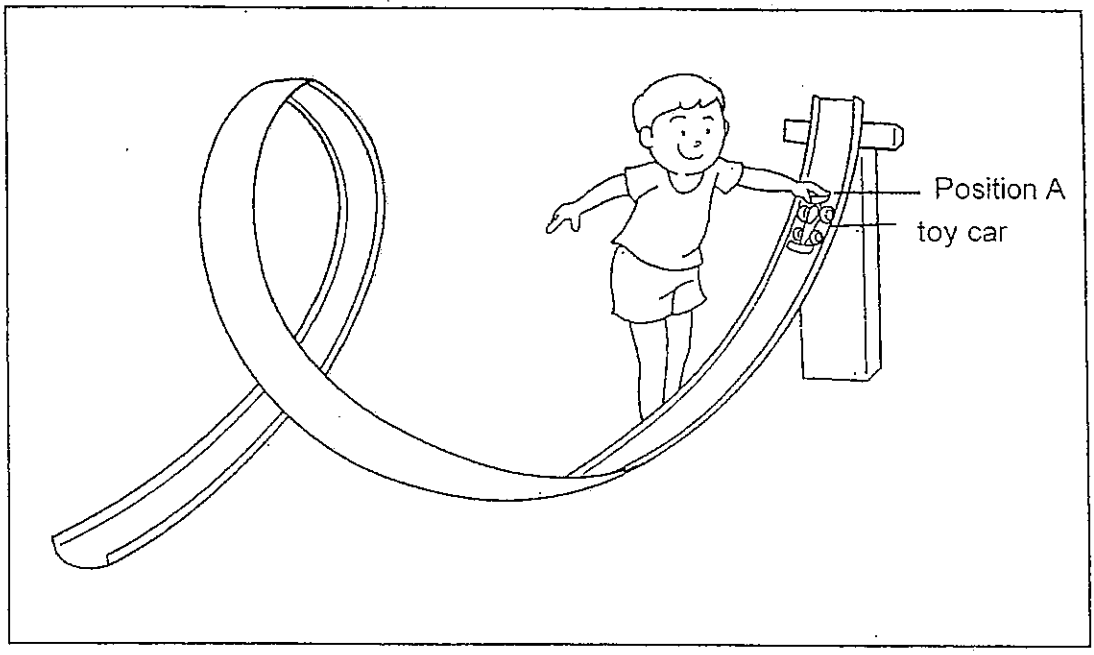
b) In cold countries which snow heavily, roads are covered in snow and ice. Salt is usually sprinkled on the icy roads which vehicles travel. Traffic authorities say that this will make the roads "safer" for motorists. Give a reason why this is so. (2 m)

_____

_____

_____

41. Carl purchased a toy car and constructed a loop track as shown in the following diagram. The car does not operate using batteries or any form of energy. He released the car from rest at position A as shown. However, the car could not go round the loop.



Without changing the height of the loop, suggest two ways that Carl can enable his car to go round the loop? (2m)

1) _____

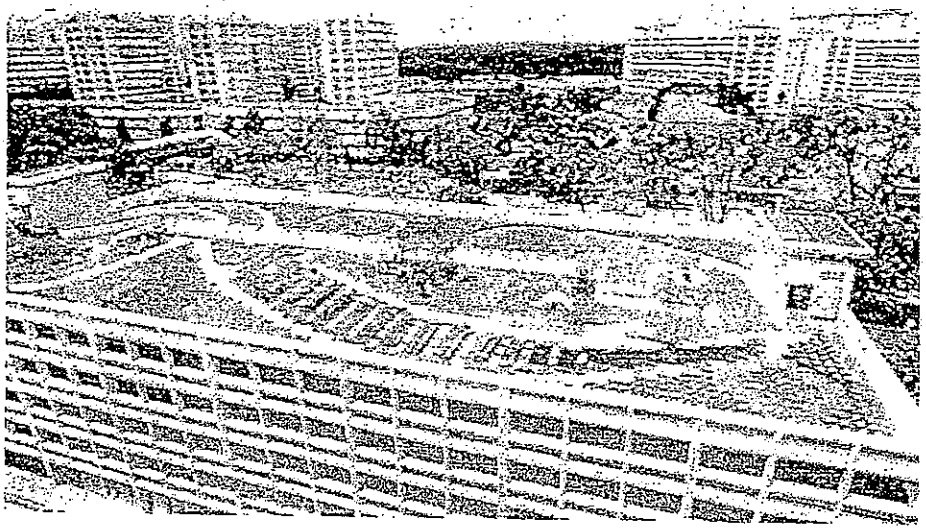
_____

2) _____

_____

42. Based on a recent newspaper article, more rooftop gardens are constructed in Singapore as shown in the article below.

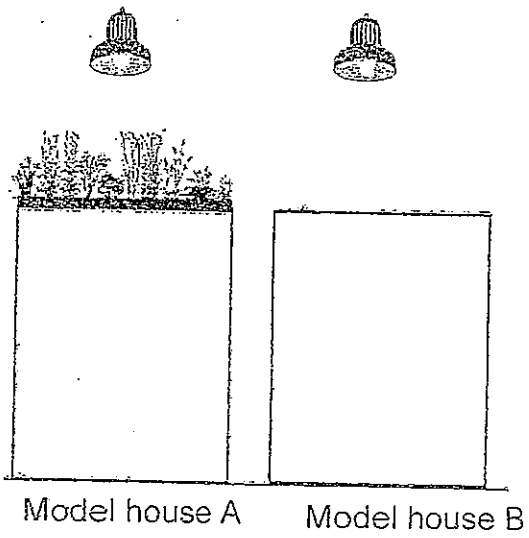
More HDB car parks to house rooftop gardens



A rooftop garden at Block 365A Upper Serangoon Road. Nine hectares of space from the rooftop of multi-storey car parks will be transformed into garden spaces over the next few years, Minister for National Development Mr Khaw Boon Wan wrote this in a blog post on Wednesday, Feb 27, 2013. -- ST FILE PHOTO: KALAVIKA SINGH

Ahmad wanted to find out how the interior temperature of buildings is affected by the presence of a rooftop garden. He constructed two similar model houses and placed a mini garden on the roof of model house A only.

Similar lamps were placed at equal distance from each model house and were switched on at the same time. The temperature of each model house was measured after several hours. It was then found that the temperature of model house A is lower than model house B.

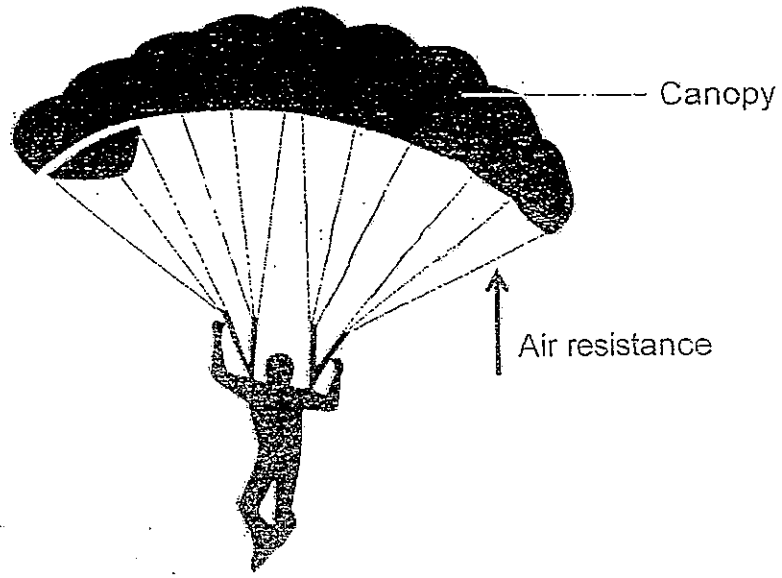


a) Give a reason to explain why the temperature in model house A is lower than that of model house B after several hours. (1m)

b) Besides lowering the temperature of buildings, roof top gardens can also help reduce flooding at ground level. Give a reason why this is so (1m)

(c) State another advantage of roof top gardens which has not been mentioned. (1m)

44. The diagram below shows a man hanging from a parachute after he had jumped from an airplane.



(a) One of the forces acting on the parachute is air resistance. **Draw** and **label** another force that is acting on the man in the diagram. (1m)

(b) It is found that amateur parachutists usually use parachutes of a larger canopies Explain why it is so. (2m)

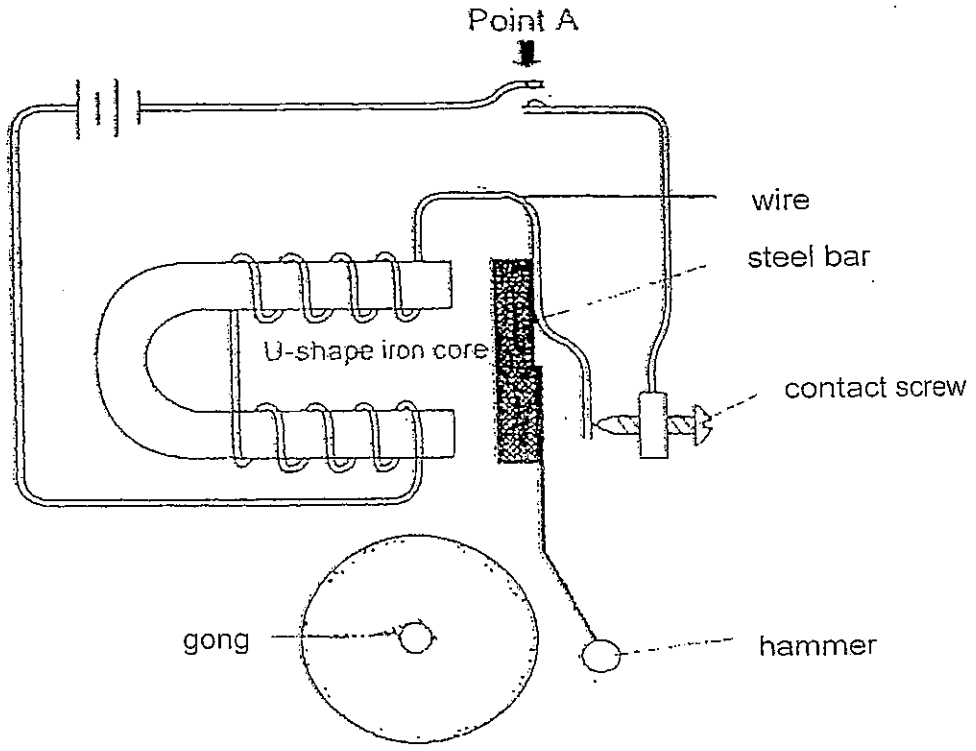
_____

_____

_____

End of Paper

43. Study the circuit of a door bell as shown below.



a) State the energy conversion which has taken place in the above circuit. (1m)

_____ energy (in batteries) → _____ energy (in wires)

→ _____ energy (steel bar) → _____ (bell)

b) What will happen when the switch is closed? (1m)

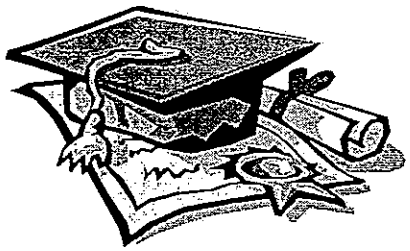
_____

_____

c) John found that the doorbell will not work if he increased the distance between the U-shaped iron core and the steel bar. Give an explanation for this and suggest one modification he can make to the circuit for the doorbell. (1m)

_____

_____



ANSWER SHEET

EXAM PAPER 2013
SCHOOL : MGS
SUBJECT : PRIMARY 6 SCIENCE

TERM : PRELIM

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

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

31)a)The water in the moist bread,K.
b)Decomposition.
c)There will be no mould on bread and less mould on bread K.

32)a)Animal Y.
b)Animal Y takes care of its offspring as can protect its young from danger, allowing them to be safe from predators, thus, the percentage of Animal Y that can live until adulthood is much higher.

33)a)It helps them to receive move sunlight from the sun to be able to photosynthesize and make food to help them survive well.
b)These organisms decompose the fallen leaves and thus help to recycle nutrients in the forest.

34)a)I agree with Gayle. Wild boars can swim across the river. Boars are both plant and animal eaters.
b)■ :Wind
● :Water
★ :Explosive Action

35)a)It was to act as a control for the experiment.

b)The green filter. Plants cannot absorb green light as its leaves too, are green , so they will not respond to the light as well as the other coloured lights and will reflect it away.

c)It decreases slowly over the period by time.

d)Plants need to take in carbon dioxide for photosynthesis, so the carbon dioxide in the filter funnel might most probably have been used up and there will be hardly any carbon dioxide left, not enabling the plants to photosynthesis and produce bubbles that contain oxygen.

36)a)i)Small Fish → Big Fish ii)Small Fish → Duck

b)i)The population of the fishes will decrease as the anglers came to the pond to fishes and take them away.

ii)Its population will increase. There will be fewer fishes in the pond that will feed on the algae.

37)a)The air spaces among its leaves and stems enable the hydrilla plant to hold its upright position underwater.

b)The hydrilla provides and produces dissolved oxygen in the water for the underwater aquatic animals to breathe, enabling them to survive.

38)a)Metal is a good heat conductor and it conducted heat away from the pieces of paper.

b)The paper will take a shorter time to turn brown. Without holes in the sieve, the surface area of contact with the metal is reduced. With a smaller surface area, heat is conducted away slower form the pieces of paper. Hence, she pieces of paper will turn brown faster.

39)a)The greater the angle that the bookshelf is tilted, the more the number of books dropped.

b)Gravitational Potential Energy.

c)As they possess more gravitational potential energy when standing on the upper deck of a double deck bus, when the bus screeches into a halt, the people standing on the upper deck will have a great tendency to fall and injure themselves.

40)a)Adding salt to ice will decrease the melting point ice.

b)Icy roads are very slippery and because the surface area of contact of the wheels and the roads is smaller, there will be even lesser friction between the wheel and the road if the road is icy. Thus, the motorists will have a higher tendency of losing control of the motorcycle, slipping and falling off the motorcycle when riding a motorcycle on slippery and ice roads. Salt will make the ice melt faster so that there will be more friction between the wheels of the motorcycle and the road.

41)1)Release the car at a position of greater height from rest compared to Position A.

2)Before he releases the toy car, Carl has to exert some force onto the car and release it immediately after.

42)a)The plants in the garden of A will absorb the sunlight produced by the sun for photosynthesis to take place, disallowing the sunlight from reaching the house and cooling the house down. However, there are no plant son top of B, thus it will gain heat from the sunlight and increase in temperature.

b)The plants in the roof top gardens will have to absorb water to survive, thus it will reduce flooding at ground level.

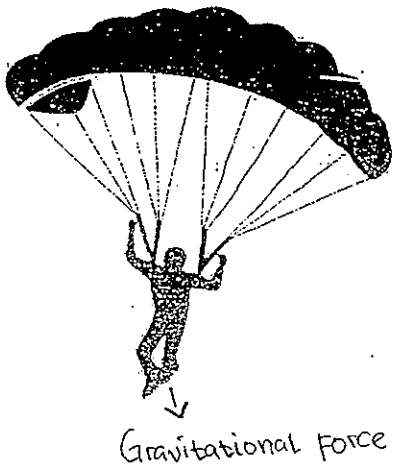
c)It provides shelter from the scorching sun for humans and animals.

43)a)Chemical Potential→ Electrical → Kinetic →Sound energy

b)Chemical Potential Energy in the batteries will be converted into electrical energy which will flow through the wives and will magnetise the U-shape iron. The iron core will become a temporary magnet and will attract the steel bar, bringing the hammer closer to the gong and hitting it.

c)The temporary magnet which is the U-shaped iron core is not strong enough to attract the steel bar from a greater distance. He can add more batteries in series to the set-up.

44)a)



b)With a larger canopy, there is more surface area from the parachute in the contact with the air, this is increases the air resistance. The parachutists have to overcome, allowing the parachutists to travel towards the ground at a slower speed and landing more easily.