

St. Hilda's Primary School  
Semestral Assessment 1, 2012  
Primary Six Science

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

Mark : \_\_\_\_\_ / 60

Class : P6/ \_\_\_\_\_

Parent's Signature: \_\_\_\_\_

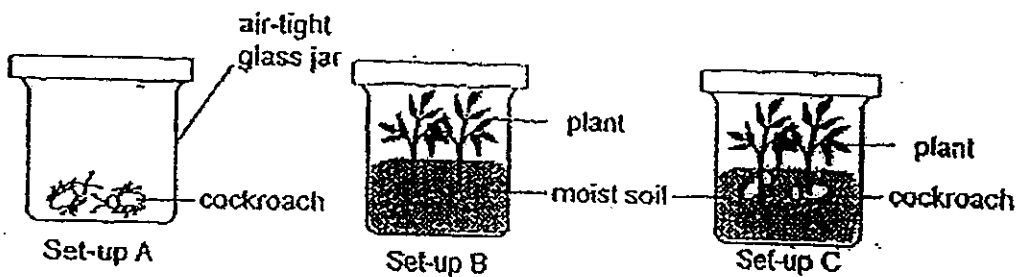
**Booklet A**

(30 Questions x 2 marks)

For each question, four options are given. One of these is the correct answer.

Make your choice (1, 2, 3 or 4). Shade the correct ovals on the Optical Answer Sheet.

1. Some boys put some organisms into 3 identical containers as shown below. They left the set-ups in a sunny part of a field from 8 am to 12 noon.



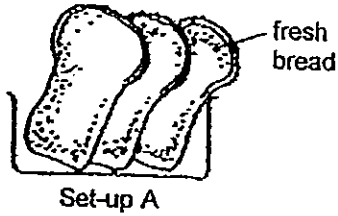
Whose statement/s about the amount of oxygen in the set-ups was/were correct?

- Dave : There was an equal amount of oxygen at 12 noon in all the 3 set-ups.  
 Alvin : Set-up A had the least amount of oxygen at the end of the experiment.  
 Paul : Set-up C had the most amount of oxygen at the end of the experiment.  
 Ben : There was more oxygen in Set-up B than C at the end of the experiment.

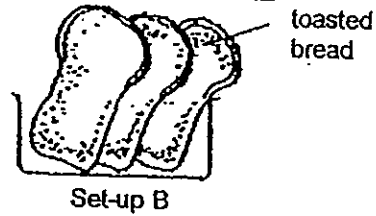
- 1) Ben only
- 2) Alvin and Ben
- 3) Paul and Alvin
- 4) Dave and Paul

2. Paul wants to find out what causes bread to decompose. He prepares 2. set-ups, A and B, as shown below.

Kept in a wooden cupboard



Kept in a wooden cupboard



After a few days, he discovered that black spots appeared on the bread in Set-up A but not for the bread in Set-up B.

From the result of his experiment, he can conclude that \_\_\_\_\_ is needed for decomposition to take place.

- 1) air
  - 2) light
  - 3) heat
  - 4) water
3. Mrs Tan wanted to find out what type of soil was suitable for growing balsam plants. She planted 3 balsam plants of similar size in three pots, A, B and C.

The three plants were placed in the same location in a garden as shown below.

150cm<sup>3</sup> of water given



Plastic pot  
with 1200cm<sup>3</sup>  
of garden soil  
Pot A

150cm<sup>3</sup> of water given



Plastic pot  
with 800cm<sup>3</sup>  
of sandy soil  
Pot B

150cm<sup>3</sup> of water given



Plastic pot  
with 500cm<sup>3</sup>  
of clayey soil  
Pot C

Why was the experiment NOT a fair one?

- 1) The amount of soil in each pot was different.
- 2) The type of soil used in each pot was different.
- 3) The three pots were given the same amount of water.
- 4) The balsam plant in Pot A obtained more sunlight than Pot B and Pot C.

4. Tim fed 100 grams of maize and 100 grams of meat to each of the 4 different animals. After an hour, he measured the amount of food left and recorded the results in the table below.

Animals	Maize left (g)	Meat left (g)
A	100	0
B	80	50
C	100	50
D	0	100

Which animal(s) in Tim's investigation is likely to be an omnivore?

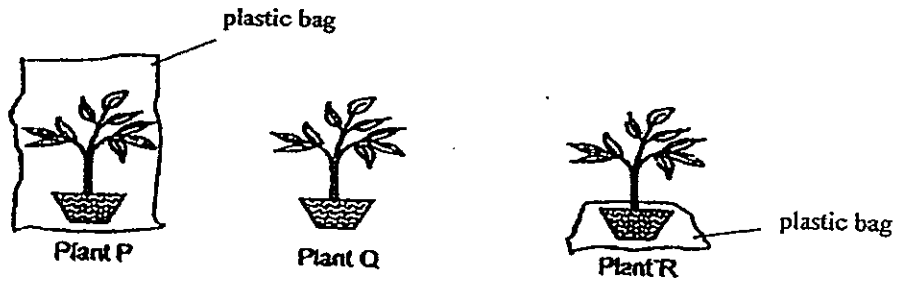
- 1) A only
- 2) B only
- 3) B and C only
- 4) A and D only

5. Amy has five bell-jars containing a plant each. Each plant was given a different set of conditions. All the plants were identical and healthy at the start of the experiment. The table below shows the conditions given to the five plants.

Bell-jar	A	B	C	D	E
Water			√		√
Oxygen	√	√	√	√	√
Sunlight		√	√	√	√
Fertiliser	√			√	
Carbon dioxide	√	√		√	√

Which 2 bell-jars of plants would be suitable to show that water is needed for the plant to make food?

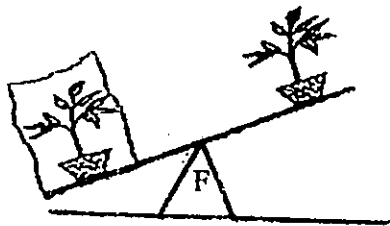
6. Three similar pots of plant, P, Q and R, of the same mass are used in the experiment shown below. They are placed in an airy and sunny place. Each pot is given 300ml of water at the start of the experiment.



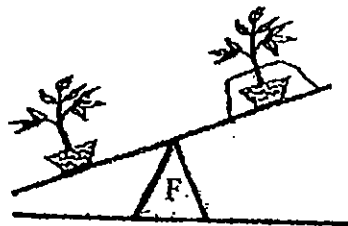
Which of the following set-ups is most likely to be correct after one day?

Note: Object F is placed in the middle to balance the two plants in each set-up.

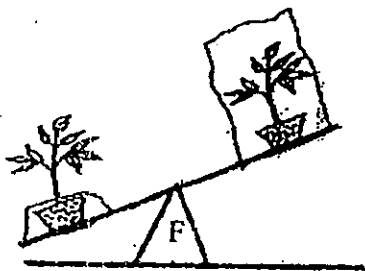
Set-up A



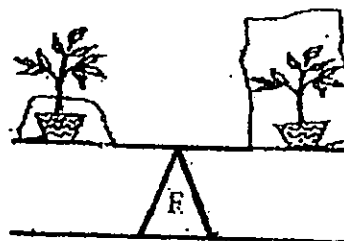
Set-up B



Set-up C



Set-up D



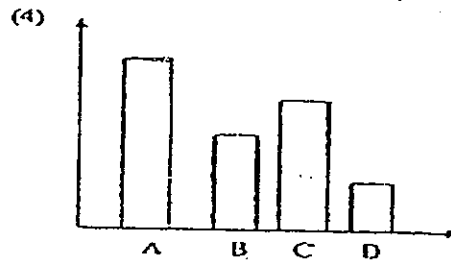
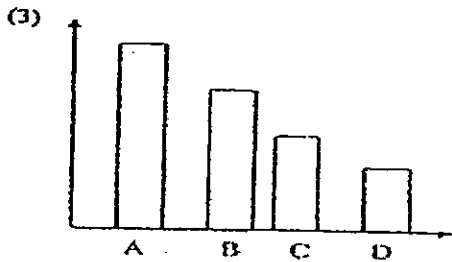
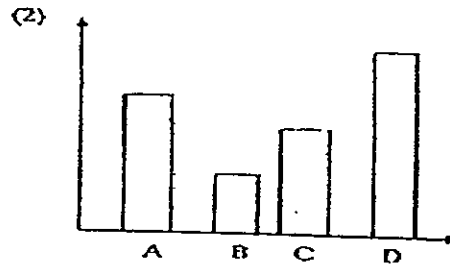
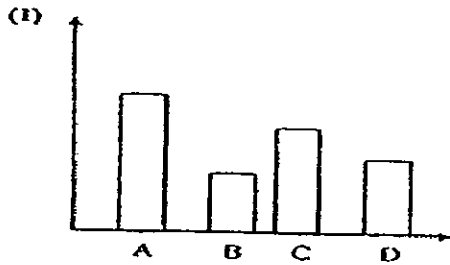
⋮

- 1) Set-up A
- 2) Set-up B
- 3) Set-up C
- 4) Set-up D

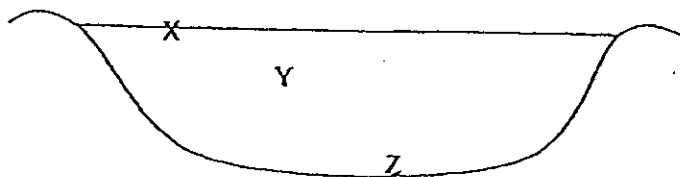
7. Which of the following graphs best shows the populations of the various organisms in a field community?

Key:

A	Grass
B	Lizard
C	Grasshopper
D	Mynah



8. The diagram below shows the cross-section of a pond.

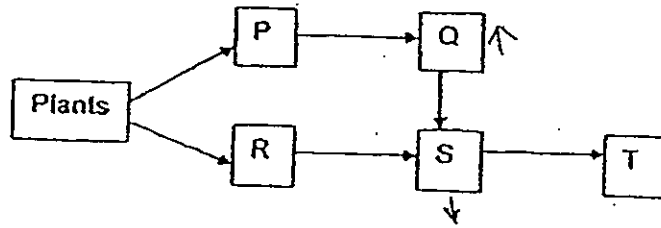


Which two children have identified all the three organisms found at these locations correctly?

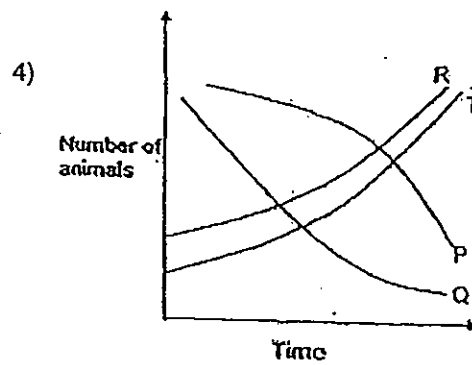
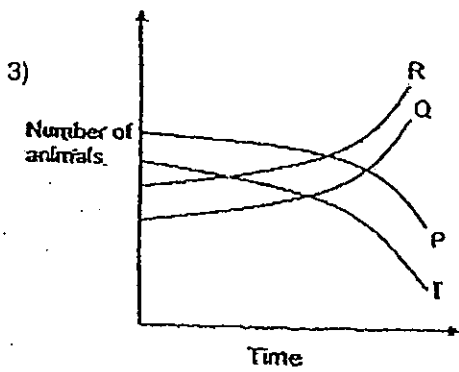
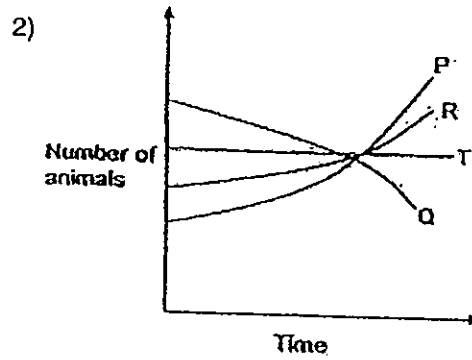
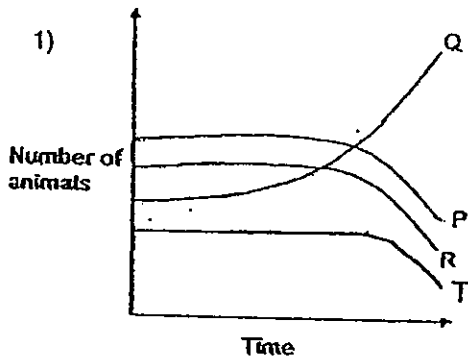
	X	Y	Z
Helen	Water lettuce	Tadpole	Hydrilla
Jack	Duckweed	Guppy	Elodea
Karen	Pond skater	Watersnail	Duckweed
Peter	Pond skater	Mosquito larva	Water snail

- 1) Helen and Jack
- 2) Jack and Karen
- 3) Helen and Peter
- 4) Karen and Peter

9. In the food web shown below P, Q, R, S and T represent animals.

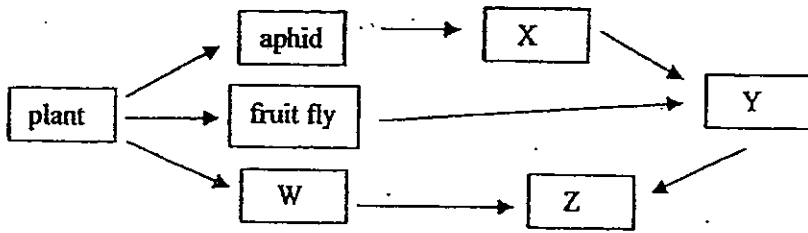


Which one of the following graph shows how the populations of P, Q, R and T are likely to be affected immediately if there is a decrease in the population of S in a habitat?



⋮

10. The diagram below shows a food web.



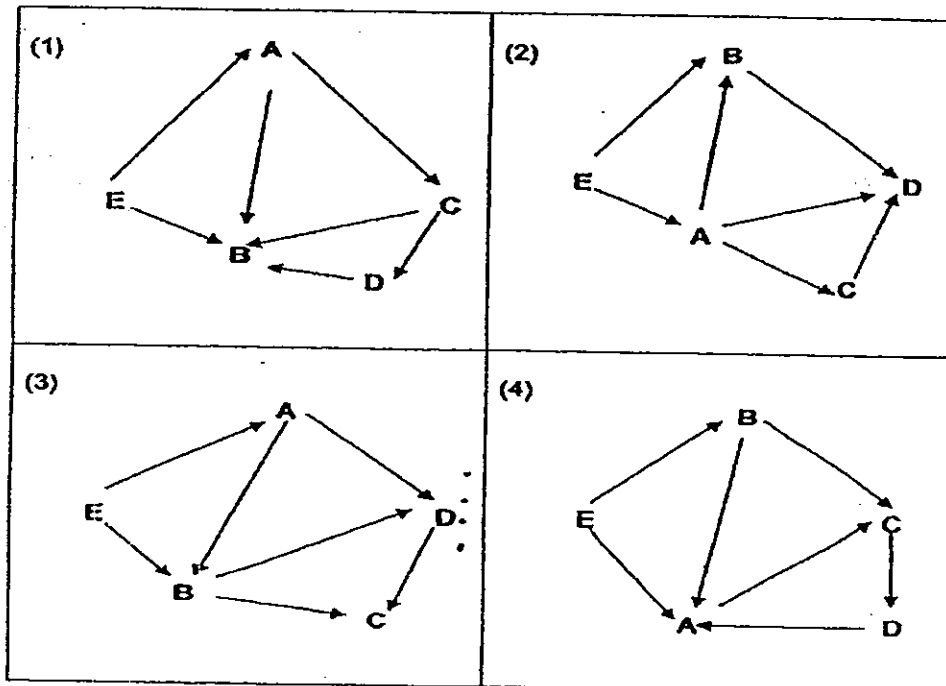
Choose the set of organisms from the following table that can be correctly used to complete the food web.

	W	X	Y	Z
1	grasshopper	frog	lizard	woodlouse
2	earthworm	caterpillar	frog	mynah
3	caterpillar	ladybird	spider	sparrow
4	grasshopper	ladybird	millipede	praying mantis

11. A, B, C, D and E are 5 organisms in a certain community. The following are some information of these organisms:

- A has only 2 predators.
- B is the only omnivore.
- C and D have 2 food sources.
- E is a food producer.

Which one of the following food webs is found in this community?



12. The diagram shows a dolphin.



Which of the following adaptations enable a dolphin to survive in the ocean?

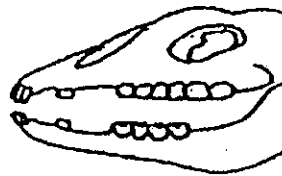
- A: Its flippers.
- B: Its webbed feet.
- C: Its streamlined body shape.
- D: Its blowhole located at the top of its head.

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

13. The diagrams below show the teeth of Animal X and Animal Y.



Animal X



Animal Y

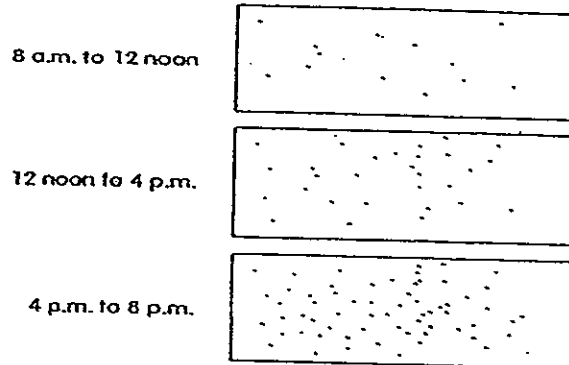
Which of the following deductions about Animals X and Y is/are correct?

		True	False	Not possible to tell
A	Animal X eats only plants.			
B	Animal Y is an herbivore.	✓		✓
C	Animal X hunts in a group.			
D	Animal Y only eats plants on land.		✓	

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

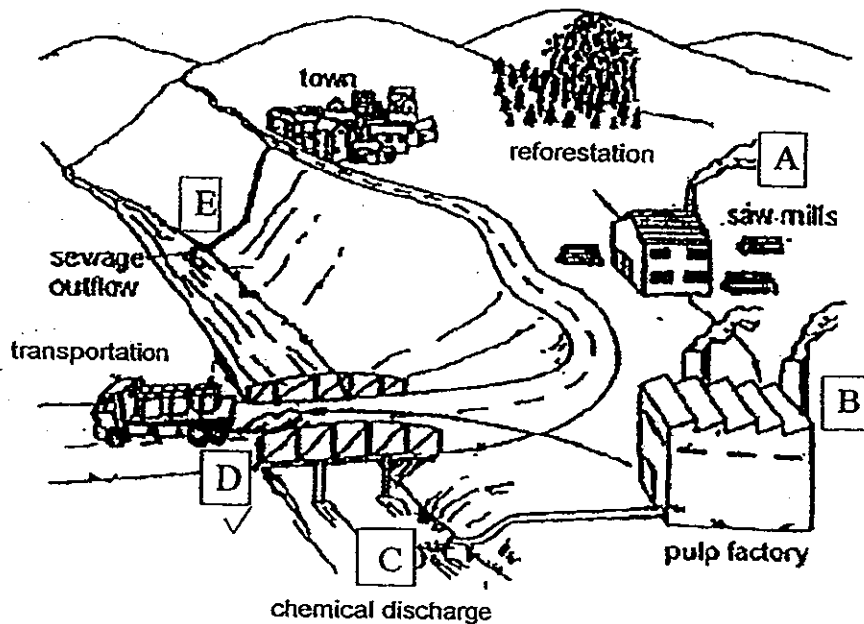


14. Mr Tan wanted to find out the level of air pollution in a field at different times of the day. He divided the day into three time periods of four hours each. He pasted double-sided tape on one side of a piece of glass and left it in the park. The diagrams below show what was collected on the glass.



From the experiment, Mr Tan can conclude that \_\_\_\_\_.

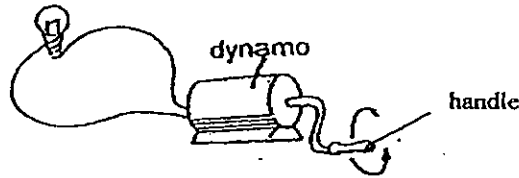
- 1) the amount of pollutants is highest from 4pm to 8pm
  - 2) humans can survive when there are pollutants in the air
  - 3) the amount of pollutants is highest from 8am to 12 noon
  - 4) the high amount of pollutants is due to the fumes produced by vehicles
15. The diagram below shows some human activities which affect the environment.



Based on the diagram above, what are the activities that cause air pollution directly?

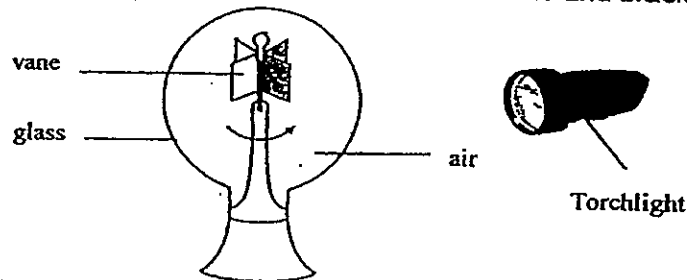
- 1) A and B only
- 2) A, B and D only
- 3) B, C and D only
- 4) B, C and E only

16. A dynamo is connected to a light bulb as shown below. By turning the handle of the dynamo, electricity will be generated and the bulb will light up.



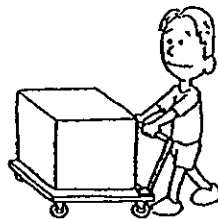
What will happen to the bulb when the handle is turned faster?

- 1) Bulb will become dimmer.
  - 2) Bulb will become brighter.
  - 3) Bulb will remain as bright as before.
  - 4) Bulb will light up brightly for a short while and then become dimmer.
17. The diagram below shows a toy. Each vane is white on one side and black on the other.



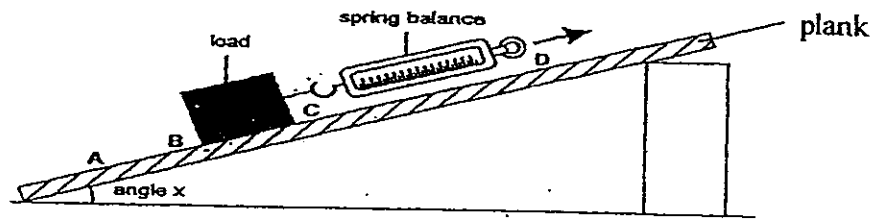
When Ali shone a torch on the toy, the vanes started rotating. Which of the following energy caused the vane to rotate?

- 1) light energy
  - 2) heat energy
  - 3) kinetic energy
  - 4) potential energy
18. Jack finds it easy to move a heavy box using a trolley because \_\_\_\_\_.



	Wheels of trolley	Frictional Force
1)	Reduce surface area of contact	Is reduced
2)	Reduce surface area of contact	Is increased
3)	Increase surface area of contact	Is reduced
4)	Increase surface area of contact	Is increased

19. Study the diagram.

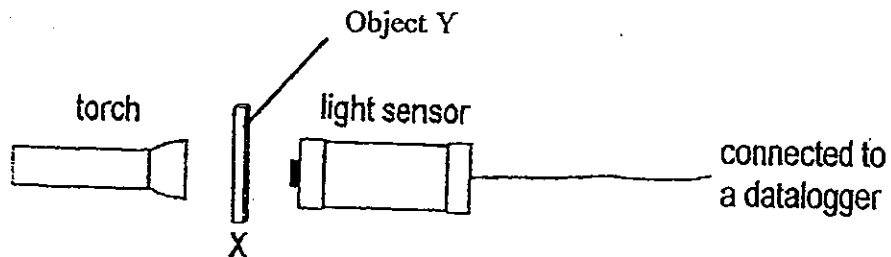


Bob pulled a load up a plank using a spring balance. What are the forces acting on the load?

- A: frictional force
- B: magnetic force
- C: elastic spring force
- D: gravitational force

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

20. Mei Ling set up the following experiment.

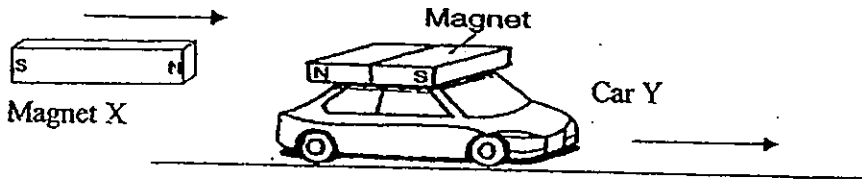


When nothing was placed at point X, the light sensor showed a reading of 80 Lux. When Object Y was put at point X, the light sensor showed a reading of 30 Lux. Which of the following could be Object Y?

- A: frosted glass
- B: tracing paper
- C: a wooden plate
- D: an aluminium foil

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

21. Laura wanted to test the strength of 4 magnets, A, B, C and D. She moved Magnet X closer to Car Y strapped with magnet A, B, C or D, one at a time. The distances travelled by Car Y are shown in the table below.



Magnet	Distance (cm)
A	20
B	5
C	15
D	14

Which magnet is the weakest?

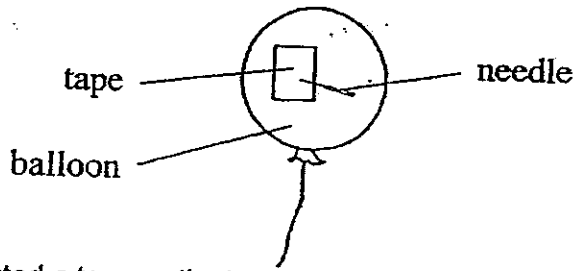
- 1) Magnet A
  - 2) Magnet B
  - 3) Magnet C
  - 4) Magnet D
22. The table below shows the volume and the temperature of water in 4 cups, A, B, C and D.

Cup	Volume of water	Temperature of water
A	100ml	73°C
B	500ml	60°C
C	700ml	70°C
D	800ml	70°C

Which cup has the greatest amount of heat energy?

- 1) Cup A
- 2) Cup B
- 3) Cup C
- 4) Cup D

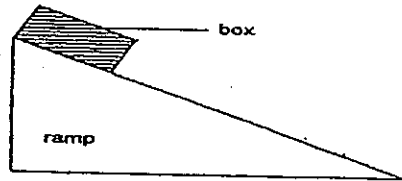
23.



Jimmy pasted a tape on the balloon and then poked the balloon with a needle through the tape. The needle remained half inserted inside. The balloon A due to the B force of the tape.

	A	B
1	burst	pulling
2	burst	pushing
3	did not burst	pulling
4	did not burst	Pushing

24. When Leslie released the box at the top of the ramp as shown below, the box did not slide down the ramp.



This is because \_\_\_\_\_

- 1) the gravitational force is greater than the frictional force
- 2) the gravitational force is smaller than the frictional force
- 3) the surface of the ramp is rougher than the surface of the box
- 4) the surface of the ramp is smoother than the surface of the box

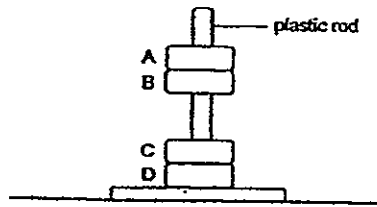
25. 2 similar balls, one inflated and one deflated were each placed on the pans of a weighing balance. The weighing balance tilted to one side as shown below.



Which one of the following is not a reason for the tilt.

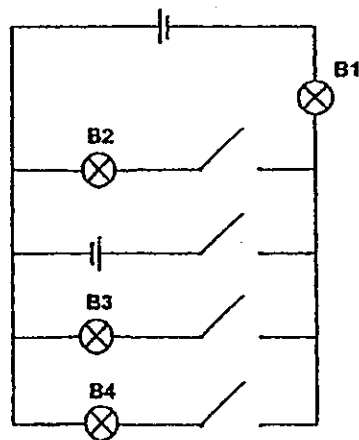
- 1) The inflated ball has more mass than the deflated ball.
- 2) The inflated ball has more weight than the deflated ball.
- 3) There is more air resistance acting on the base of the deflated ball.
- 4) More gravitational force acting on the inflated ball caused it to be heavier.

26. Simon set up an experiment. He observed that the objects "float" at a certain height as shown below when they are slipped through the plastic rod.



Which one of the following statement is not possible?

- 1) A, B, C and D are all magnet.
  - 2) A, B and C are magnet while D is not a magnet.
  - 3) B, C and D are magnet while A is not a magnet.
  - 4) A, C and D are magnet while B is not a magnet.
27. Study the circuit diagram shown below.

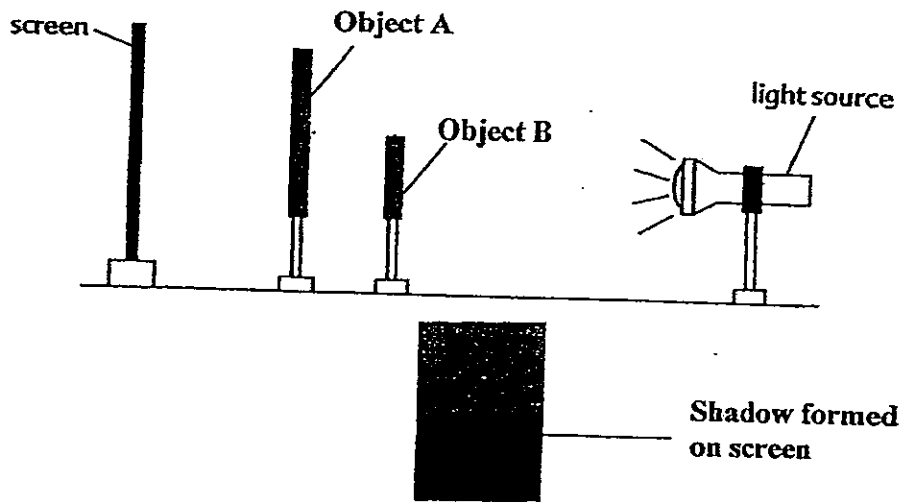


Which bulb will always light up whenever one of the switches is turned on?

- 1) B1
- 2) B2
- 3) B3
- 4) B4

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•  
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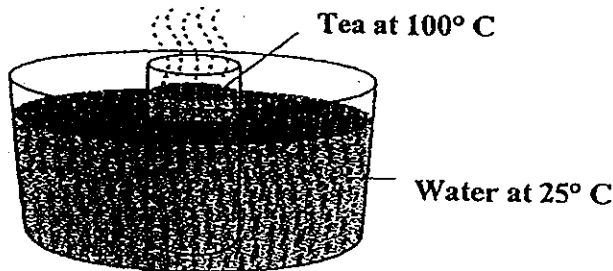
28. Study the diagram below.



When Jacob shone the light on Object A and B, the shadow formed on the screen is shown above. Based on the shadow formed on the screen, which of the following is the likely answer?

	Object A	Object B
1)	opaque	transparent
2)	transparent	opaque
3)	translucent	opaque
4)	transparent	translucent

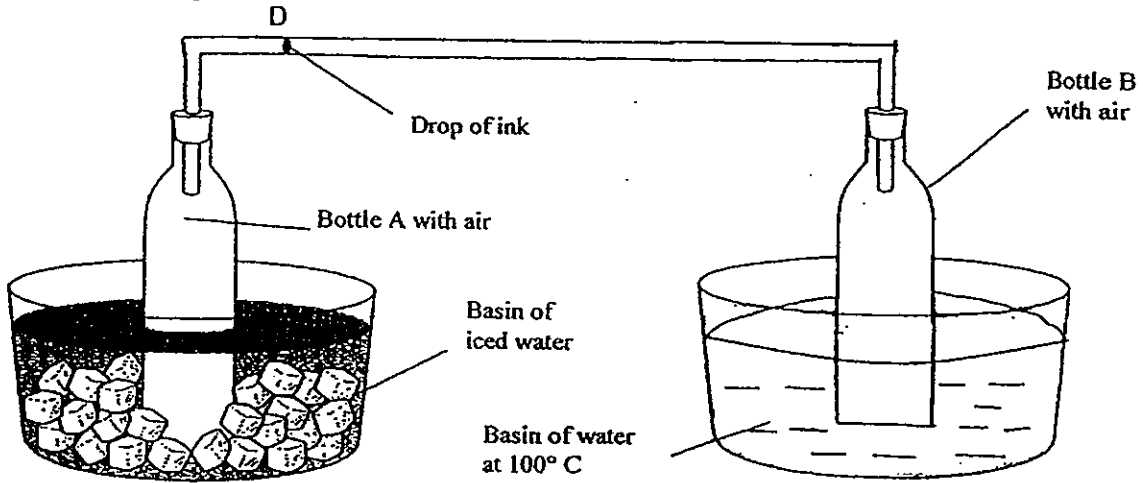
29. Study the diagram below.



Carol placed a hot cup of tea into a basin of water of room temperature. The tea will \_\_\_\_\_ while the water will \_\_\_\_\_.

	Tea	Water in basin
1)	loses heat	loses heat
2)	gains heat	gains heat
3)	loses heat	gains heat
4)	gains heat	loses heat

30. Study the diagram below.



Based on the above diagram, which one of the following is correct after the ice cubes and the hot water are added ?

	Drop of ink at point D	Air in Bottle A	Air in Bottle B
1)	will move to left	contract	expand
2)	will move to right	expand	contract
3)	will move to left	expand	contract
4)	will move to right	contract	expand

--END OF BOOKLET A--



Science Tr: \_\_\_\_\_

**St. Hilda's Primary School**  
**Semestral Assessment 1, 2012**  
**Primary Six Science**

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

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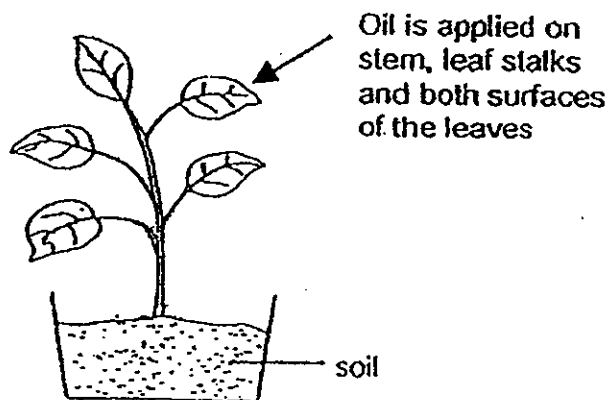
Parent's Signature: \_\_\_\_\_

**Booklet B**

This section consists of 14 questions which carries 40 marks.

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

31. Ray spread a layer of oil on the stem, leaf stalks and both surfaces of the leaves of a plant shown below. It was then placed in the sun and watered every day.



- a) What will happen to the plant after a week? (1m)

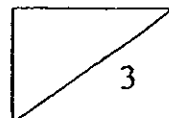
\_\_\_\_\_

- b) Give an explanation to your answer in (a). (2m)

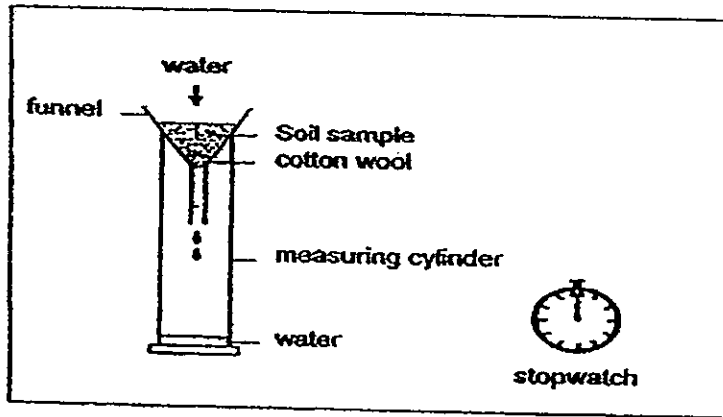
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



32. Earl used the same setup to find out how fast water can pass through 4 different soil samples A, B, C and D.



He measured the time taken for the water to collect in the measuring cylinder and recorded them in the table below.

Soil samples	A	B	C	D
Time taken (s)	38	20	34	13

a) What is the changed variable for this experiment? (1m)

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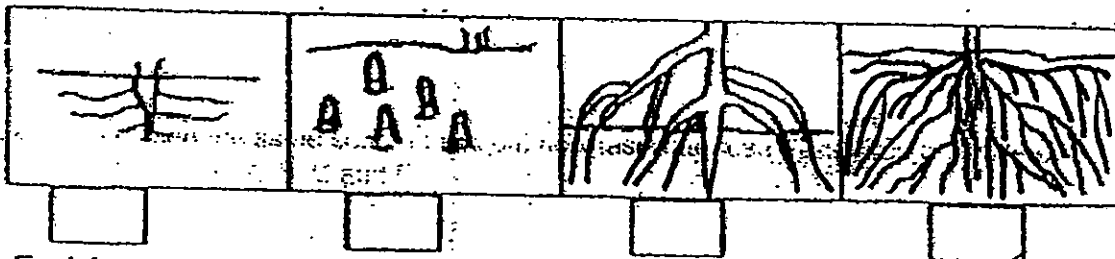
b) Which one of the soil samples, A, B, C or D, is most suitable for a plant that grows well in the desert? Explain your answer. (1m)

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c) Put a tick in the correct box below to show the type of root system which is most suitable for such a plant in (b). (1m)



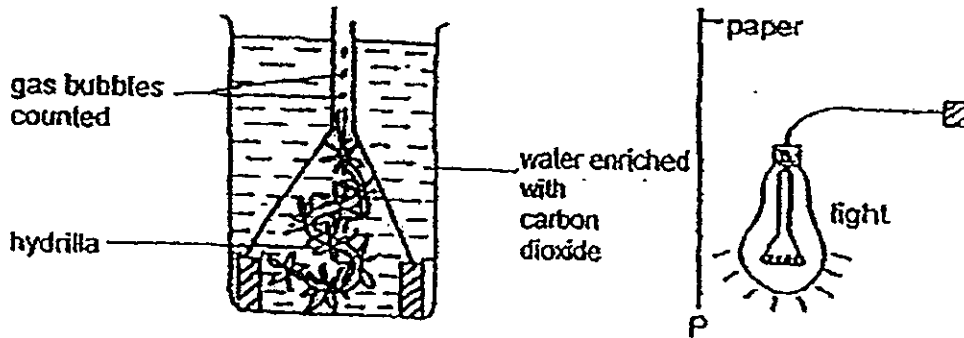
d) Explain your answer in (c). (1m)

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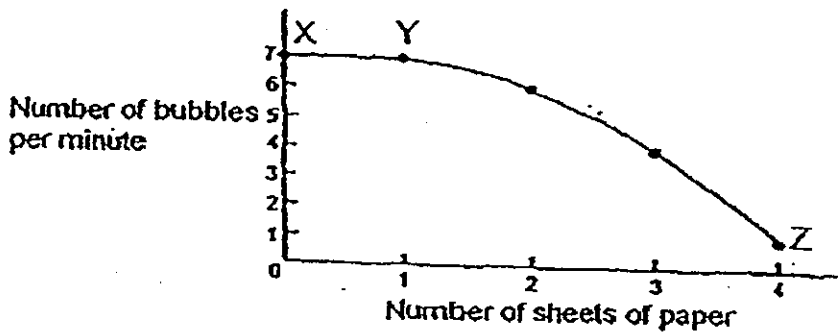


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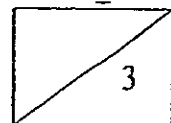
33. An experiment was set up using hydrilla plant and an electric light bulb as shown below. Bubbles of oxygen produced by the plant in one minute were counted. Then, a very thin sheet of paper was added at position P and the experiment was repeated three times, each with one more sheet of thin paper added at P each time.



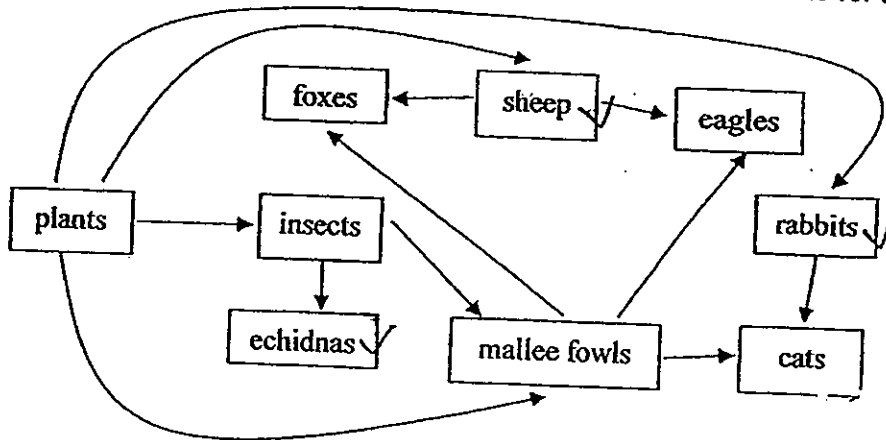
The results of the experiment were recorded as shown below.



- a) What was the purpose of adding the thin sheets of paper at P? (1m)
- \_\_\_\_\_
- \_\_\_\_\_
- b) Without removing the four sheets of paper, what can you do to increase the number of bubbles produced by the plant? (1m)
- \_\_\_\_\_
- \_\_\_\_\_
- c) What is the relationship between the number of bubbles produced per minute and the number of sheets of paper used in the experiment? (1m)
- \_\_\_\_\_
- \_\_\_\_\_



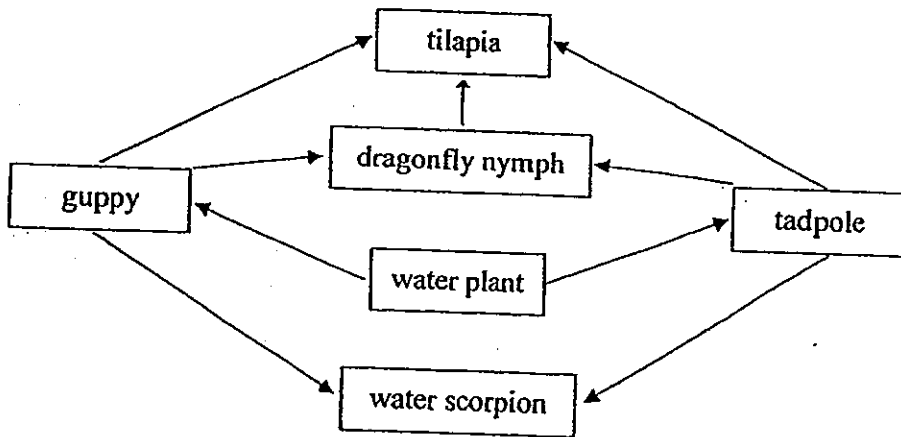
34. Foxes, rabbits, cats and sheep are animal species introduced into Australia by humans. These introduced species can endanger the native animals. They are either predators or animals that compete with native animals for food.



Study the food web above carefully to answer the questions below.

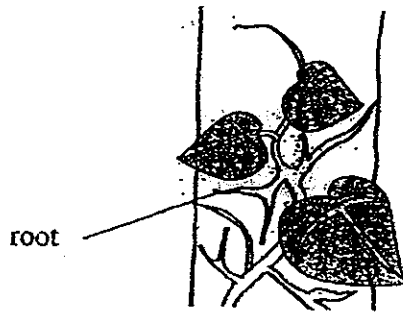
- a) Which introduced animal(s) compete(s) with the mallee fowl for food? (1m)
- 
- b) Which introduced animal(s) prey(s) on the mallee fowl? (1m)
- 

35. Study the food web of a pond shown below carefully.



- a) If all the water plants were removed, what would be the immediate effect on the food web?
- 
- b) Which population(s) would be the last to feel the effect? Explain why. (1m)
-

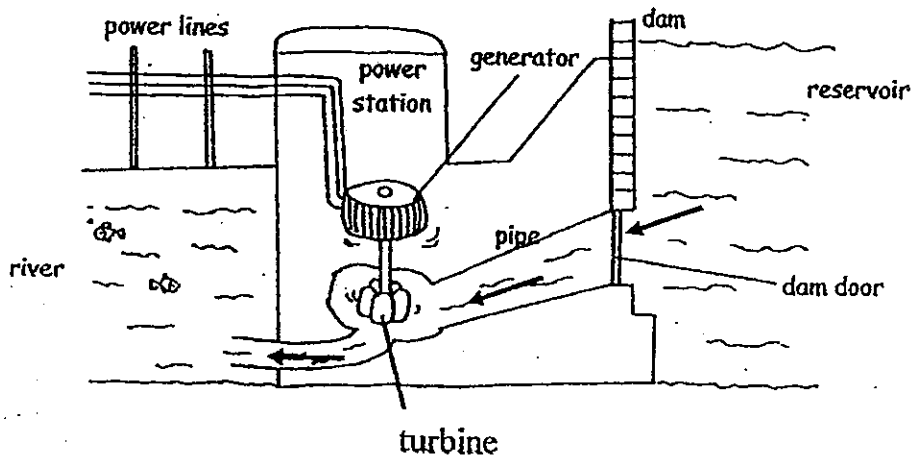
36. Money plant is a creeper, which normally has weak stems.



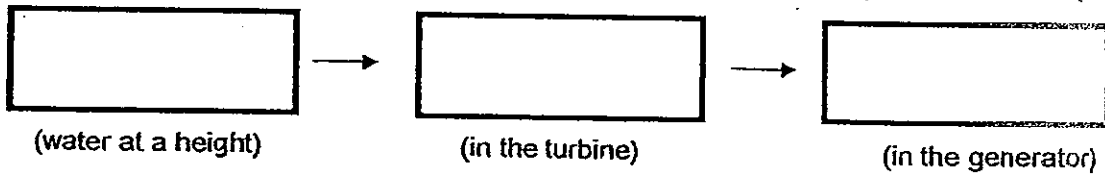
a) State an adaptation of the money plant that helps it overcome the problem of having a weak stem. (1m)

b) Give a reason why the adaptation mentioned in (a) is needed for the money plant to grow well. (1m)

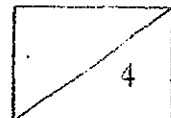
37.



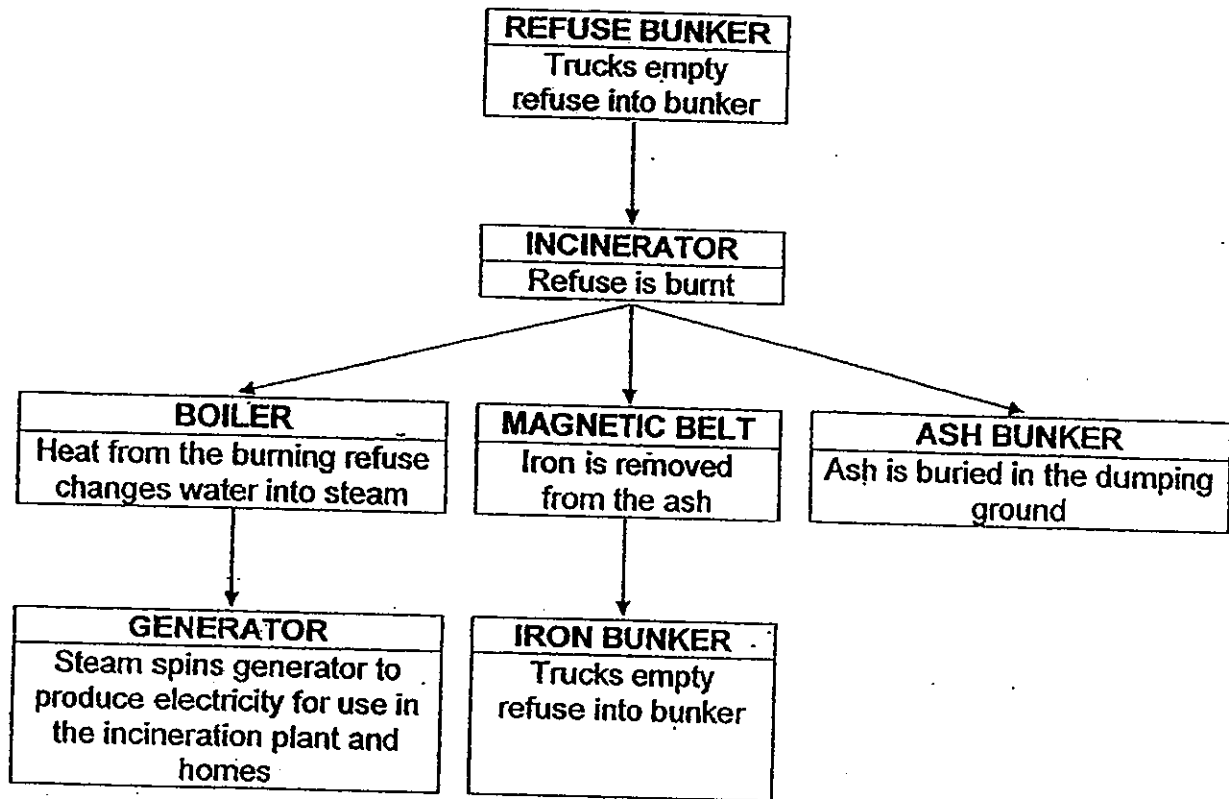
a) Write down the energy conversion which takes place in a hydropower station. (1m)



b) State the relationship between the depth of the water dam and the speed of the turbine. (1m)



38. The flow chart below shows what happens to the refuse that is taken to Senoko Incineration Plant in Singapore.



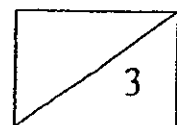
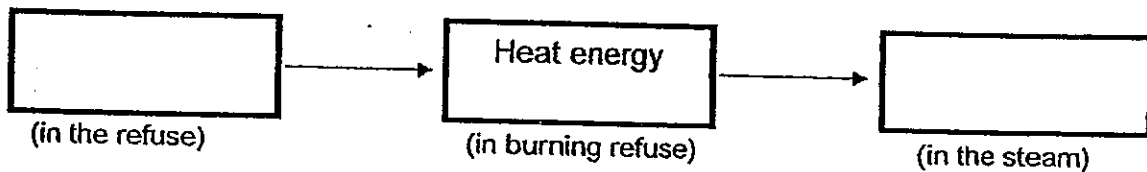
a) Based on the flowchart, state 1 advantage of disposing refuse through burning. (1m)

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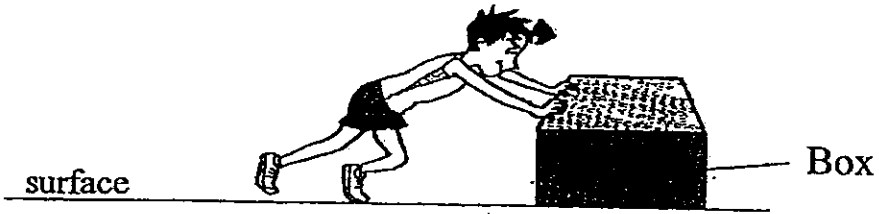
b) Why is there a disadvantage in using refuse as an energy source (refer to "Boiler" in the chart above)? (1m)

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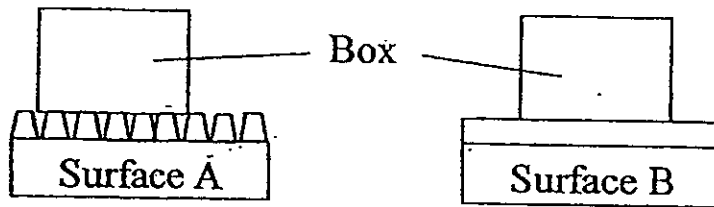
c) State the energy conversion for the description stated in the "Boiler" in the chart above. (1m)



39. In an experiment, John pushed the same box across two different surfaces, A and B.



The two surfaces A and B are magnified as shown in the diagram below.



a) On which surface, A or B, is less force required to push the box? Explain your answer. (2 m)

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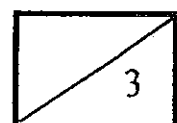
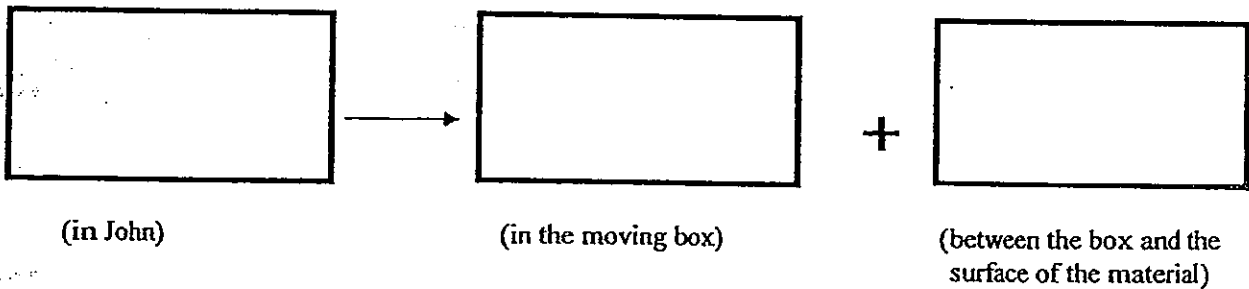


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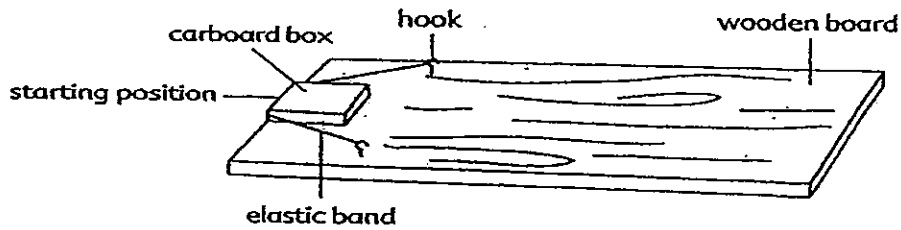


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b) State the energy conversion for the above action. (1 m)



40.



Ken set up the experiment as shown above. The elastic band was stretched at different lengths and released.

- a) Match the length of the stretched elastic band correctly with the distance moved by the cardboard box. (1 m)

<u>Length of stretched elastic band</u>	•	•	<u>Distance moved by cardboard box</u>
10 cm	•	•	16 cm
20 cm	•	•	25 cm
30 cm	•	•	5 cm

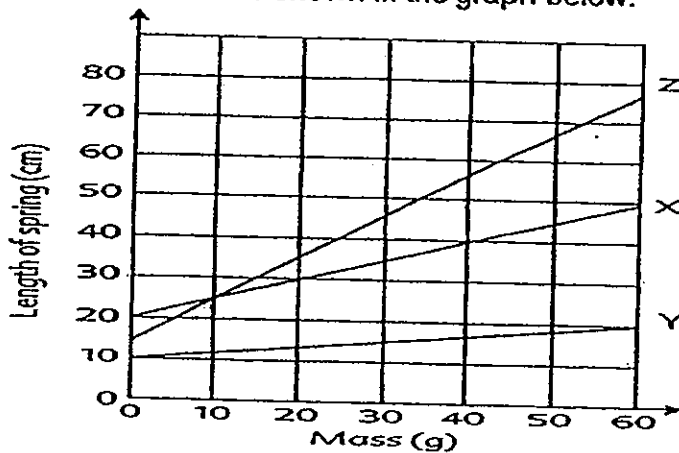
- b) Jim stretched the elastic band to 2 cm. The cardboard box did not move when the elastic band was released. Explain why this happened? (1 m)

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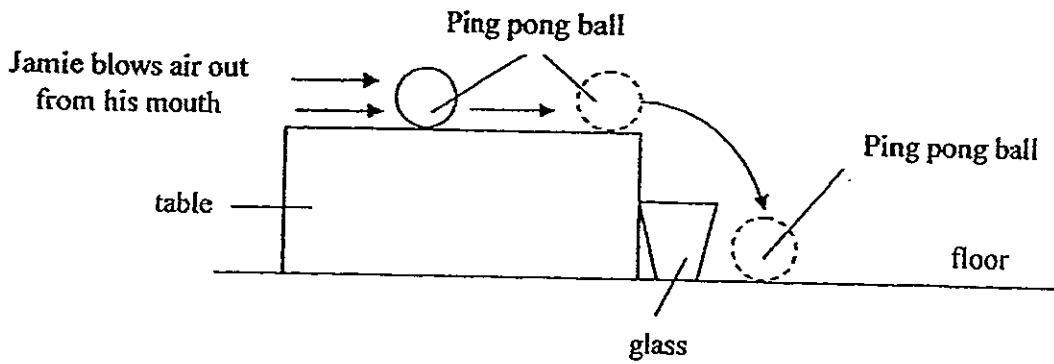
- c) Ken used 3 different spring balances, X, Y and Z to measure the mass of objects. The results of measurement were shown in the graph below.



- i) What was the original length of Spring X? \_\_\_\_\_ (1 m)
- ii) Which spring balance, X, Y or Z shows the greatest elasticity? Explain. (1 m)
- Spring \_\_\_\_\_



41. Jamie set up an experiment as shown below.



a) When Jamie blew hard at the ping pong ball, the ball landed on the floor. Explain in details what caused the ping pong ball to move from the table to the floor using concepts on forces. (2 m)

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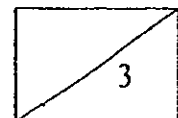
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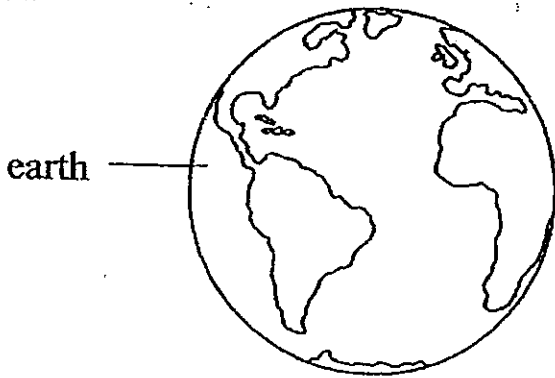
b) What can Jamie do to ensure that the ping pong ball fall into the glass instead of landing it on the floor? (1 m)

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42.



 Meteoroid B

 Meteoroid A

- a) Two meteoroids, A and B, were moving at high speed towards the earth. Their mass and speed are shown below.

	Mass (kilogram)	Speed (kilometres per hour)
Meteoroid A	40000	263
Meteoroid B	60000	380

Which meteoroid would cause a deeper crater on the earth surface as it hits the earth? Explain your answer. (2m)

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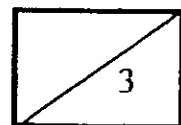
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- b) Mary states that "An astronaut will feel lighter on the moon because he has less mass on the moon than on earth". Is she correct? Explain your answer. (1 m)

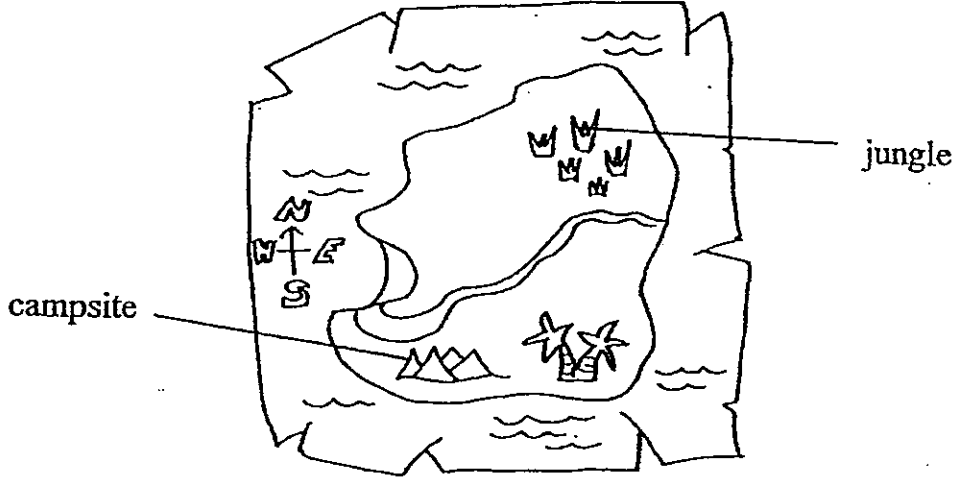
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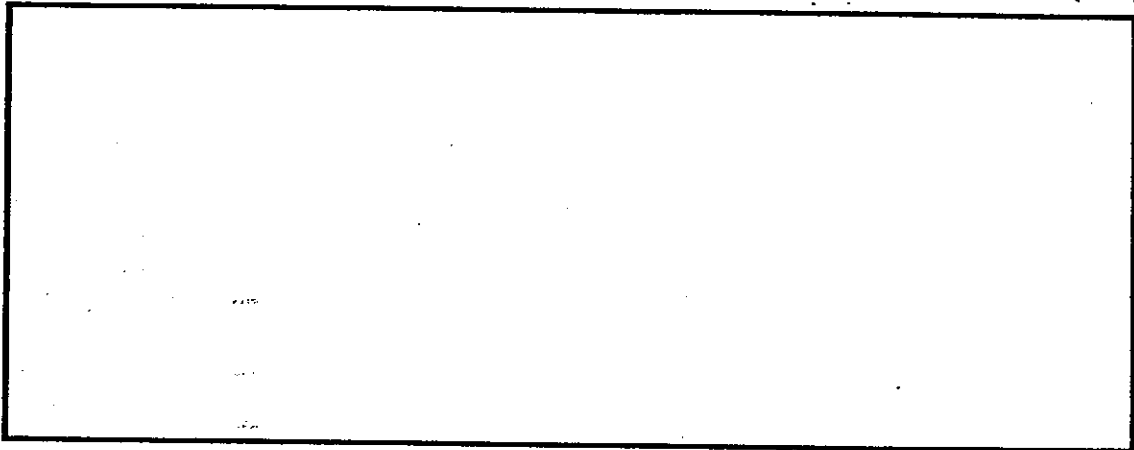


43. Matthew and his friends were lost in the jungle. They wanted to go back to their campsite which was in the South side of the jungle. They search their backpack and found a bar magnet, a string and a pair of chopsticks. Matthew created a device using the 3 objects and with it, they successfully found their way back to the campsite.



- a) What device did Matthew create using the 3 objects? (1 m)

- b) In the space provided below, draw how the device that Matthew created looked like using the 3 stated objects. (1 m)



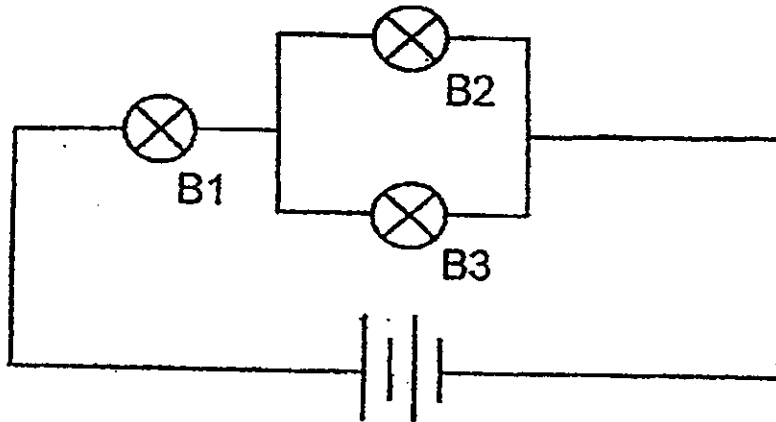
- c) Explain how the device created by Matthew helped them find their way back to the campsite? (1m)

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44. In the circuit below, all the bulbs B1, B2 and B3 are lit.

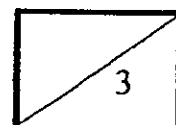


a) When Henry removed 1 bulb from the above circuit, the other 2 bulbs immediately became unlit. Which bulb did he remove from the circuit? (1 m)

b) Henry rearranged the above circuit. He made all the 3 bulbs glow even brighter than before. In the space below, draw the circuit diagram to show how Henry had rearranged the above circuit to make the 3 bulbs glow brighter. (2 m)

A large empty rectangular box for drawing a circuit diagram. In the center of the box, there are three vertically aligned dots.

—END OF BOOKLET B—



**St. Hilda's Primary School**  
**Semestral Assessment 1 – 2012**  
**Answer Key for P6 Science**

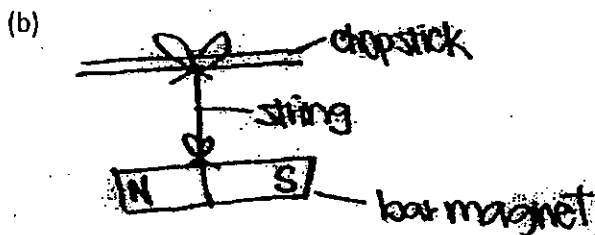
1)	2	6)	1	11)	3	16)	2	21)	2	26)	4
2)	4	7)	4	12)	3	17)	2	22)	4	27)	1
3)	1	8)	1	13)	4	18)	1	23)	3	28)	3
4)	2	9)	3	14)	1	19)	3	24)	2	29)	3
5)		10)	3	15)	2	20)	1	25)	3	30)	1

**Booklet B :**

31. (a) The plant will wither then dies.  
 (b) The plant's stomata are covered by the layer of oil and it will not be able to exchange gases with its surrounding. Therefore the plant is unable to make food for itself.
32. (a) The type of soil used.  
 (b) D, it allows water to pass through it in the shortest time because plants that grow in the desert need little water.  
 (c) (Tick the last box.)  
 (d) This root system allows the plant to cover the largest surface area for efficient absorption of water from the soil.
33. (a) To reduce the amount of the light that reaches the hydrilla.  
 (b) Increase the brightness of the light.  
 (c) The fewer the number of sheets of paper used in the experiment, the more bubbles produced by the hydrilla per minute.
34. (a) Sheep and rabbits.  
 (b) Foxes and cats
35. (a) The number of guppy and tadpole will decrease.  
 (b) Tilapia, because besides feeding on tadpole and guppy, they also feed on dragonfly nymph. Hence, the effect of the decrease in population of tadpole and guppy caused by the removal of water plants would be last felt by tilapia.
36. (a) The money plant has clasping roots that enable it to climb up a support to obtain sunlight.  
 (b) This adaptation allows the money plant to overcome competition for sunlight with other plants with strong stems to stand upright on its own. In this way, it is able to grow well.
37. (a) Gravitational potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  electrical energy  
 (b) The greater the depth of water dam, the faster the speed of the turbine.
38. (a) The heat from the burning refuse changes water into steam and the steam spins the generator to produce electricity for use in the incineration plant and homes.  
 (b) When plastic is burnt, it releases a poisonous gas that can negatively affect our health and environment.  
 (c) Chemical potential energy  $\rightarrow$  Heat energy  $\rightarrow$  Kinetic energy

St. Hilda's Primary School  
Semestral Assessment 1 – 2012  
Answer Key for P6 Science

39. (a) Surface A. Less force is required to push the box on surface A because lesser surface area of A is in contact with the box, resulting in lesser friction between them.  
(b) Chemical potential energy  $\rightarrow$  Kinetic energy + Heat energy
40. (a) 10cm ----- 5cm  
20cm ----- 16cm  
30cm ----- 25cm  
(b) The amount of elastic potential energy pushing the block forward is not enough to overcome the friction working against the direction of movement.  
(c) i. 20cm  
ii. Spring Z, when the same amount of weight is put on the three springs, spring Z extend the most from its original length.
41. (a) The air blown from Jamie's mouth possesses kinetic force which was transferred to the ping pong ball causing it to move forward. As the ball arrives at the edge of the table, gravitational potential force causes the ping pong ball to fall to the floor.  
(b) Move the glass to where the ping pong ball consistently falls onto.
42. (a) Meteoroid B, for it has a larger mass and a higher speed than meteoroid A. This means that meteoroid B possesses more kinetic energy, which results in it making a deeper crater as it hits earth's surface.  
(b) No. An object's weight not mass depends on the gravitational force pulling on it. Hence, the astronaut felt lighter on the moon because his weight is 1/6 that on Earth but his mass remains unchanged.
43. (a) A compass.



- (c) When a bar magnet is suspended freely, it will always come to rest pointing in the North-South direction. Since the jungle is at northern part of the island, Matthew and his friends must have followed the direction indicated by the magnet to head south and arrived at their campsite.

44. (a) B1

