

# METHODIST GIRLS' SCHOOL

Founded in 1887



## CONTINUAL ASSESSMENT 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.

Name: \_\_\_\_\_ ( )

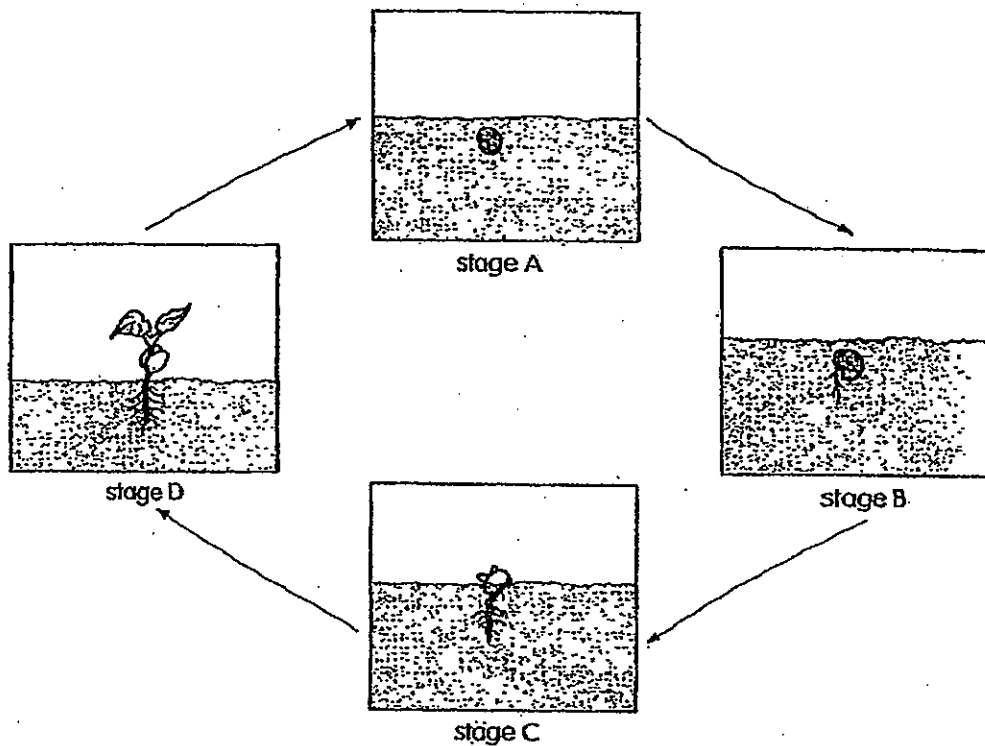
Class: Primary 6. \_\_\_\_\_

Date: 7 March 2013

This booklet consists of 9 printed pages including this page.

For each question from 1 to 15, 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 provided. (30 marks)

1 The diagram below shows the life cycle of a plant.

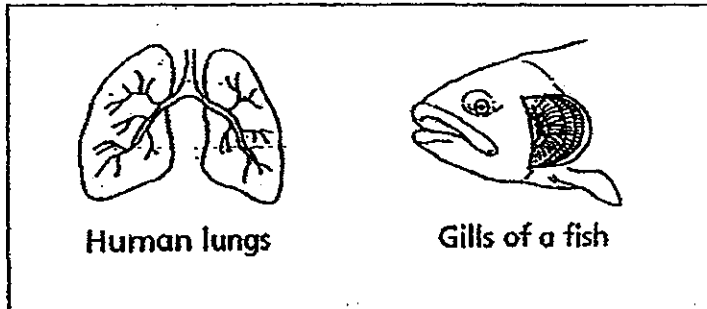


Which of the following statements are true?

- A: Sunlight is needed at stage B.
- B: Photosynthesis takes place at stage D.
- C: Stage D is not affected by what happens at stage C.
- D: The seed at stage A needs air, water and warmth to reach stage B.

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

- 2 Study the diagrams carefully. It shows the lungs of a human and the gills of a fish.

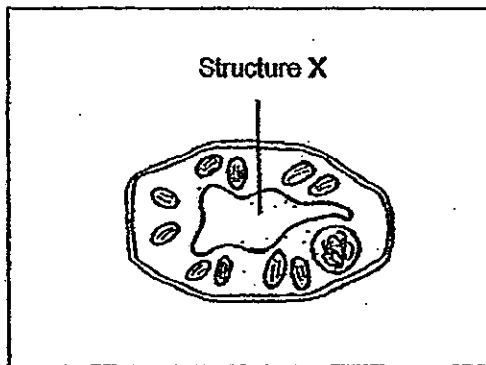


In what ways are they similar?

- A: They have large surfaces for gases exchange.
- B: They have moist and thin respiratory surfaces.
- C: They have a rich supply of blood vessels.
- D: They take in oxygen from the air.

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

- 3 The diagram below shows a plant cell.



Besides being found in plant cells, structure X is also found in animal cells.

Which of the following describes the function of structure X in animal cells?

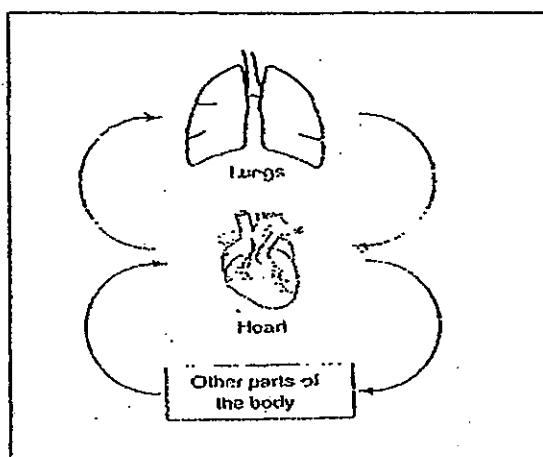
- (1) Stores cell sap
- (2) Keeps the cell firm
- (3) Stores air and food
- (4) Forms largest part of the cell

4 Which of the following statements is/are correct about a cell wall?

- A It protects the plant cell from bursting when the cell loses water.
- B It contains cellulose to maintain the regular shape of the plant cell.
- C It is restrictive as it allows only some substances to pass through it.
- D It functions like the skeleton of the animal cell, giving it movement.

- (1) B only
- (2) A and B only
- (3) A, C and D only
- (4) None of the above

5 The diagram below shows the circulatory system in humans.



Which of the following shows the correct information about P, Q, R and S?

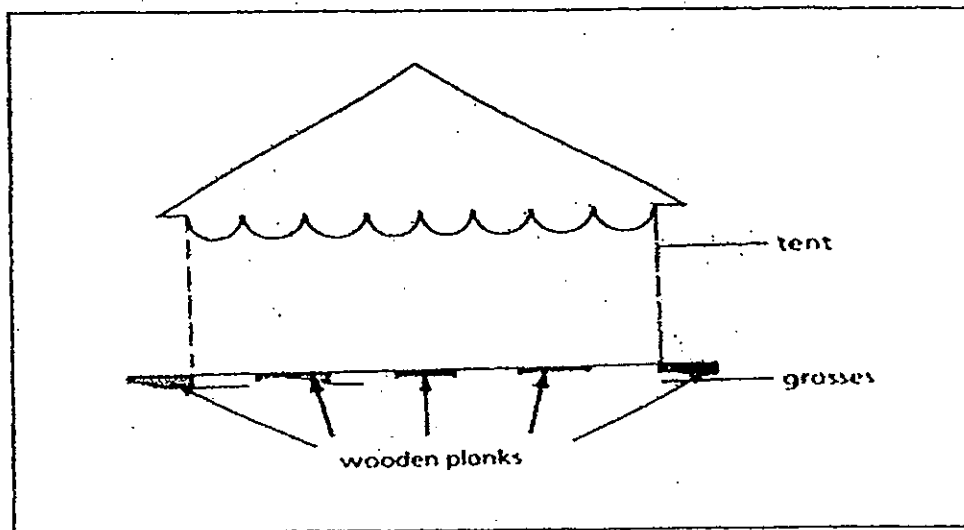
	P	Q	R	S
(1)	Carries deoxygenated blood	Carries oxygenated blood	Carries deoxygenated blood	Carries oxygenated blood
(2)	Carries oxygenated blood	Carries oxygenated blood	Carries deoxygenated blood	Carries deoxygenated blood
(3)	Carries deoxygenated blood	Carries deoxygenated blood	Carries oxygenated blood	Carries oxygenated blood
(4)	Carries oxygenated blood	Carries deoxygenated blood	Carries oxygenated blood	Carries deoxygenated blood

6 Generally, athletes have a lower heart rate when they are at rest.

Which of the following statements best explains this?

- (1) Exercise makes their blood thinner and easier to circulate.
- (2) Exercise strengthens the athletes' circulatory system and makes it more efficient to supply blood to the other parts of the body.
- (3) Exercise produces more muscles which will help the vein to transport the blood back to the heart.
- (4) Exercise produces more red blood cells to transport more oxygen.

7 A tent was set up in a field as shown below. Wooden planks were laid on top of the grass.



What could the observation be when the wooden planks are lifted after one month and what was the reason for such an observation?

	Observation	Reason
(1)	Grass turned brown.	Insufficient water
(2)	Grass turned brown.	Insufficient sunlight.
(3)	Grass turned yellow.	Insufficient space to grow.
(4)	Grass turned yellow.	Insufficient carbon dioxide

8 Which of the following statements about saliva are true?

- A Saliva is a liquid.
- B Saliva helps to digest food.
- C Saliva makes food easier to swallow.
- D Saliva helps food to be absorbed in the stomach.

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

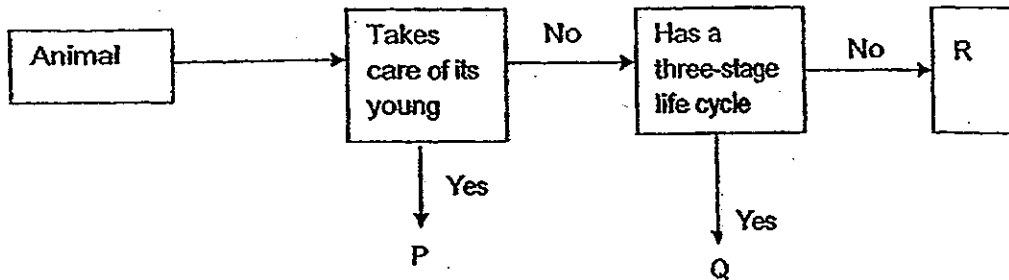
9 Jenny is going to use two set-ups to investigate the effect of the amount of carbon dioxide on the rate of photosynthesis.

Which of the following variables must she keep constant so that a fair comparison can be made?

- A The amount of carbon dioxide received by the plants
- B The amount of light received by the plants
- C The amount of water received by the plants
- D The type of plants used in the two set-ups

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

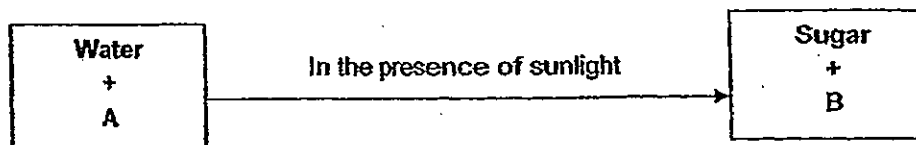
10 Study the flowchart carefully.



What animals can P, Q and R be?

	P	Q	R
(1)	Duck	Beetle	Butterfly
(2)	Chimpanzee	Grasshopper	Mosquito
(3)	Crocodile	Deer	Chicken
(4)	Deer	Cockroach	Human

11 The diagram below represents a process that occurs in plants.



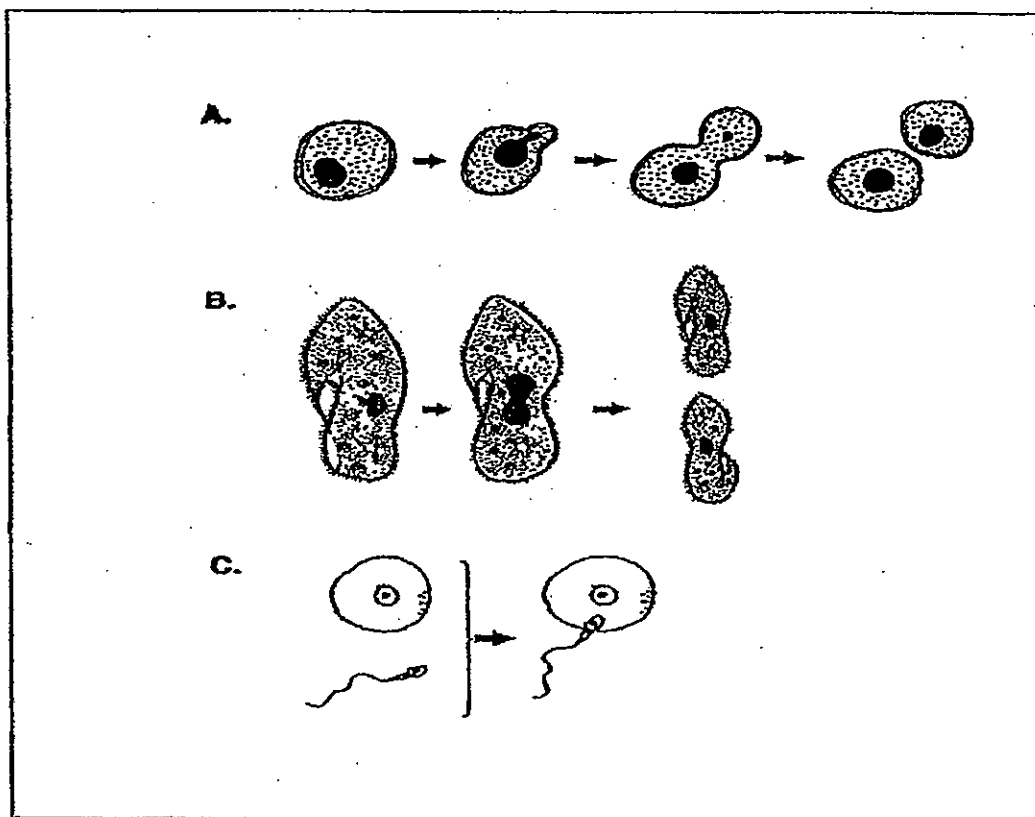
What do A and B represent?

	A	B
(1)	Chlorophyll	Nutrients
(2)	Nutrients	Chlorophyll
(3)	Oxygen	Carbon dioxide
(4)	Carbon dioxide	Oxygen

12 Jane cut open a fruit and observed that it contained many seeds. Based on this observation, she made the following inferences about the flower that produced this fruit. Which one of the inferences is best supported by her observation?

- (1) There was self pollination.
- (2) There were many ovules.
- (3) The flowers grew in bunches.
- (4) The flower had many pollen grains.

13 Study the following diagrams.



Which of the above diagrams show(s) sexual reproduction?

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

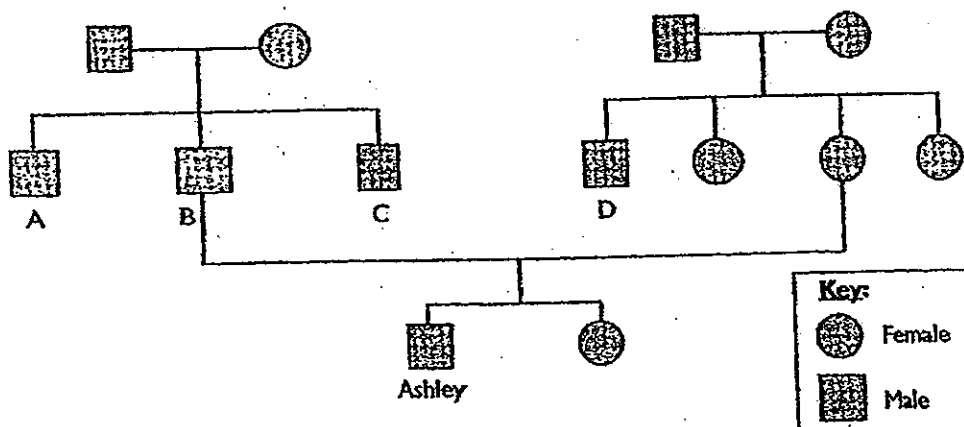


14 Which of the following are characteristics of ferns?

- A They live on land in moist and shady places.
- B They contain chlorophyll.
- C They reproduce by spores.
- D They have no roots.

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

15 Study the diagram below.



Which of the following statements is true?

- (1) Ashley is A's niece.
- (2) C and D are married.
- (3) Ashley has 3 aunts and 4 uncles.
- (4) There are two children in B's family.

# METHODIST GIRLS' SCHOOL

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## CONTINUAL ASSESSMENT 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: \_\_\_\_\_ ( )

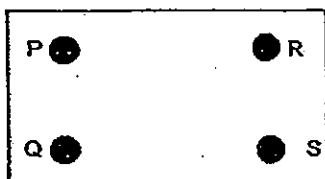
Class: Primary 6. \_\_\_\_\_

Date: 7 March 2013

This booklet consists of 14 printed pages including this page.

For each question from 16 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 provided. (30 marks)

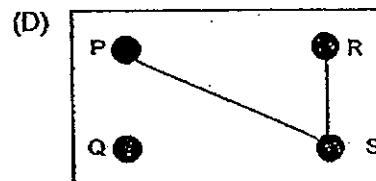
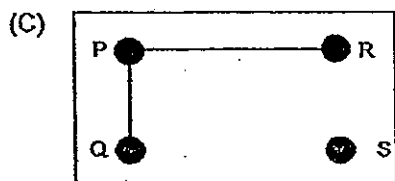
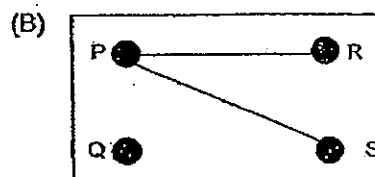
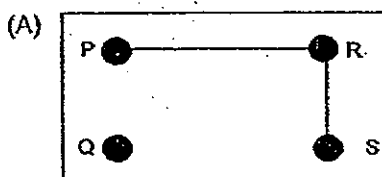
16. Betty set up a circuit board with 4 metal buttons P, Q, R and S as shown. Some metal buttons were connected to one another by wires under the board. She then used a circuit tester to find out which metal buttons are connected by the wires.



The results of the test are shown in the following table.

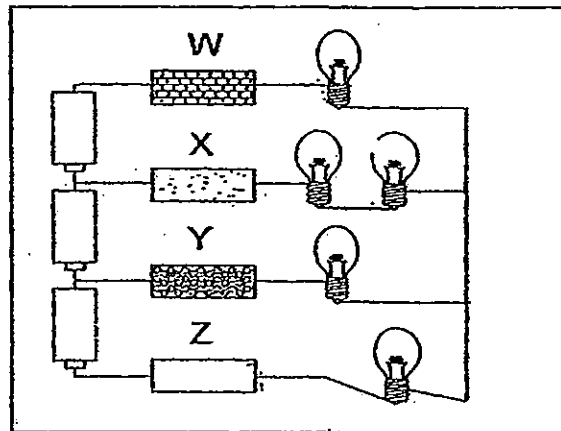
Metal buttons tested	Did the bulb light up?
P and Q	No
P and R	Yes
P and S	Yes
Q and R	No
Q and S	No
R and S	Yes

Which of the following is/are possible connections of the wires between the metal buttons?



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

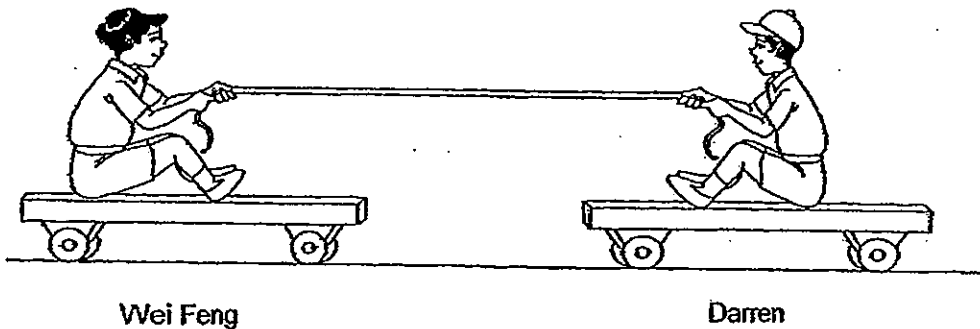
17. Jenny set up the electrical circuit as shown.



Which one of the following represents the materials W, X, Y and Z correctly when only three bulbs light up?

	Materials			
	W	X	Y	Z
(1)	brass	iron	nickel	glass
(2)	clay	brass	lead	wood
(3)	ceramic	wood	iron	brass
(4)	lead	nickel	brass	iron

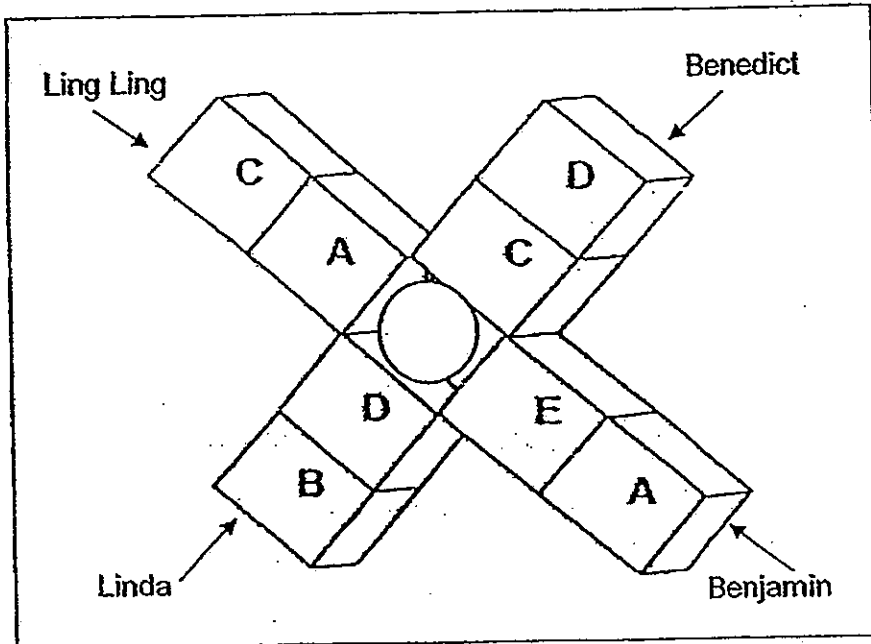
18. Two boys, Wei Feng and Darren of similar mass sat on a wooden plank mounted on wheels as shown in the following diagram. They each held on to the ends of a rope.



Which one of the following would be observed if Wei Feng pulled the rope?

- (1) Both Wei Feng and Darren would move towards each other.
- (2) Wei Feng would move towards Darren while Darren remained on the spot.
- (3) Darren would move towards Wei Feng while Wei Feng remained on the spot.
- (4) Wei Feng would move backwards away from Darren while Darren moves towards Wei Feng.

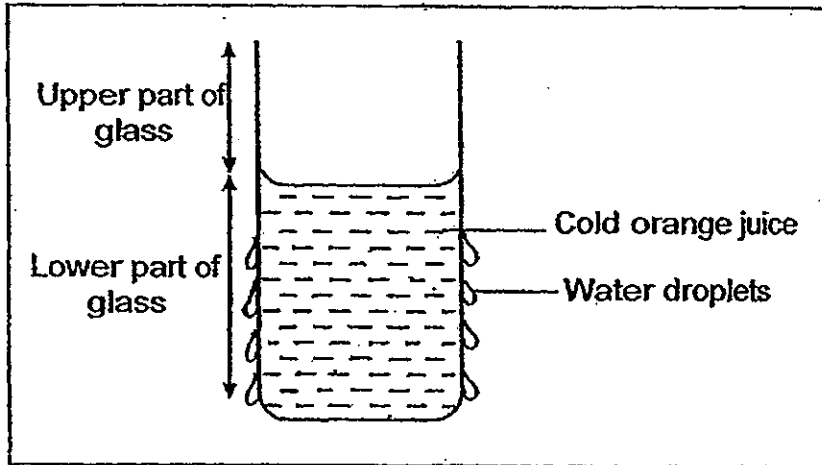
19. The following structure is made up of 8 blocks of the same size. They are, however, made of different materials, A, B, C, D and E. A tennis ball was placed in the center. 4 children attempted to look through the various blocks from four different positions as shown.



If **only** Linda and Benedict **could not** see the tennis ball at all, which one of the following correctly show the material each block is made of?

	Material A	Material B	Material C	Material D	Material E
(1)	Clear plastic	Frosted glass	Clear plastic	Clear coloured plastic	Frosted glass
(2)	Clear coloured plastic	Clear plastic	Clear glass	Ceramic	Clear glass
(3)	Clear coloured plastic	Ceramic	Wood	Metal	Clear plastic
(4)	Frosted glass	Ceramic	Clear coloured plastic	Clear plastic	Wood

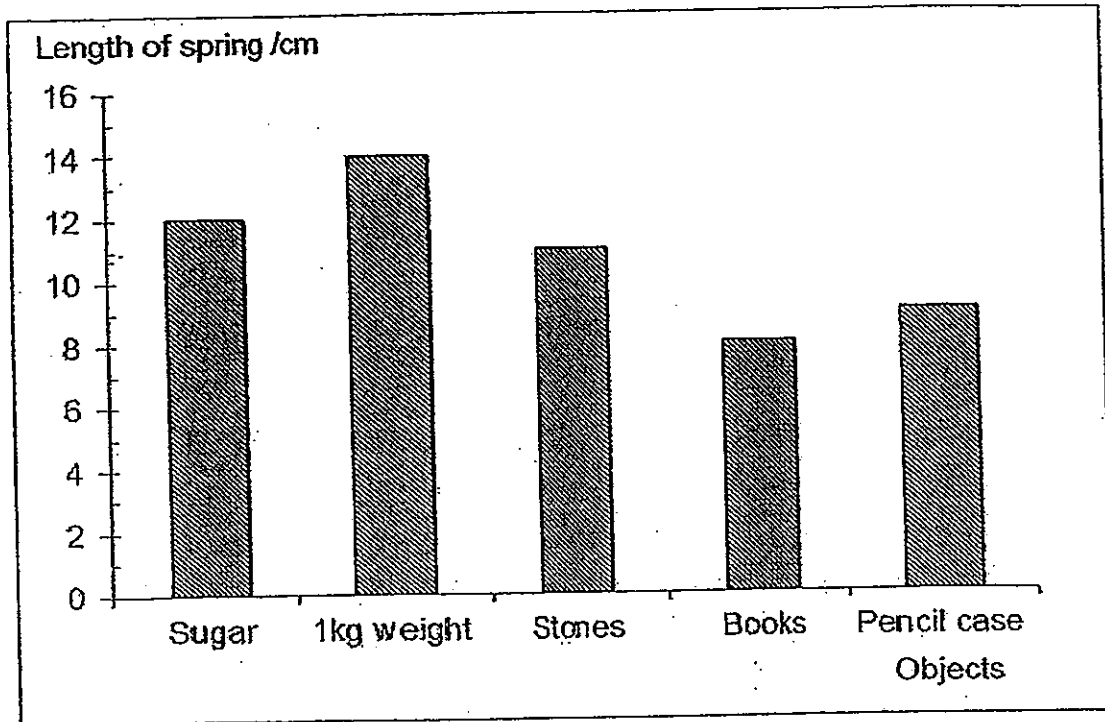
20. Xiao Lin filled a glass with some cold orange juice as shown in the diagram. She observed that water droplets only appeared on the lower part of the glass.



What one of the following could be a possible reason for her observation?

- (1) There is no heat loss for both the upper and lower part of the glass.
- (2) There is less heat loss at the upper part of the glass than the lower part of the glass.
- (3) There is less heat loss at the lower part of the glass than the upper part of the glass.
- (4) The amount of heat loss is the same for both the upper and lower part of the glass.

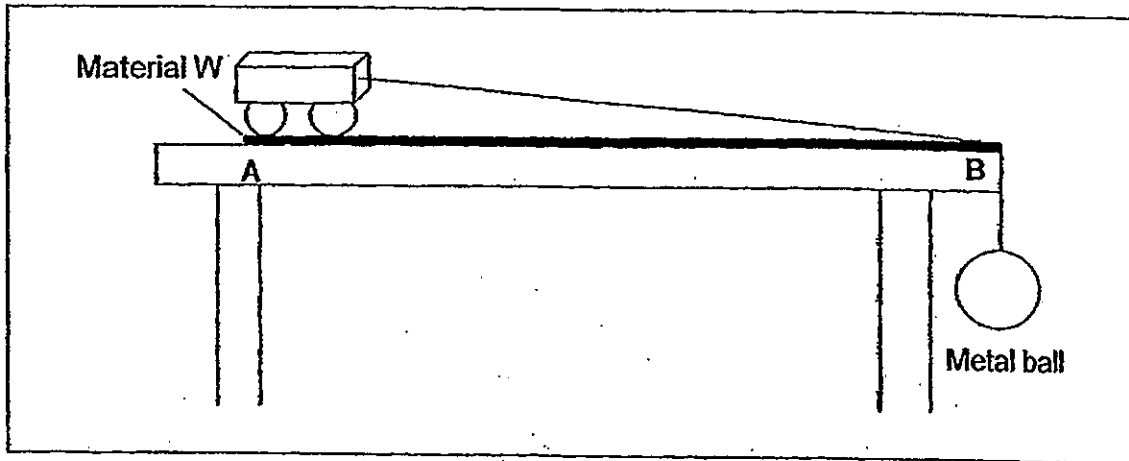
21. Bernice conducted an experiment by weighing different objects using a spring balance. She measured the length of the spring for each object weighed. The results were then presented in the following bar graph.



Given that the original length of the spring is 6cm, which one of the following object weighs about 250 g?

- (1) Sugar
- (2) Books
- (3) Stones
- (4) Pencil case

22. Jenny attached a metal ball to a wooden cart as shown below. The time the wooden cart took to reach B from A was recorded. The whole experiment was repeated using different materials, W, X, Y and Z on which the wooden cart moved across.



The results were recorded as shown below.

Material	Time taken to reach Point B (secs)
W	20
X	15
Y	17
Z	21

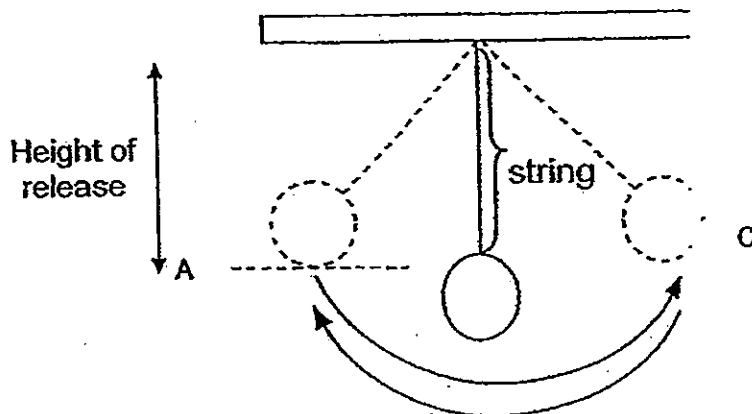
Which one of the following materials will be the most suitable to make the sliding surface of a children slide in a playground?

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



23. Read the following and answer question 23 and 24.

Helen set up the experiment below to find out the amount of time taken for the pendulum to make a complete swing (i.e.: From position A to C and back to A). She arranged set ups P, Q, R, S and T as shown below.

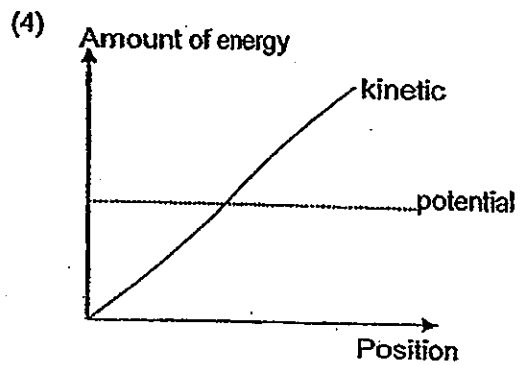
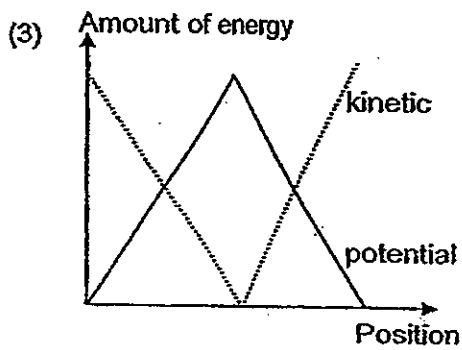
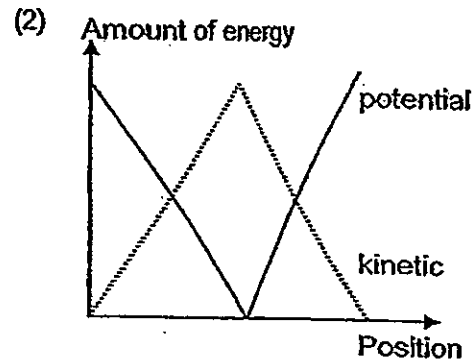
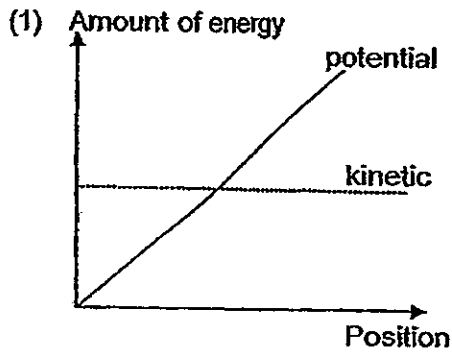


Set up	Height of release (cm)	Length of string (cm)	Mass of pendulum bob (g)
P	2	6	25
Q	4	8	35
R	4	6	35
S	2	8	35
T	2	6	20

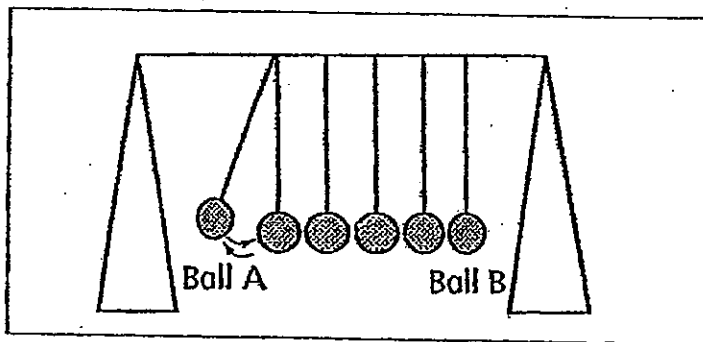
She wanted to find out if the mass of the pendulum bob affects the time taken for it to make a complete swing. Which two set-ups should she use?

- (1) Set-ups Q and R
- (2) Set-ups P and T
- (3) Set-ups Q and S
- (4) Set-ups R and T

24. Which of the following graphs shows the change of energy of one complete swing from position A to C correctly?



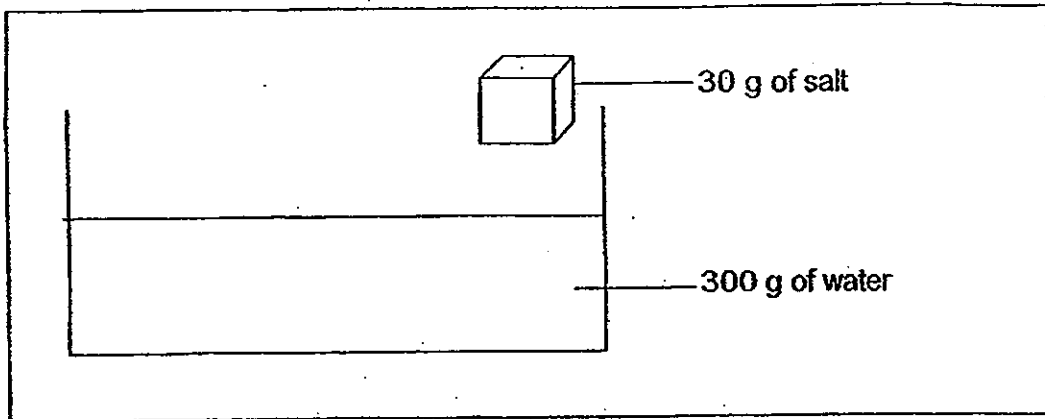
25. The figure below shows a Newton's cradle.



Which of the following statement is correct when Ball A is raised and released?

- (1) The balls will eventually stop moving because of friction only.
- (2) Kinetic energy will be transferred to Ball B through the other balls, and cause Ball B to be raised.
- (3) The experiment shows that energy cannot be destroyed or created but converted from one form to another.
- (4) All the kinetic energy will be converted to heat and sound energy.

26. Casey set up the following experiment as shown. He dissolved 30 grams of salt in 300g of water in a trough. He left the trough in the room for 2 days.






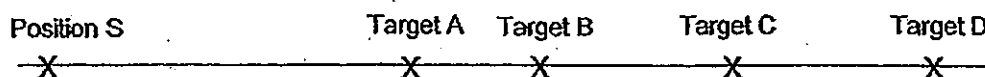
After 2 days, he found out that only 310g of salt solution was left in the bowl. Which one of the following correctly shows the composition of the solution?

- (1) 310g of water
- (2) 300g of water and 10g of salt
- (3) 290g of water and 20g of salt
- (4) 280g of water and 30g of salt

27. In the popular mobile game "Angry Birds", Bird X, Y and Z can be launched from a catapult one at a time to hit the desired target labelled A, B, C and D of increasing distances from the catapult.

The weight of Bird X, Y and Z are shown in the table below.

Bird X	Bird Y	Bird Z
		
Weight= 3.5kg	Weight = 5kg	Weight= 6kg



After playing a few rounds by launching Bird Y at position S, Wei Lin tabulated her observations as shown in the table.

Length of extension of elastic band/cm	Target hit			
	Target A	Target B	Target C	Target D
2	X	X	X	X
4	√	X	X	X
6	X	√	X	X
8	X	X	√	X
10	X	X	√	X
12	X	X	√	X

Wei Lin realised that she is unable to hit target D and her friends gave her some suggestions. Assuming the bird is launched from the same angle, which of the following suggestions could help Wei Lin hit target D?

Jie Xin:    Replace Bird Y with Bird X

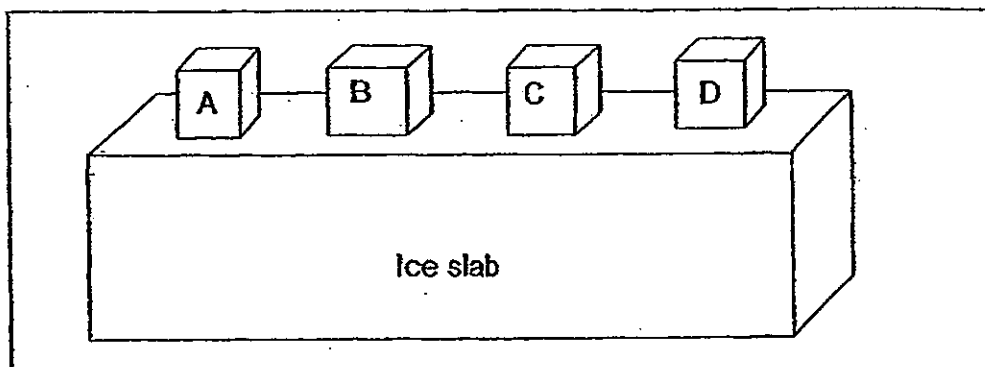
Jeffrey:    Replace Bird Y with Bird Z

Samantha: Increase the time taken to stretch the elastic band

Ravidan:    Increase the length of extension of the elastic band

- (1) Jie Xin
- (2) Jeffrey and Samantha
- (3) Jeffrey and Ravidan
- (4) Jie Xin and Samantha

28. Jacy set up the following experiment. She placed four cubes of different materials that have similar sizes and masses on a slab of ice at different positions as shown in the following diagram. The set up was placed at room temperature for 3 hours.



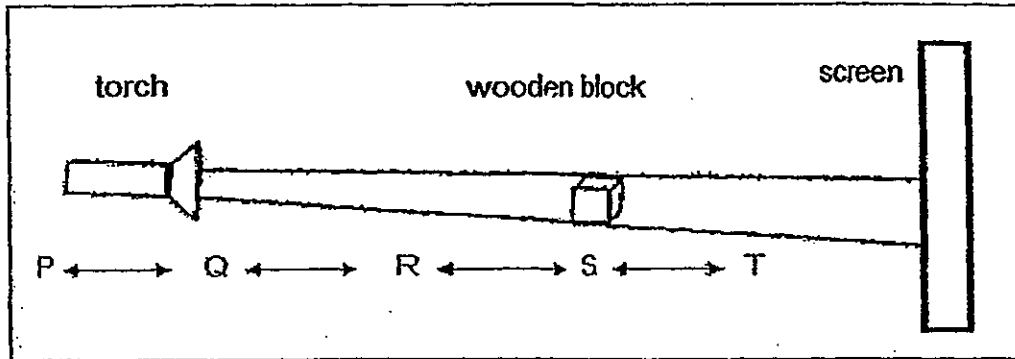
The indentations that the different cubes made on the ice were measured and recorded in the following table.

Cube	Depth of indentation/cm
A	5.2
B	4.9
C	5.4
D	4.5

Which of the cubes above is the best conductor of heat?

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

29. The diagram below shows a torch at position Q and it was shone on a wooden block at position S. A shadow was then cast on the screen. Position P, Q, R, S and T are equal in distance from each other.

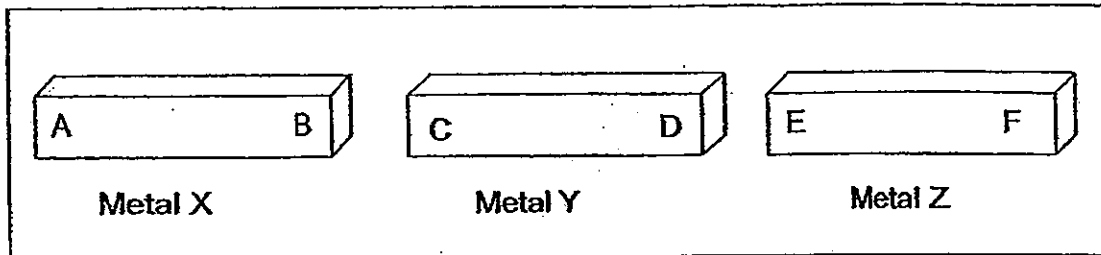


5 students suggested different positions to place the torch and wooden block to obtain a larger shadow. Which of the following students' suggestions are correct?

Student	Position of torch	Position of wooden block
Ariel	Q	T
Benny	P	Q
Cathy	R	S
Dorothy	P	T
Eugene	Q	R

- (1) Ariel and Benny only
- (2) Benny and Cathy only
- (3) Cathy, Dorothy and Eugene only
- (4) Benny, Cathy and Eugene only

30. Andrea has 3 pieces of metals X, Y and Z. She wanted to find out which metal (s) is/are magnets. She brought the ends of the metal close to one another to test if they attract or repel each other. The table below shows the results.



	Points	Metal X		Metal Y	
		A	B	C	D
Metal Y	C	Attract	Repel	-	-
	D	Repel	Attract	-	-
Metal Z	E	Attract	Attract	Attract	Attract
	F	Attract	Attract	Attract	Attract

Based on the results above, which of the following statement is correct?

- 1) Metal X and Y are magnets.
- 2) Metal Y and Z are magnets.
- 3) Metal X and Z are magnets.
- 4) All of the above statements.

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## CONTINUAL ASSESSMENT 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.

Write your answers in this booklet.

Name: \_\_\_\_\_ (    )

Class: Primary 6. \_\_\_\_\_

Date: 7 March 2013

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

This booklet consists of 9 printed pages including this page.



**Booklet B1: 20 marks**

Read the questions carefully and write your answers in the space provided.

- 31 The table below records the breathing rates (average number of times of breathing per minute) of Peter and Simon when they are resting, walking and swimming.

	Breathing rate(average number of times of breathing per minute) when		
	Resting	Walking	Swimming
Peter (45 years old)	15	25	38
Simon (10 years old)	24	35	45

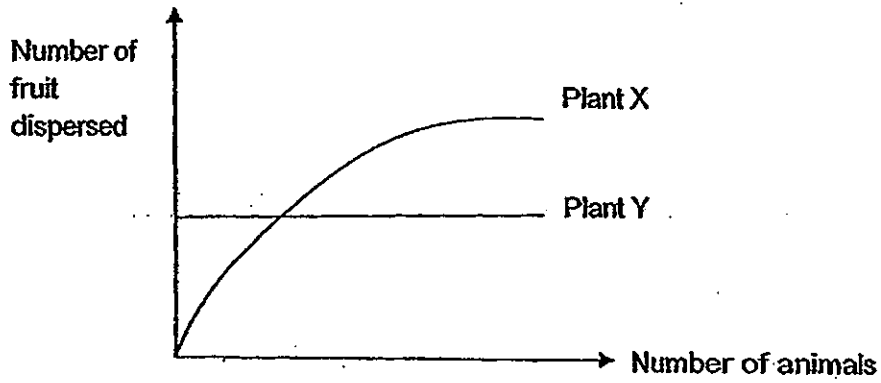
- (a) Compare the breathing rates of Peter and Simon when they are resting. (1m)

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- (b) Based on the information given, what are the two factors that can affect a person's breathing rate. (2m)

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32 The graph below shows the number of fruits dispersed by animals for Plant X and Y.



(a) Based on the graph above, how does the number of animals affect the fruit dispersal of the two plants? (2 m)

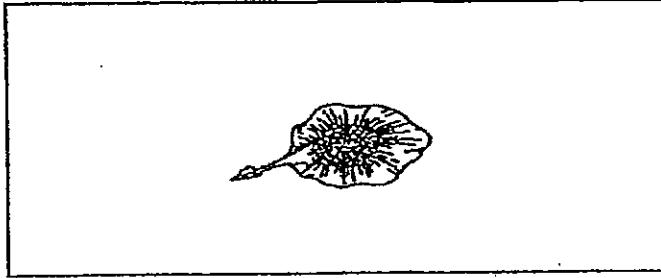
Plant X: \_\_\_\_\_

Plant Y: \_\_\_\_\_

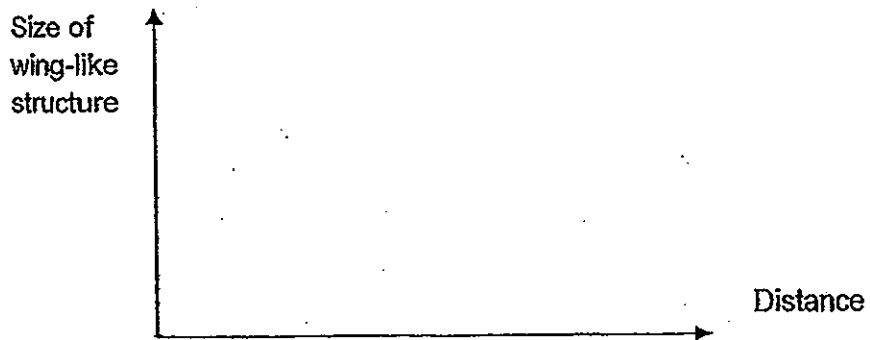
(b) What can you conclude about the characteristics of the fruit of Plant Y? (1m)

\_\_\_\_\_

The diagram below shows an angsana fruit.



(c) Draw a line graph to show the relationship between its wing-like structure and the distance it can travel. (1m)

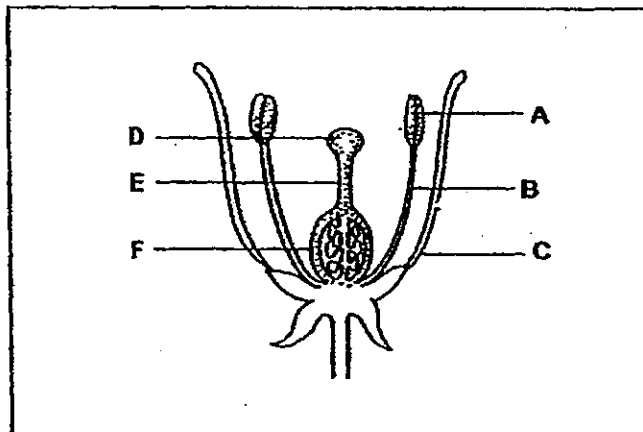


(d) State how the size of the wing-like structure affects the time taken for the fruit to reach the ground. Explain your answer. (1m)

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33 The diagram below shows the cross-section of a flower.



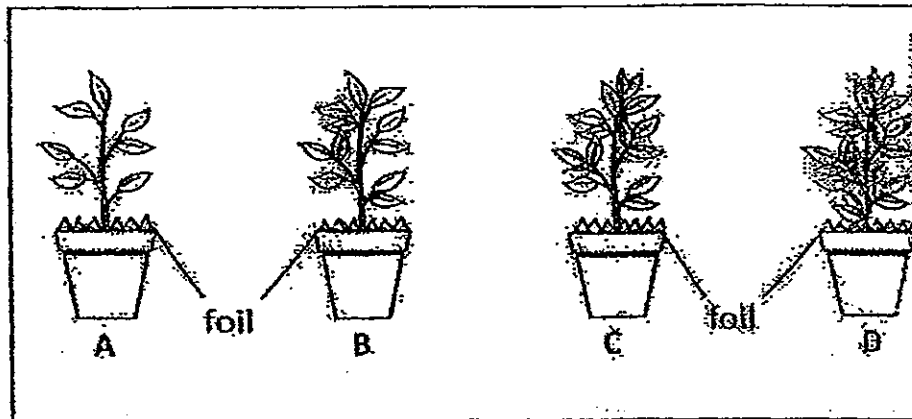
(a) Which part of the flower can be compared to the "testes" of a human reproductive system? (1m)

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(b) What does the part mentioned in (a) produce? (1m)

---

- 34 Sally carried out an experiment to find out if the number of leaves affects the amount of water taken in by plants.



She chose four similar plants with different number of leaves in her set-ups. She placed them in 4 similar containers filled with 100 ml of water each. After 3 days, she observed that the water level has decreased. She recorded the results for her set-ups in the following table below.

Set-up	A	B	C	D
Number of leaves	7	11	15	19
Initial volume of water/ml	100	100	100	100
Volume of water left/ml	90	86	82	78

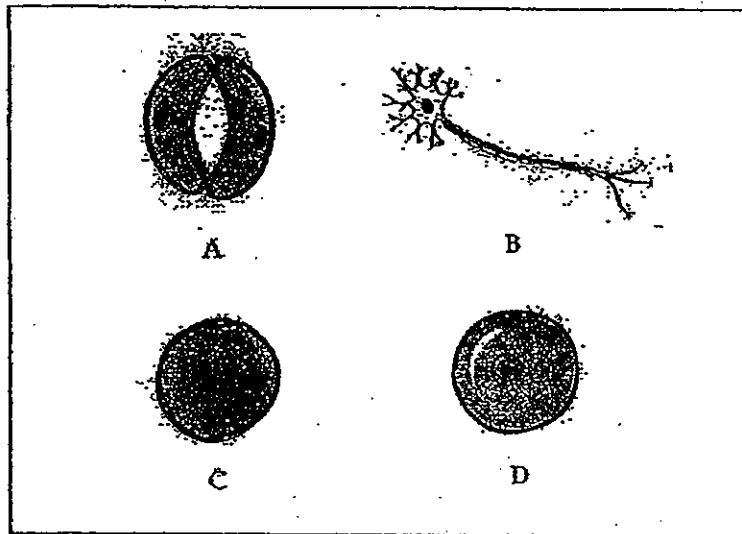
- (a) Suggest why Sally decided to use the foil.

(1m)

- (b) What does the experiment show?

(1m)

35 The diagrams below show four different cells.



(a) Which of the cells shown above are animal cells?

(1m)

---

(b) Which of the cells shown above are plant cells?

(1m)

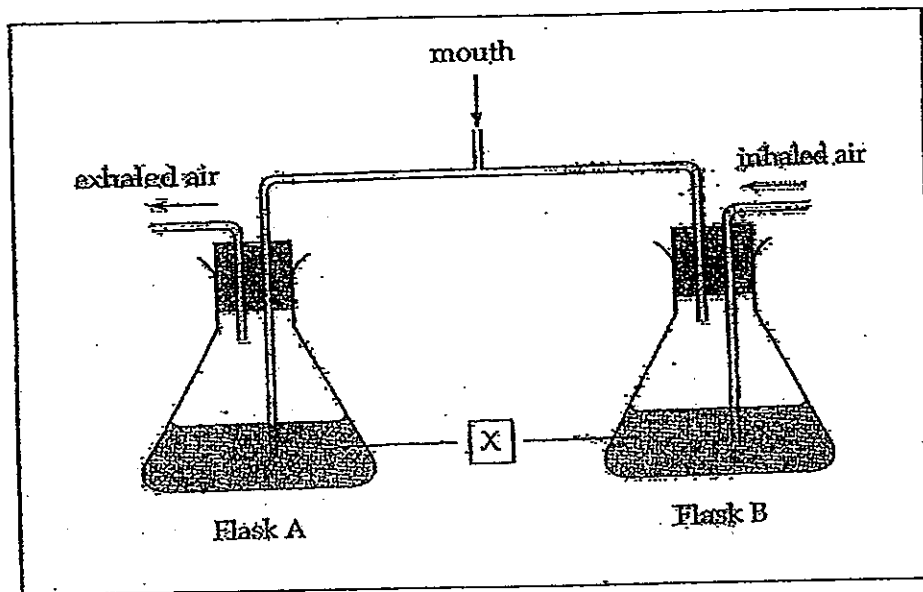
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(c) Explain how you distinguish the plant cells from the animal cells shown above.

(1m)

---

36 Jesper carried out an experiment to investigate the presence of carbon dioxide in inhaled and exhaled air. He set up the experiment as shown below.



(a) What is the liquid X that Jesper has filled the flask with? (1m)

---

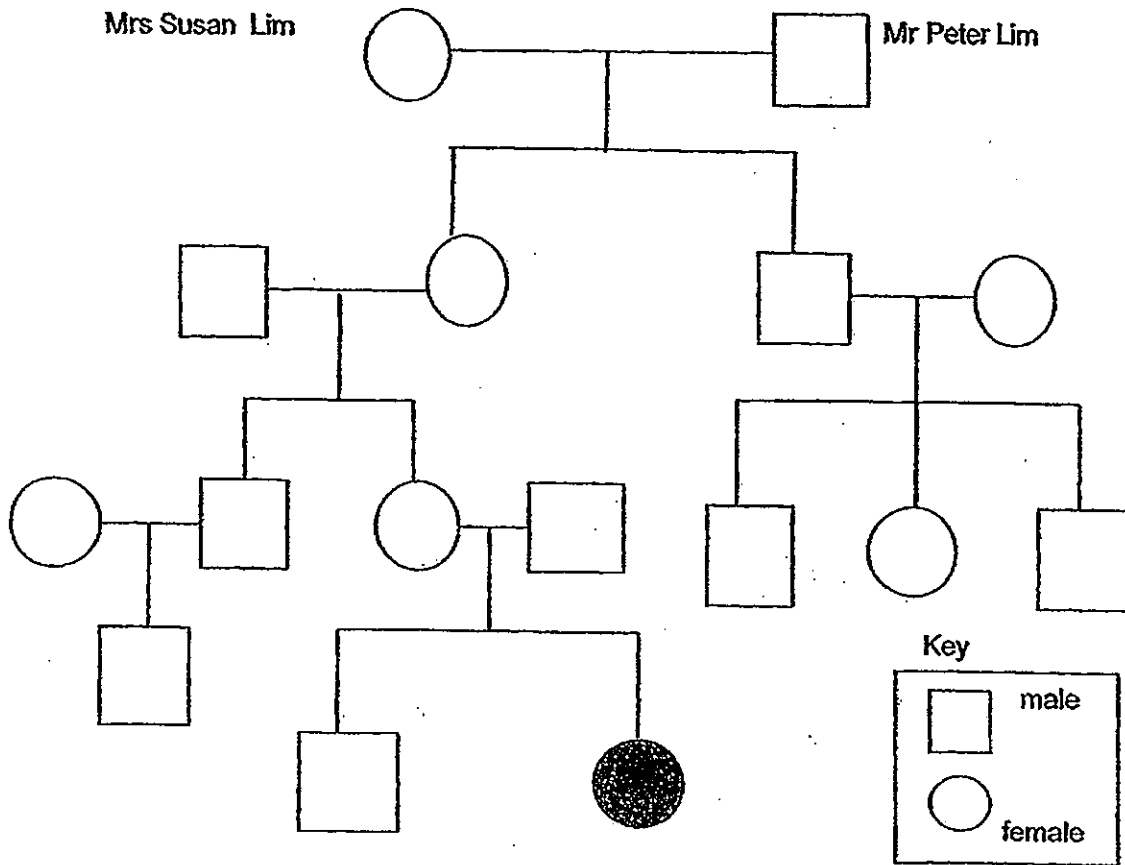
(b) Explain why it has been used in the experiment? (1m)


---

(c) What change is he likely to observe and explain why it happened? (1m)

---

37 The diagram below shows the family tree of Cheryl.



(a) Cheryl is Mr Peter Lim's great granddaughter. Identify and shade the  representing Cheryl in the family tree. (1m)

(b) Cheryl has been told by many people that she has her father's eyes and her mother's nose.

Suggest an explanation as to why she has such features. (1m)

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# METHODIST GIRLS' SCHOOL

Founded in 1887



## CONTINUAL ASSESSMENT 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: 7 March 2013

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

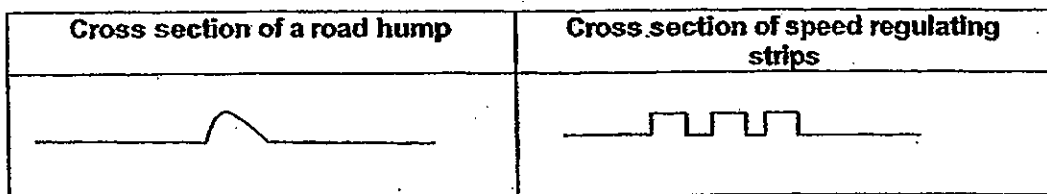
This booklet consists of 8 printed pages including this page.

**Section B2: 20 marks**

Read the questions carefully and write your answers in the space provided.

38. According to the Land Transport Authority of Singapore, speeding has been a problem in the past few years. In order to solve this issue, the authority has decided to place speed regulating strips and road humps to slow down the vehicles on roads, especially before a zebra crossing.

The cross sections of a road hump and speed regulating strips are shown in the following diagram.



- a) Explain how a speed regulating strip or a road hump can slow down a vehicle. (2 m)

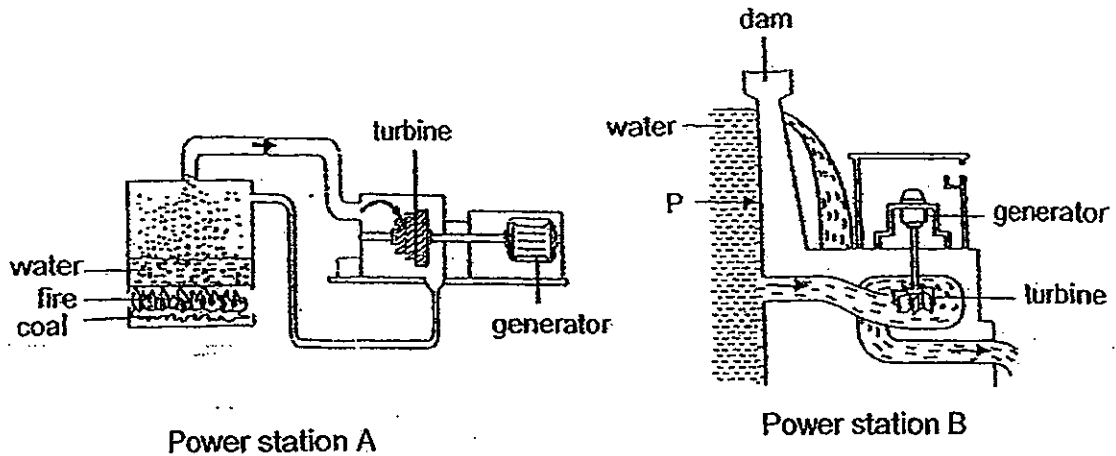
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- b) Apart from using speed regulating strips and road humps, suggest one change which can be made on the road surface to slow down vehicles. (1m)

---

39) The diagram below shows two different power stations, A and B.



a) Write the energy conversions for power station A and B. (2 m)

Power station A:

\_\_\_\_\_ energy → \_\_\_\_\_ energy → \_\_\_\_\_ energy → \_\_\_\_\_ energy  
 (In coal) (In steam) (In turbine) (In generator)

Power station B:

\_\_\_\_\_ energy → \_\_\_\_\_ energy → \_\_\_\_\_ energy → \_\_\_\_\_ energy  
 (Water in dam) (Falling water) (In turbine) (In generator)

b) It is found that both generators in the power stations A and B are able to produce the same amount of energy. However, a recent drought caused the water level of power station B to drop to point P.

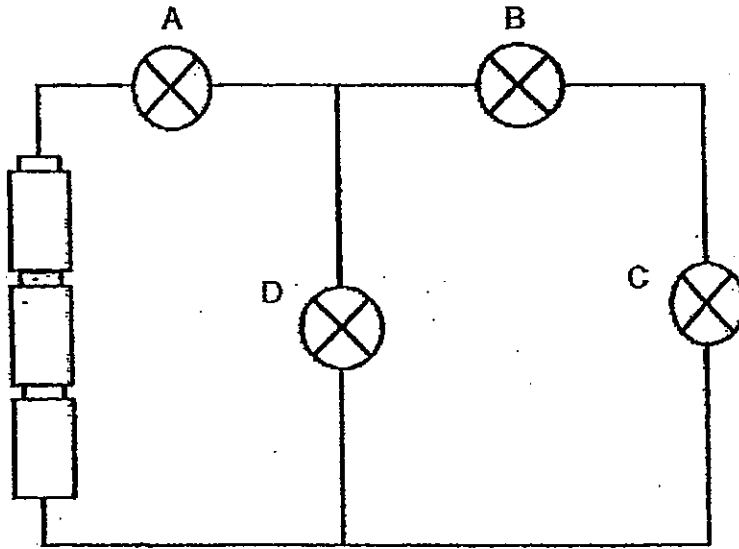
What would be the effect on the amount of energy produced by the generator in power station B? Explain your answer. (1 m)

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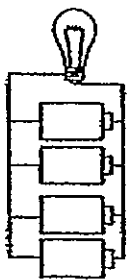
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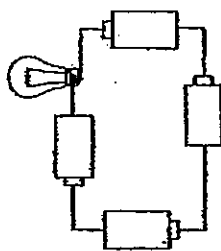
40. Study the following circuit.

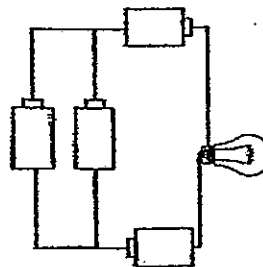


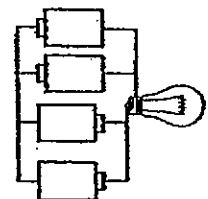
- (ai) Mark an "X" on the circuit above to represent a switch which is able to turn off the bulbs at the same time (1m)
- (ii) What will happen to the rest of the bulbs if Bulb D is removed and replaced with a wire? (1m)

(b) Jon set up the following electrical circuits. The batteries, wires and bulb used are identical. Arrange the circuits according to the brightness of the bulb with 1 being the brightest and 4 being the least bright. (2m)

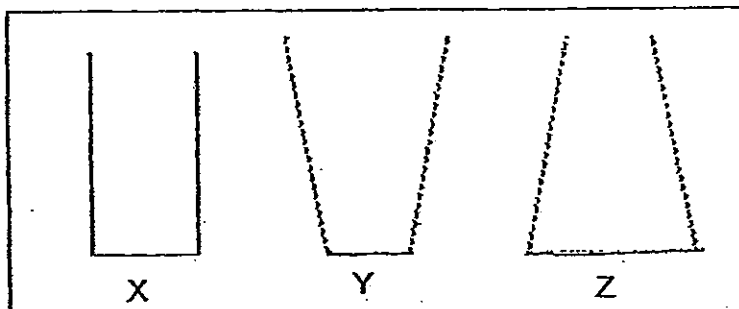




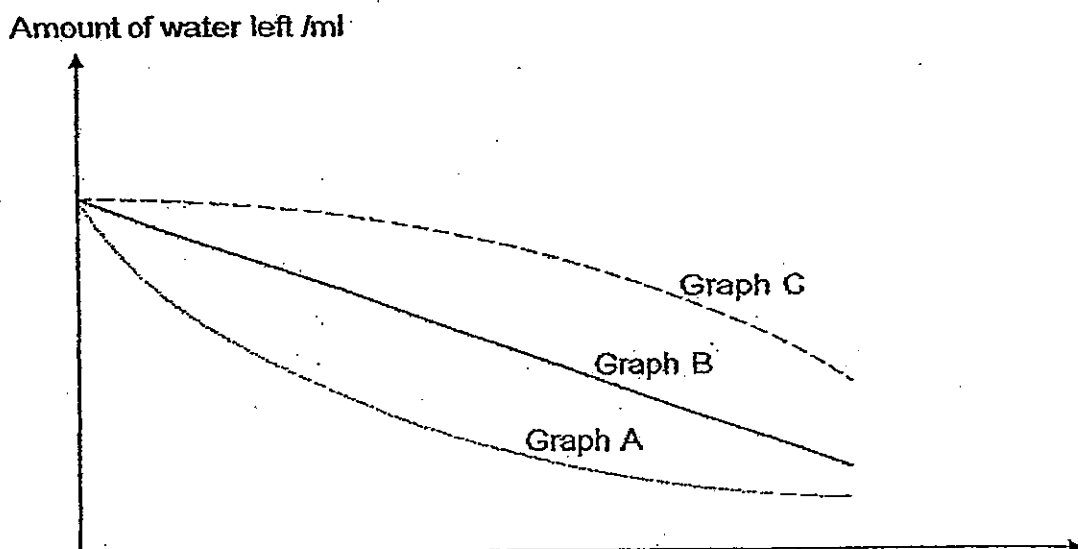




41. Daphne conducted an experiment to find out the rate of evaporation of water for the different containers X, Y and Z as shown in the following diagram. An equal amount of water was poured into each of the containers and left in a room with no windows for a period of time.



Daphne measured the amount of water left in the containers at regular intervals and plotted the following graphs.



- (a) Label the graphs with the correct letters of the containers. (1/2m)

Graph A: Container \_\_\_\_\_

Graph B: Container \_\_\_\_\_

Graph C: Container \_\_\_\_\_

- (b) Explain your answer for all the 3 containers in (a) (1 ½ m)

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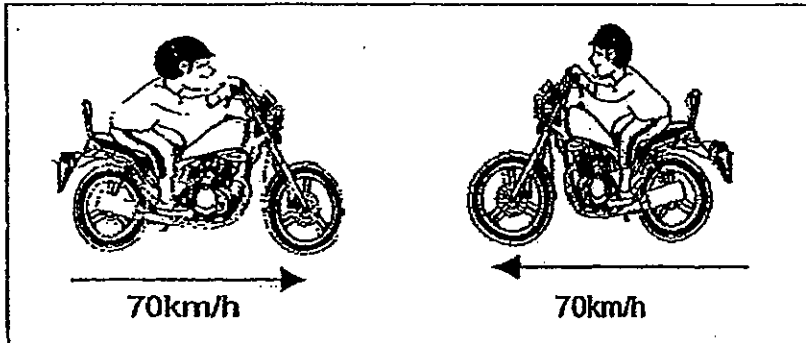
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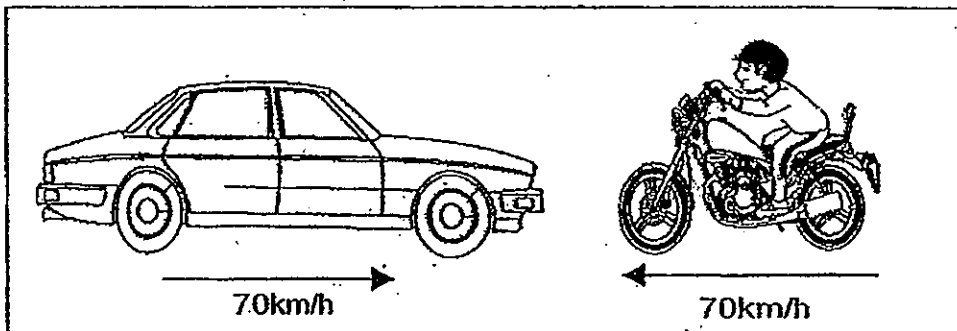
42. A motorcycle company carried out a crash test as shown below. Two similar motorcycles with dummies were made to perform a head-on collision. The extents of damage for both motorcycles were similar.

**Scenario 1**



In another test, the same motorcycle collided with a car. It was found that the extent of damage to the motorcycle is greater than that to the car.

**Scenario 2**



- a) Explain why the motorcycle was damaged to a greater extent in the second scenario?

(2m)

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- b) How would wearing a seat belt reduce the amount of injuries sustained by the car driver?

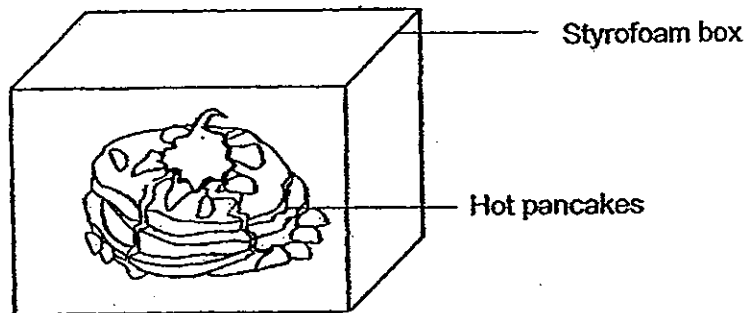
(1m)

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43. The diagram below shows some hot pancakes in an enclosed styrofoam box.



(a) Water droplets were seen on the top inner surface of the Styrofoam box after some time. Why? (2m)

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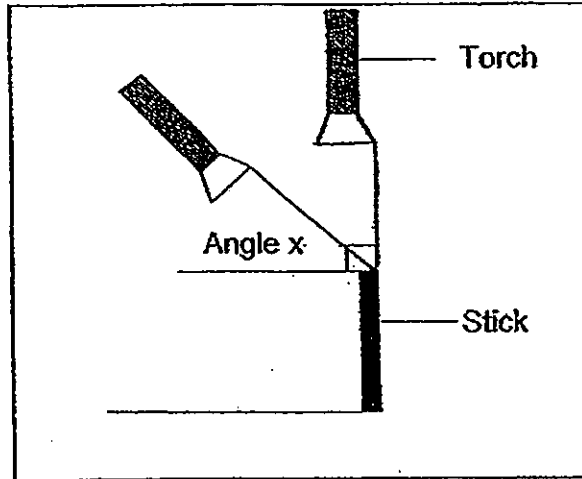
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(b) Suggest a modification to be made to the box to reduce the amount of water droplets from forming. (1 m)

---

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44. Ron carried out an experiment to find out if the position of the torch affects the length of the shadow formed. He positioned his torch at an angle,  $x$  as shown in the diagram. The torch was shone at a stick and the length of the shadow was measured.



He recorded the data as shown in the following table.

Size of angle, $x$ ( $^{\circ}$ )	Length of shadow (cm)
60	10
70	8
80	6
90	4
100	6
110	8
120	10

- a) Based on the results above, estimate the length of the shadow when angle  $x$  is  $95^{\circ}$   
(1m)

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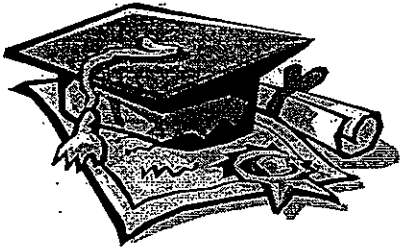
- b) What is the relationship between the angle  $x$  and the length of the shadow formed?  
(2m)

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# ANSWER SHEET

**EXAM PAPER 2013**

**SCHOOL : MGS**

**SUBJECT : PRIMARY 6 SCIENCE**

**TERM : CA1**

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

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

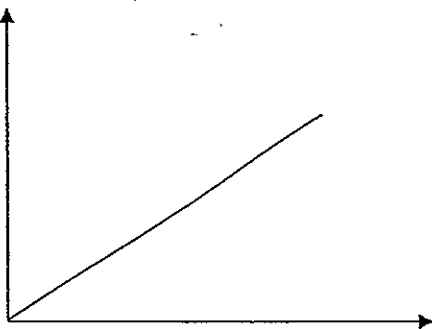
- 31)a)The breathing of Simon is higher than the breathing rate of Peter.  
b)Age and Activity that they are engaged in.

32)a)X: The more the number of animals, the more the number of fruit dispersal.

Y: The more the number of animals, the number of fruit dispersal will still remain the same.

b)Light, dry wing-like structure.

c)



d)The larger the size of the wing-like structure, the longer the time taken for the fruit to reach the ground. A larger wing-like structure results in a greater resistance which slows down its speed of falling and increases the time taken to reach the ground.

33)a)Part A.

b)It produces pollen grains which contains the male sex cells of the flower.

34)a)To prevent the loss of water by evaporation.

b)The experiment shows that the greater the number of leaves on the plant, the more the amount of water taken in by the plant.

35)a)Cells B, D and C.

b)Cell A.

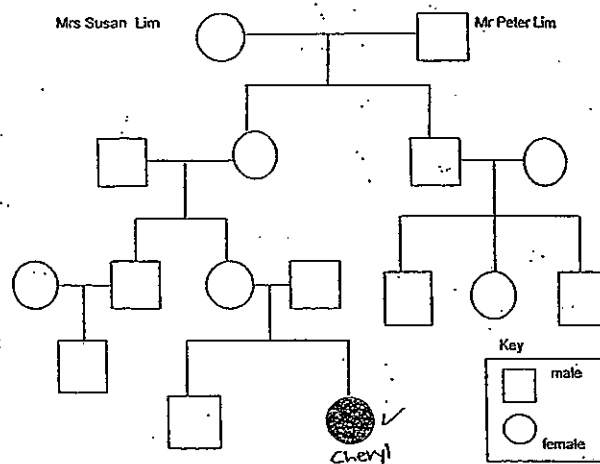
c)Plant cells have cell walls and chloroplasts where as animal cells do not have cell walls and chloroplasts.

36)a)Lime water.

b)If the lime water turns chalky, this will mean that there is a presence of carbon dioxide in inhaled or exhaled air.

c)He will observe that the lime water in flask A has turned chalky as there is a presence of carbon dioxide in the exhaled air.

37)a)



b)The genetic information in the nucleus of her cells have been passed down to her from her parents.

38)a)Both speed regulating strip and road hump increase the surface area of contact between the wheels of a vehicle. Hence, this increases the amount of friction which the motion of the vehicle slows it down.

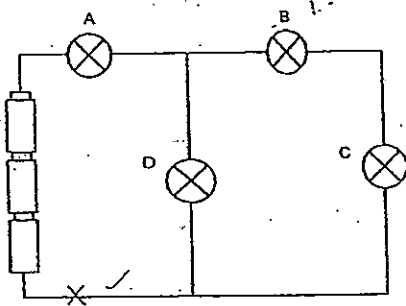
b)Make the road surface rougher.

39)a) Chemical potential energy → Heat energy → Kinetic energy → Electrical energy.

Gravitational Potential energy → Kinetic energy → Kinetic energy → Electrical energy.

b) The amount of energy produced in power station will decrease. Due to the drought water will flow from a lower height which reduces the amount of gravitational energy to be converted to kinetic energy and electrical.

40)a)i)



ii) Bulb A will light up Bulb and C will remain unlit.

b) 4 1 2 3

41)a) A: Y B: X C: Z

b) As the area of exposed surface of water in container Y is the greatest, more water will evaporate from it and lesser water will be left in it. The area of exposed surface area in container X is neither great nor small, so the amount of water that will evaporate from it will be more than container Z but less than container Y so the amount of water left in container will be more than container Y and lesser than container Z. The area of exposed surface of water in container Z is the least, so lesser water will evaporate from it and more water will be left in it.

42)a) Its mass is much smaller to that of a car and the front of the motorcycle is much smaller than that of a car.

b) When the car breaks to a halt, the driver will be flung forwards and then back wards if he did not wear a seat belt. But if the car breaks to a halt and the driver is wearing a seat belt, the impact on the driver is much lesser and the driver will only move forward a few centimeters and then backwards a few centimeters.

**43)a)When the pancakes were hot, the surrounding air will also gain heat and turn hot. So when the warm air comes into contact with the cool surface of the Styrofoam box, the warm air will lose heat and condense into water droplets on the top inner surface of the Styrofoam box.**

**b)Holes can be made on the top of box to allow the hot water vapour to escape.**

**44)a)5cm.**

**b)As the angle X increases, the length of the shadow until  $90^\circ$  . However, for angles larger than  $90^\circ$  the length of the shadow becomes longer.**