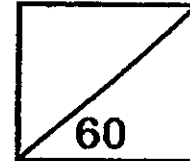




Rosyth School
First Semestral Examination for 2013
STANDARD SCIENCE
Primary 6



Name: _____

Total
Marks:

Class: Pr6 _____

Register No. _____

Duration: 1 h 45 min

Date: 15 May 2013

Parent's Signature: _____

Booklet A

Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 44, give your answers in the spaces given in the Booklet B.

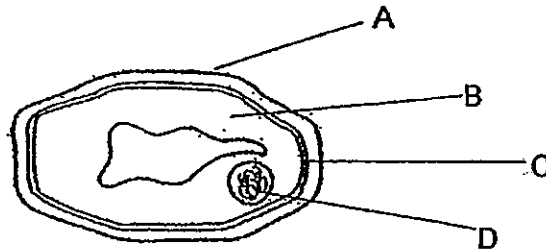
* This booklet consists of 19 pages.

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Part I (60 Marks)

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

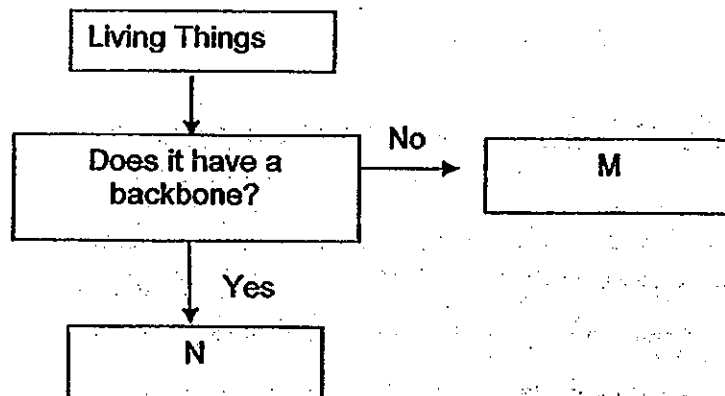
1. Study the typical cell given below.



In which part of the cell does life processes take place?

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

2. Study the flowchart below.



Which group of living things can M most possibly be?

- (1) Fish
- (2) Birds
- (3) Insects
- (4) Mammals

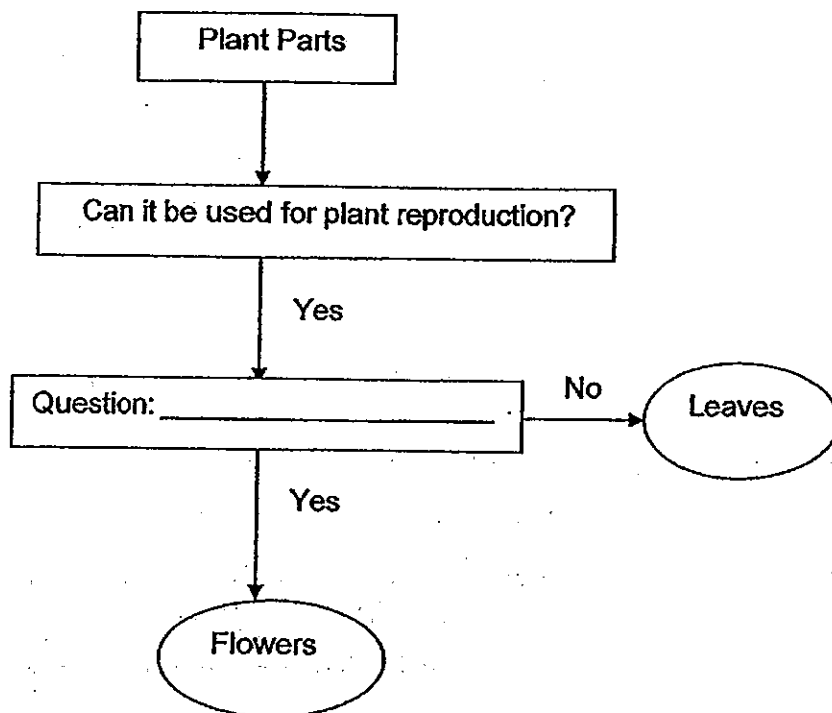
3. Which one of the following statement is correct about the transport system of a plant?

- A: Food made at the leaves is transported to all parts of the plants.
- B: Food made at the leaves is transported to the roots for storage only.
- C: Water is absorbed by the roots and transported to the rest of the plants.
- D: Water is absorbed by the leaves directly to carry out photosynthesis to make food for the plant.

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

- (2) A and D only
- (4) A, C and D only

4. Study the flowchart of a flowering plant below.



Which one of the following is the correct question for the above flowchart?

- (1) Does it make its own food?
- (2) Does an adult plant have this part?
- (3) Does it go through sexual reproduction?
- (4) Does it go through asexual reproduction?

5. Study the diagram below.



Tree Fern



Mushroom

Which of the following statements state both the similarity and difference between the two organisms correctly?

	Similarity	Difference
(1)	Both reproduce by spores.	Mushrooms can make their own food while ferns cannot.
(2)	Both reproduce by seeds.	Mushrooms can obtain energy from animals while plants cannot.
(3)	Both have spores found between the gills.	Mushrooms reproduce asexually while ferns reproduce sexually.
(4)	Both have spores that can be carried by wind.	Mushrooms are decomposers while ferns are producers.

6. Priya observed some mould growing on a bread. What are the conditions necessary for the mould to grow?

- A: Light
- B: Water
- C: Oxygen
- D: Carbon dioxide

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

7. Wei Xiang put four different set-ups as shown in the table below. Each set-up received same amount of water.

Set-up	Type of condition	Presence of air
Set-up T	Cold and Dark	Yes
Set-up U	Cold and Dark	No
Set-up V	Warm and Dark	Yes
Set-up W	Warm and Dark	No

What is/are the possible aim/s of his experiment?

A: To find out if warmth is needed for seeds to germinate.

B: To find out if air is needed for seeds to germinate.

C: To find out if the amount of light will affect germination of seeds.

(1) A only

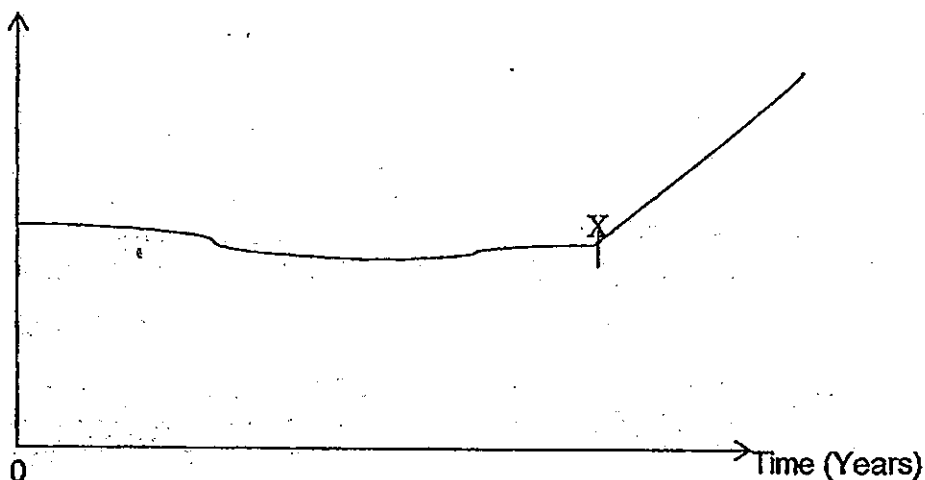
(2) B only

(3) A and B only

(4) A, B and C only

8. David observed a type of plant growing in a park over a period of time. An animal population was introduced into the park at point X. The graph below shows the change in the area covered by the plant although its population size remained the same in the park.

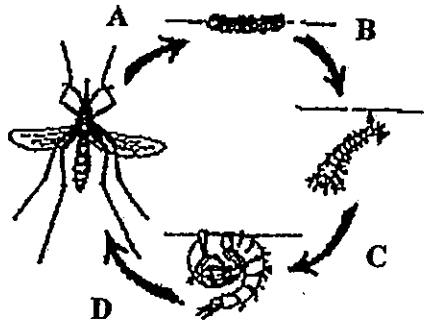
Area covered by plant (m²)



Which of the following states correctly the reason why the area covered by the plants changed?

- (1) The animal population helped to pollinate the plant.
 (2) The animal population helped to disperse the seeds.
 (3) The animal population helped to provide warmth for the seeds to germinate.
 (4) The animal population helped to provide nutrients for healthy growth of the plants.

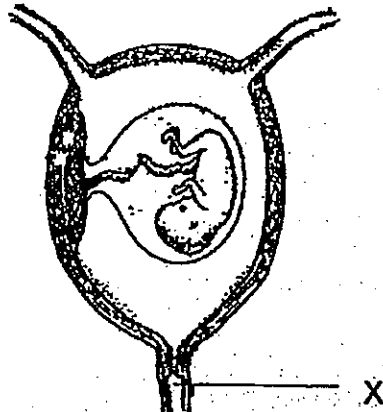
9. The diagram below shows the life cycle of a mosquito.



At which period does fertilization takes place?

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

10. The diagram below shows a developing foetus.



What is the function of the part labelled X?

A: It is sealed to hold the foetus in place.

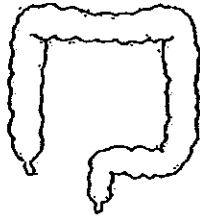
B: It stretches to function as a passage for delivery.

C: It is the channel through which the sperm travels up to fertilize an egg.

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

11. Refer to the four parts of the digestive system shown below.
In which part is most of the water being removed from the undigested food?

(1)



large intestine

(2)



small intestine

(3)



gullet

(4)



stomach

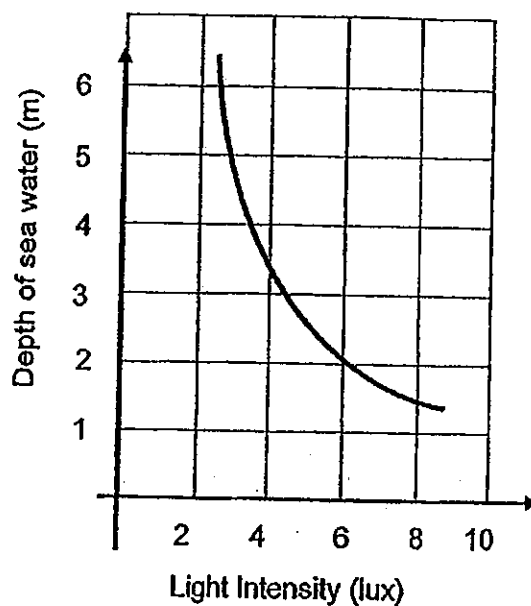
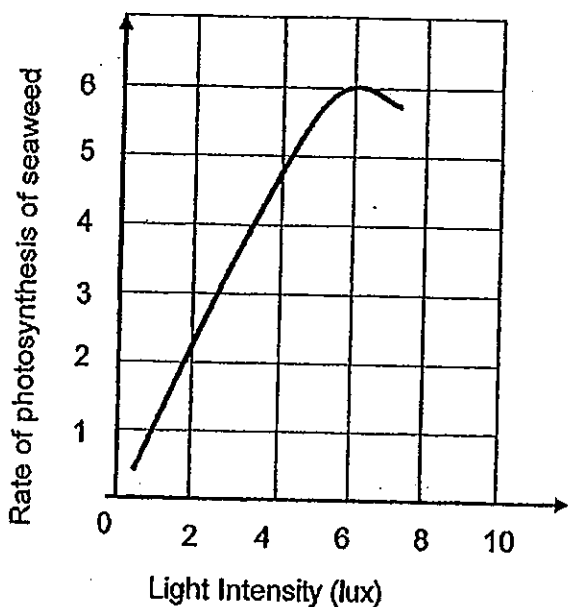
12. Which of the following activity takes place in the uterus?

- (1) Production of eggs
- (2) Deposition of eggs
- (3) Fertilisation of eggs
- (4) Development of an unborn baby

13. Which of the following shows correctly what plants need and make during photosynthesis?

	Raw Materials	Products
(1)	Carbon dioxide and Water	Starch and Oxygen
(2)	Carbon dioxide and Water	Sugar and Oxygen
(3)	Oxygen and Water	Carbon dioxide and Sugar
(4)	Oxygen and Water	Carbon dioxide and Starch

14. The two graphs below show the relationship between the rate of photosynthesis of seaweed and depth of sea water.



Based on the given graphs, what can be deduced about the seaweeds?

- A: The greater the light intensity, the higher the rate of photosynthesis.
- B: The rate of photosynthesis does not depend on the depth of sea water.
- C: The highest rate of photosynthesis of seaweed occurs at a depth of 2m.
- D: The greater the light intensity, the higher the rate of photosynthesis until it reaches a maximum after which it drops.

(1) A only

(3) B and C only

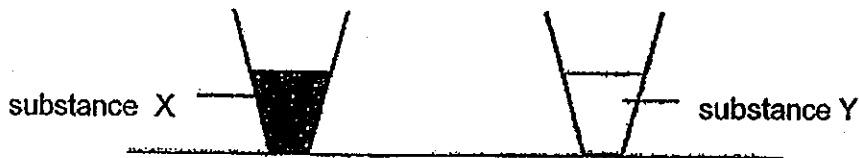
(2) A and D only

(4) C and D only

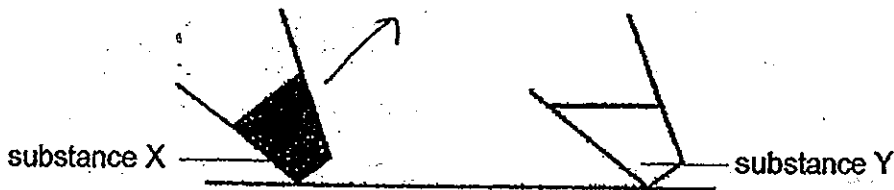
18. Ravi observed the difference when a beaker of ice and a beaker of water were tilted as shown below.



He then poured an equal amount of substance X and substance Y at 50°C into two similar cups. The cups were left on the table in a room as shown below.



After a few hours, he tilted the cups and observed the contents as shown in the diagram below.

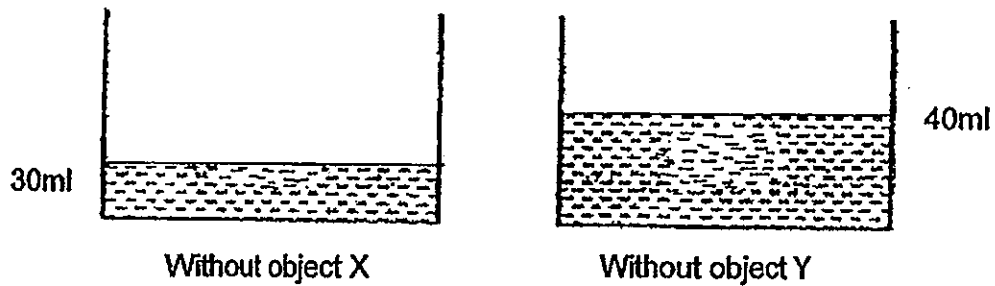


Which one of the following is the most likely deduction from his observation?

- (1) Substance Y conducts heat better than substance X.
- (2) Both substances remain as a liquid at room temperature.
- (3) Substance Y is most likely to be water and substance X is oil.
- (4) Substance X freezes at room temperature while substance Y does not.

19. Two objects, X and Y, were put into different beakers of water. The final water levels in both beakers were 50ml.

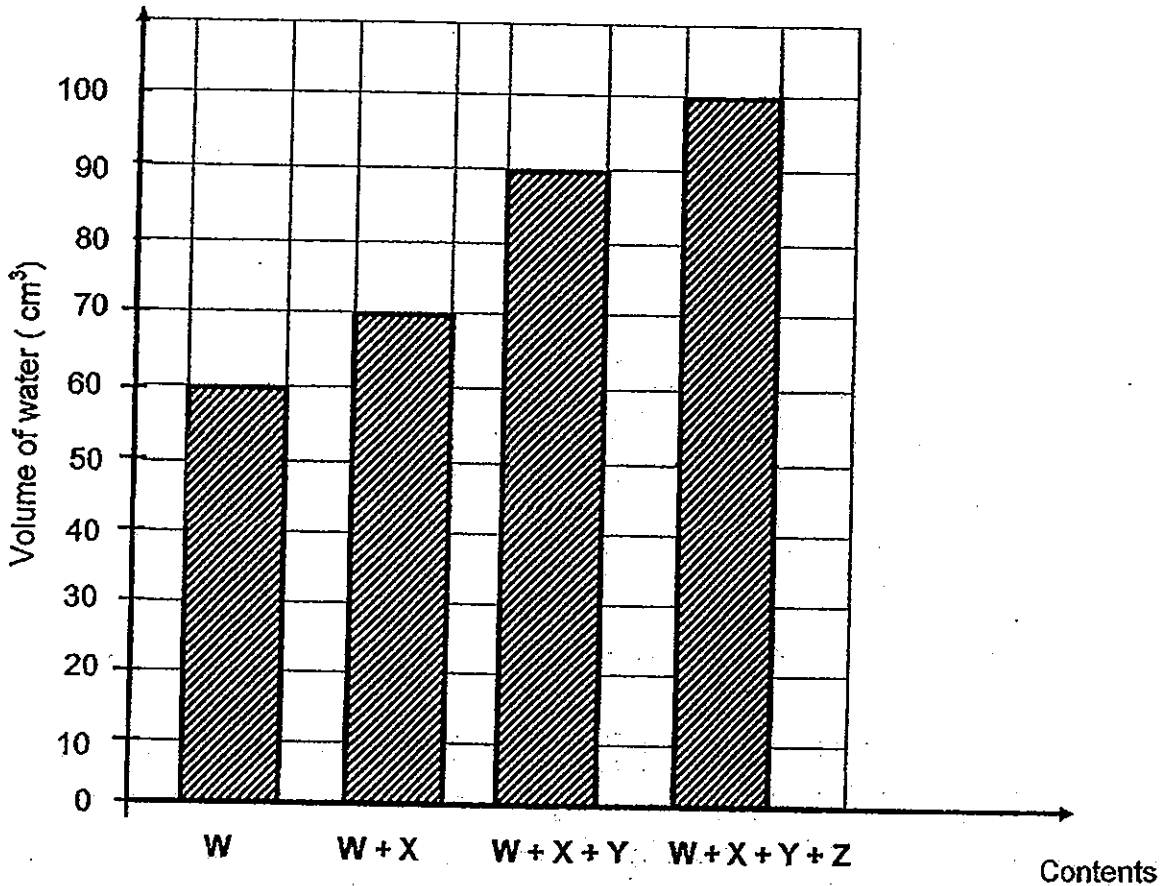
When objects X and Y were taken out of the water, the water levels in the containers dropped, as shown below.



Based on the above observations, which one of the following statements is true?

- (1) X has a larger mass than Y
- (2) Y has a larger mass than X
- (3) X has a larger volume than Y
- (4) Y has a larger volume than X

20. Four solid objects, W, X, Y and Z are immersed, one at a time, into a measuring cylinder containing 50cm^3 of water. The graph below shows the water level after each object has been added into the cylinder.

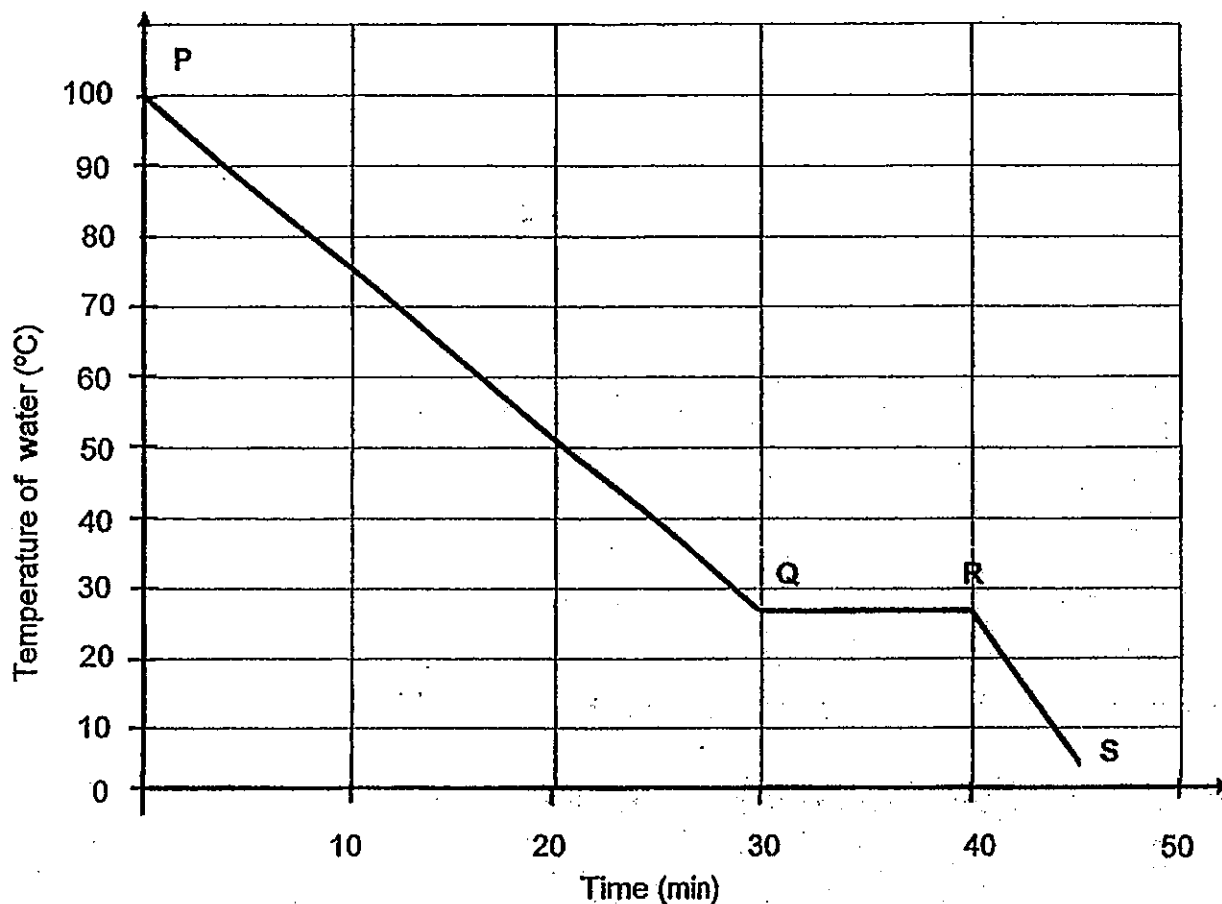


Which object, W, X, Y or Z has the greatest volume?

- (1) W
(3) Y

- (2) X
(4) Z

21. A beaker of boiling water was placed on the table to cool down. After a while, the water reached the room temperature of 28°C. Mary then added some ice cubes to the contents of the beaker. She measured the temperature changes for the first 45 minutes and plotted the results in the graph as shown below.



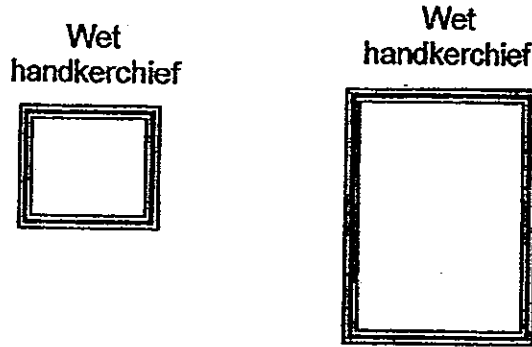
Based on the graph above, which of the statements below are correct?

- A: Condensation took place in the first 30 minutes only.
- B: The water in the beaker became ice after the 45th minute.
- C: The beaker of water took 30 minutes to cool down to room temperature.
- D: Ice cubes were added to the contents after the water had remained at room temperature for 10 minutes.

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

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

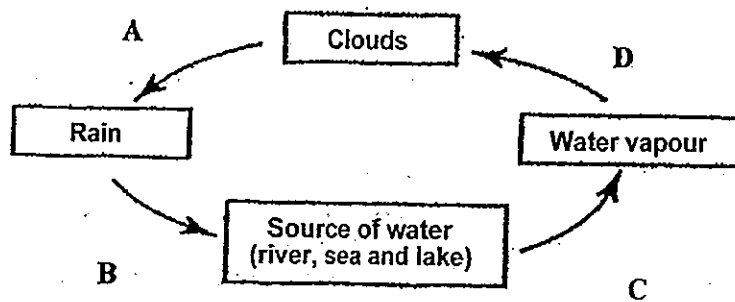
22. Refer to the two handkerchiefs shown below.



Using the two handkerchiefs above, which one of the factors can be investigated to find out its effect on the rate of evaporation?

- (1) Amount of heat
- (2) Speed of wind
- (3) Exposed surface area
- (4) Amount of water vapour in the air

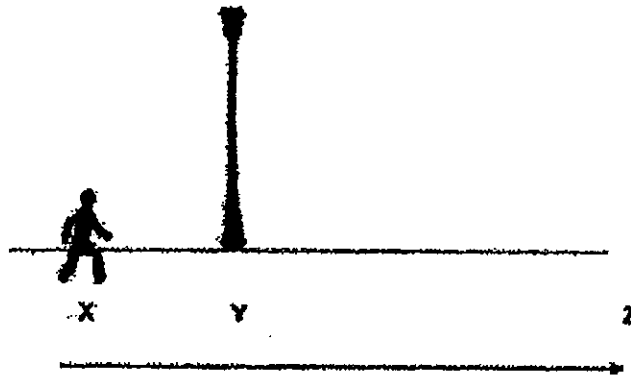
23. Study the water cycle below.



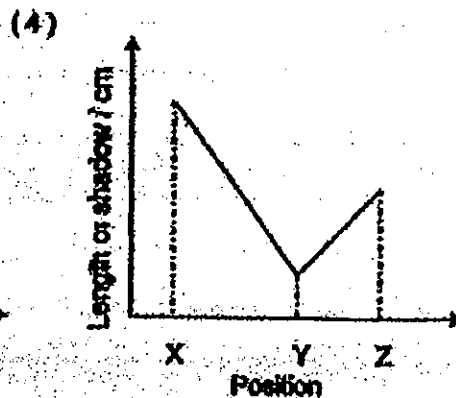
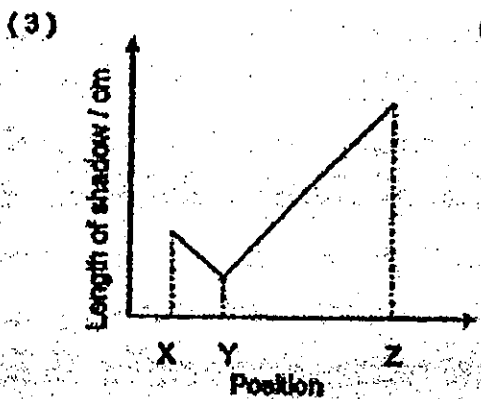
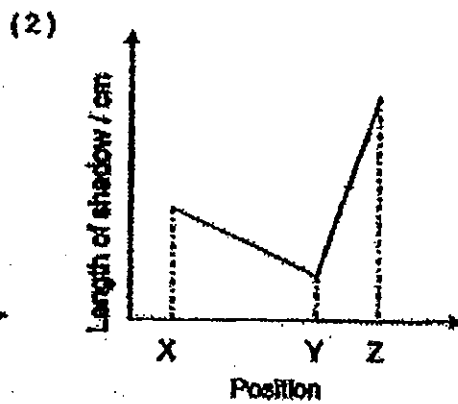
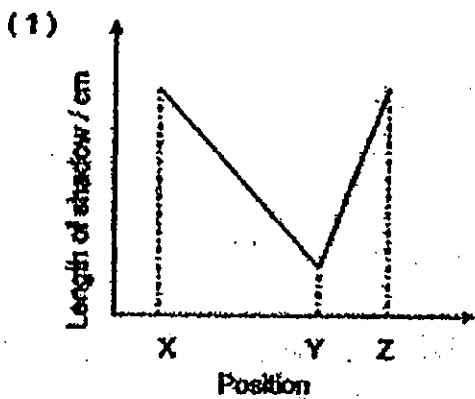
At which point in the water cycle will the surrounding air lose heat for a change of state to take place?

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

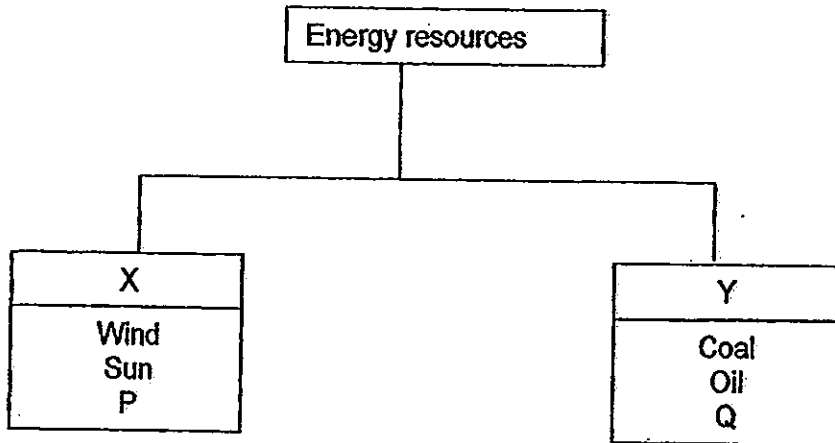
24. Mr Tan was walking along a street one night. He noticed that his shadow changed in length as he walked along the pavement.



Which one of the following graphs shows the change in the length of his shadow in proportion to the distance from X to Z?



25. Study the classification table below.



What could X, Y, P and Q be ?

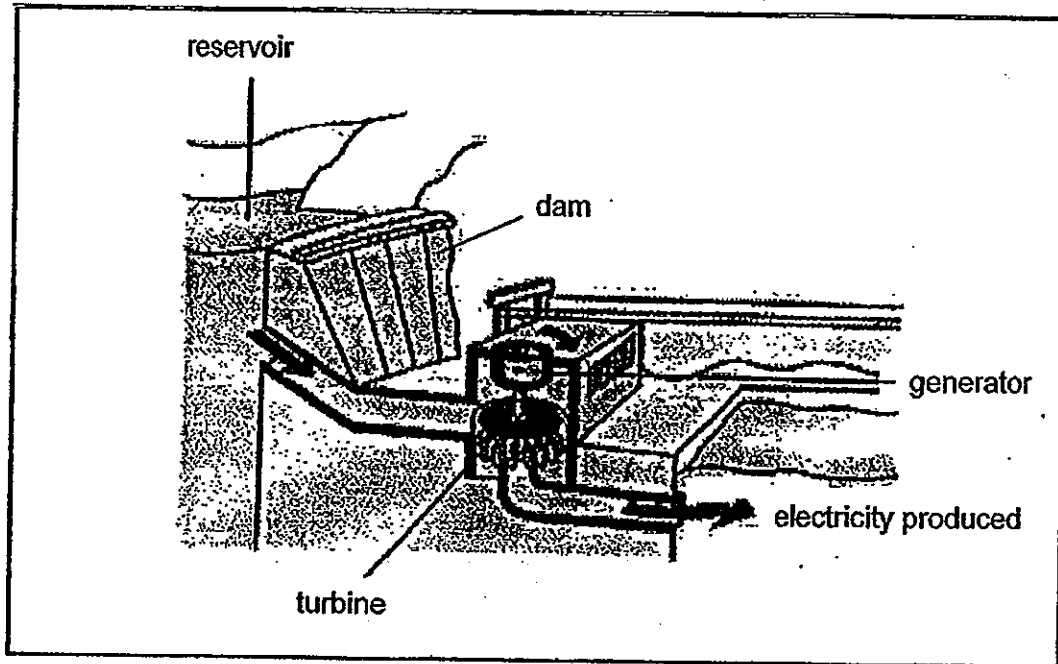
	X	Y	P	Q
(1)	Natural resources	Fossil fuels	Petrol	Natural gas
(2)	Non-renewable	Renewable	Moon	Wave
(3)	Renewable	Non-renewable	Hydroelectric power	Natural gas
(4)	Primary	Secondary	Wood	Electricity

26. Which one of the following is not a resource of energy?

- | | |
|-------------|---------------|
| (1) Water | (2) Petroleum |
| (3) Biomass | (4) Moon |

27. Study the hydropower station below.

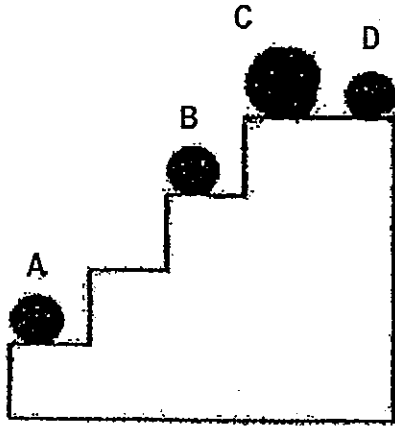
Hydropower Station



Which one of the followings shows the correct energy conversion starting from the reservoir?

- (1) Potential Energy to Electrical Energy
- (2) Kinetic Energy to Electrical Energy
- (3) Kinetic Energy to Potential Energy to Electrical Energy
- (4) Potential Energy to Kinetic Energy to Electrical Energy

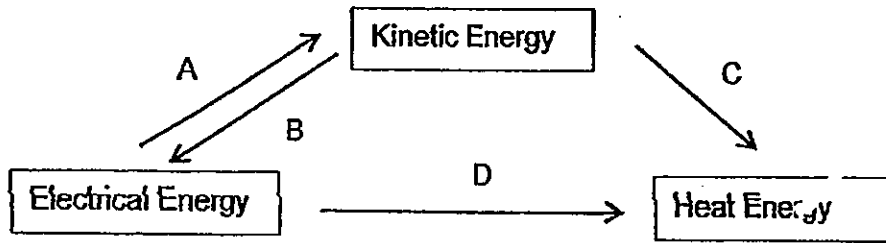
28. Four iron balls are placed on the steps of a stairway as shown below. The mass of the balls A, B and D is 500g and that of ball C is 1 kg.



Arrange these iron balls starting with the one which has the least potential energy to the one that has the most potential energy.

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

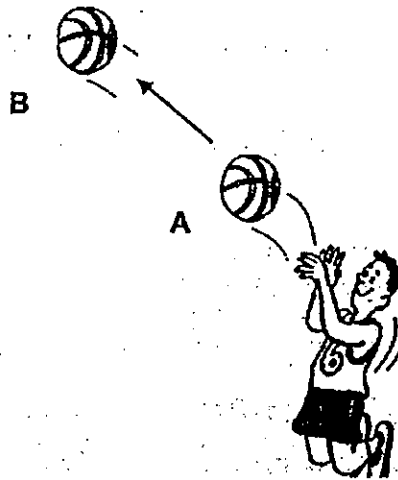
29. The diagram below shows how energy can be converted from one form to another.



Which set of activities best represents the conversion of energy above?

	A	B	C	D
(1)	Using an electric motor	Turning a wind turbine	Rubbing your hands together	Using an electric iron
(2)	Rubbing your hands together	Using an electric iron	Using an electric motor	Turning a wind turbine
(3)	Using an electric iron	Using an electric motor	Turning a wind turbine	Rubbing your hands together
(4)	Turning a wind turbine	Rubbing your hands together	Using an electric iron	Using an electric motor

30. Rudy threw his basketball from A to B as shown below.

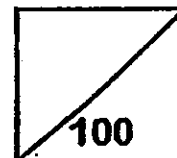


Which one of the following statements is not correct?

- (1) The force exerted by Rudy made the ball move.
- (2) The potential energy of the ball increased from A to B.
- (3) The gravitational force acting on the ball increased from A to B.
- (4) The mass of the ball remained the same throughout its motion.



Rosyth School
First Semestral Examination for 2013
STANDARD SCIENCE
Primary 6



Name: _____

Total
Marks:

Class: Pr6 _____

Register No. _____

Duration: 1 h 45 min

Date: 15 May 2013

Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 31 to 44, give your answers in the spaces given in this Booklet B.

	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

*** This booklet consists of 16 pages.**

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Part II (40 Marks)

For questions 31 to 44, write your answers in this booklet.

31. Rohan classified the following animals into two groups, X and Y, with regard to the types of fertilisation, internal and external.

X	Y
Fish	Bird Insects Mammal

(a) State the correct groups (X or Y) below: (1m)

i) External fertilisation: _____

ii) Internal fertilisation: _____

He reclassified the same animals into another two groups, P and Q, using another characteristic as shown below. (1m)

P	Q
Fish Bird Insects	Mammal

(b) State the headings of P and Q.

P: _____

Q: _____

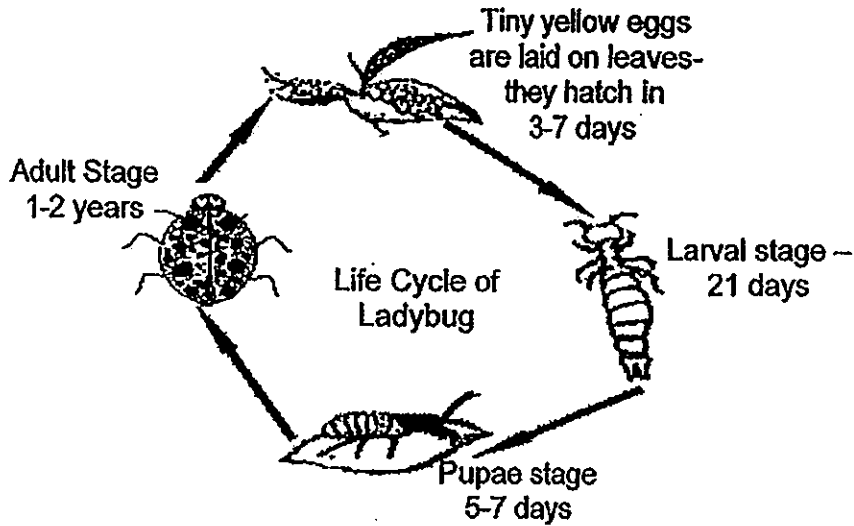
32. Wei Han wanted to find out how temperature affects the growth of plants. He prepared several similar potted plants and put them in various locations of different temperatures for three weeks. The results were recorded in the table below.

Temperature of area (°c)	Amount of Water (ml)	Height of plant at the beginning (cm)	Height of plant at the end √ (cm)
25	200	100	125
36	200	90	130
44	200	80	130
50	200	100	120
60	200	110	120

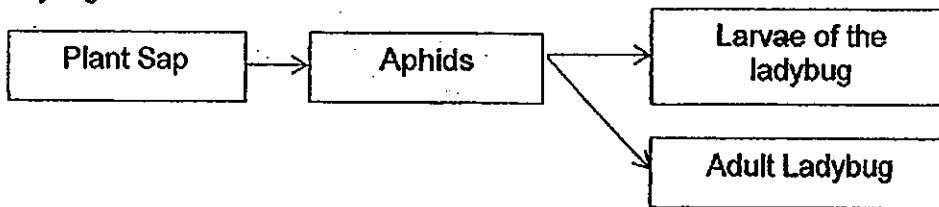
- (a) What relationship can you observe between the temperature of the area and the height of the plant ? (1m)

- (b) Explain why the plant at 44°C was able to grow the most? (1m)

33. The diagram below shows the life cycle of a ladybug.



The diagram below shows the food relationship between plants, aphids and the ladybug.



(a) Explain why the larva of the ladybug is more effective as a pest control than the adult ladybug. (1m)

(b) The adult ladybug can lay 100 eggs at a time and among the aphids on the leaves. How are the above two actions of the ladybug helpful to the farmers? (1m)

Lays 100 eggs: _____

Lays eggs among the aphids: _____

34. Study the diagram below.



(a) State the dispersal method of both seeds: (1m)

- i) _____
- ii) _____

(b) Which seed, X or Y, would be able to be dispersed further from the parent plant? Explain your choice. (1m)

(c) Why are there many seeds in both X and Y? (1m)

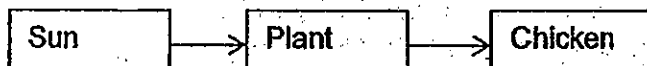
35. Below is a table showing the nutrition information on three different food labels.

	Food Labels		
Nutrition Information	A	B	C
Carbohydrates	62g	32g	9g
Total fats	2.5g	3.5g	1.6g
Protein	3.2g	1.8g	10g
Dietary Fibre	10g	0	5g
Vitamins	15mg	5mg	0

(a) State all the similarities among the 3 food labels. (1m)

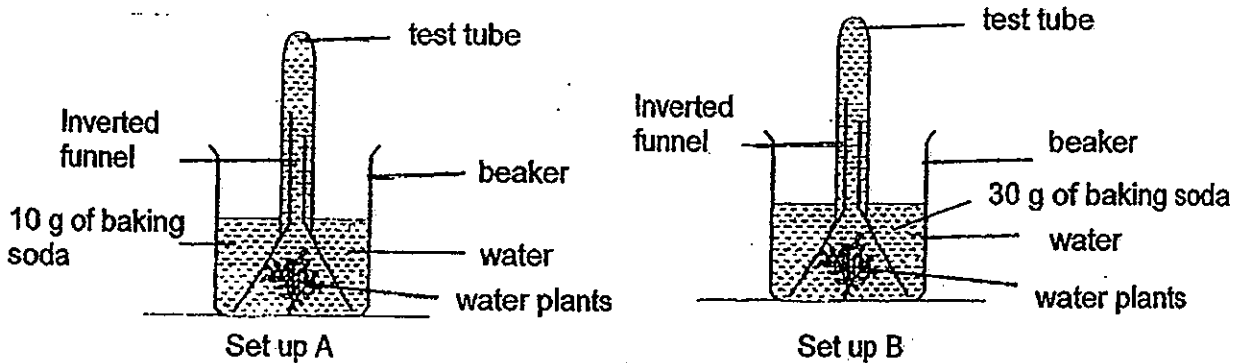
(b) Which food would you eat if you want to have the most amount of energy? Explain your answer. (1m)

Refer to the energy chain below.



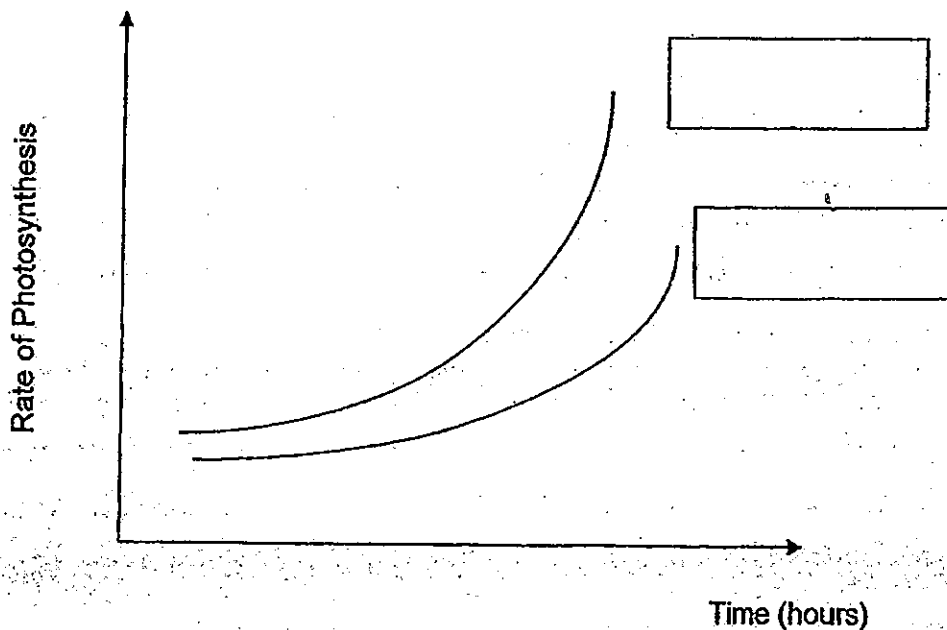
(c) Describe how the chicken obtains its energy from the sun. (2m)

36. Jason carried out an experiment on photosynthesis for 4 hours. He wanted to find out if the amount of baking soda would affect the rate of photosynthesis of the hydrilla plant. He was told that baking soda releases carbon dioxide when mixed in water. He set up the following experiment as shown below and left the 2 set-ups next to an open window.



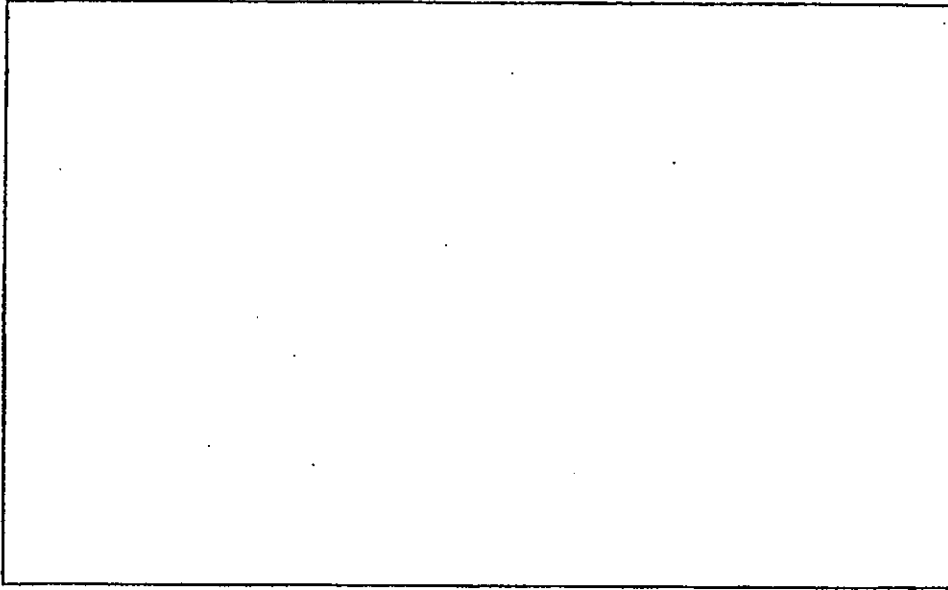
- (a) What result should he collect to measure the rate of photosynthesis? (1m)

- (b) Based on his results obtained, the graphs as shown below were plotted. Label the graphs, set-up A and set-up B, to show which one represents the result for set-up A and set-up B. (1m)



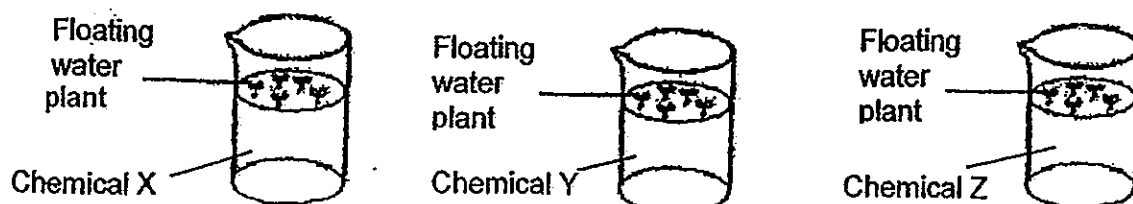
Question 36 continues on page 7

- (c) His teacher advised him that his experiment could be further improved by adding an experimental control set-up. Draw and label the experimental control set-up in the box below. (1m)



- (d) State the purpose of the experimental control set-up. (1m)

37. A group of pupils set up an experiment as shown below. They added 5 drops of Chemicals X, Y and Z into the containers as shown below. Then, they left the containers near a window for a few days.



They counted the number of duckweeds that remained alive at the end of each day for a week as shown in the table below.

	Number of duckweeds alive at the end of						
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Chemical X	30	22	17	14	9	5	2
Chemical Y	30	20	15	9	4	0	0
Chemical Z	30	32	36	44	52	64	75

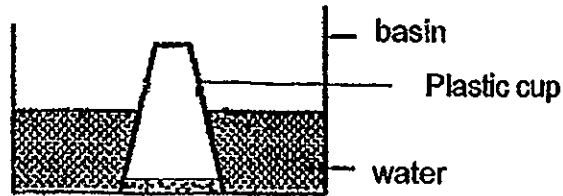
- (a) What effect has Chemical Z on the duckweeds over the 7 days? (1m)

- (b) What is the changed variable in their experiment? (1m)

Alga blooms in lakes are caused by excessive nutrients in the water. They turn lakes green and cause the death of fish.

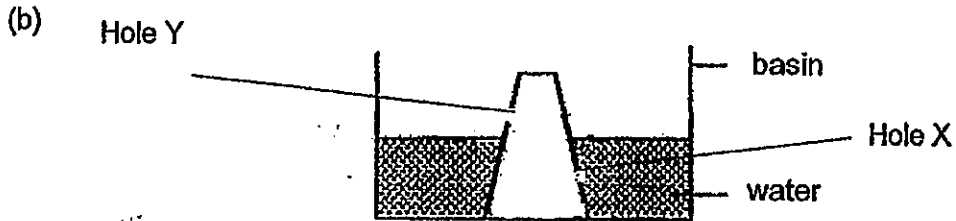
- (c) Explain how alga blooms cause the fish in the lakes to die? (2m)

38. Study the diagram below. A plastic cup was inverted into a basin of water. It was observed that only a little water entered into the cup.



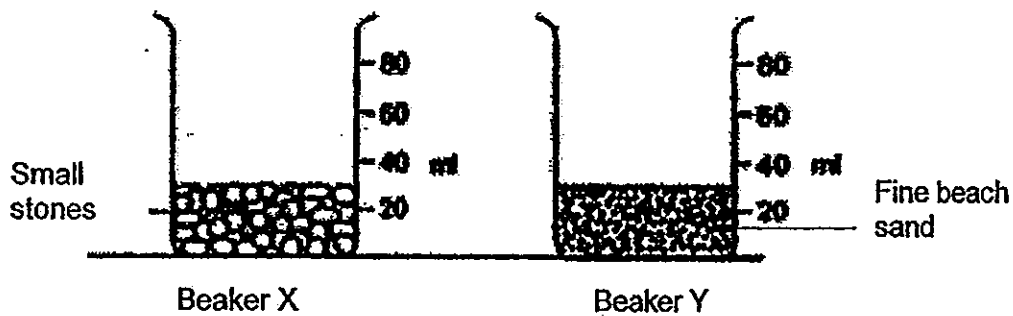
- (a) Explain why only some water enters into the cup. (1m)

Two small holes, X and Y, were made on the plastic cup. It was then inverted into the basin water again, as shown below.

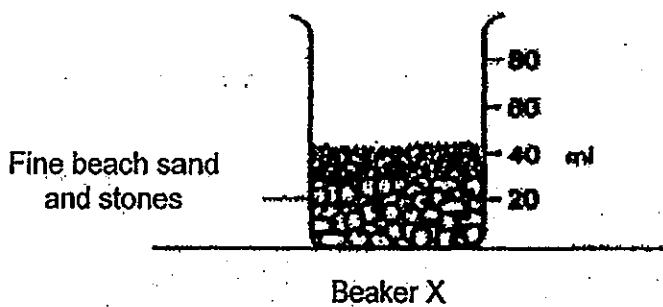


- In the diagram above, draw the water level in the plastic cup. (1m)

39. The diagram below shows two beakers, X and Y.
Beaker X contained small stones and Beaker Y contained fine beach sand up to the 30 ml mark.



The 30ml of fine beach sand in Beaker Y was poured into the Beaker X containing 30ml of small stones, as seen in the diagram below.



- (a) Explain why the contents in Beaker X did not reach the 60ml mark? (1m)

Question 39 continues on page 11

Recently there have been sinkholes appearing along various roads in Singapore. As shown in the diagram below, a sinkhole appears above the ground when there is erosion of the soil underground.



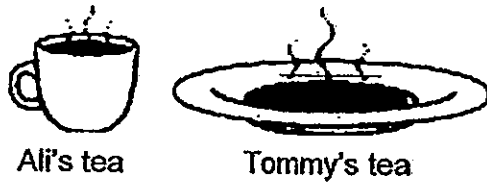
(b) Explain how soil erosion underground causes roads to cave in and form sink holes?

(1m)

(c) Which property of matter is shown by the appearance of sinkholes?

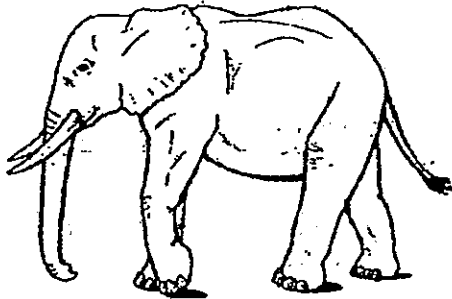
(1m)

40. Ali and Tommy had a competition to find out whose cup of hot tea would cool faster. The same amount of tea at the same temperature was given to them. Ali drank his tea from his cup while Tommy poured his tea onto a saucer and drank it from there, as shown in the diagram below.

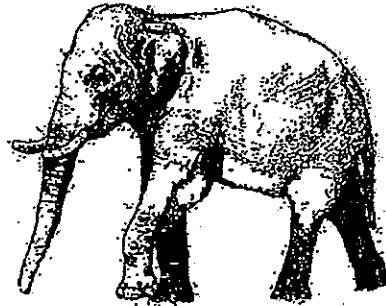


- (a) Whose tea would cool faster? Support your choice. (1m)

Below is a diagram of an African and Asian elephant.



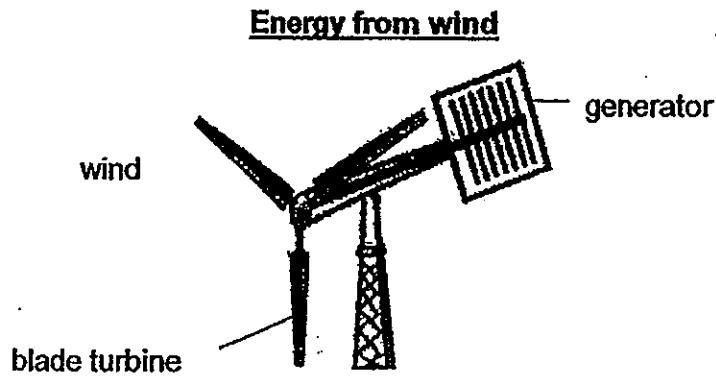
African elephant



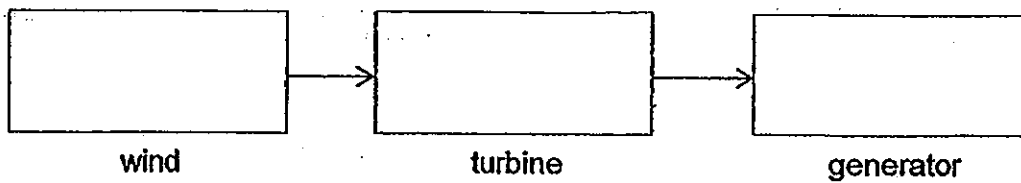
Asian elephant

- (b) The African elephant has bigger ears than an Asian elephant. Explain why. (1m)

41. Energy from wind can be used to produce electricity.



(a) State the energy conversion for the above activity. (1m)

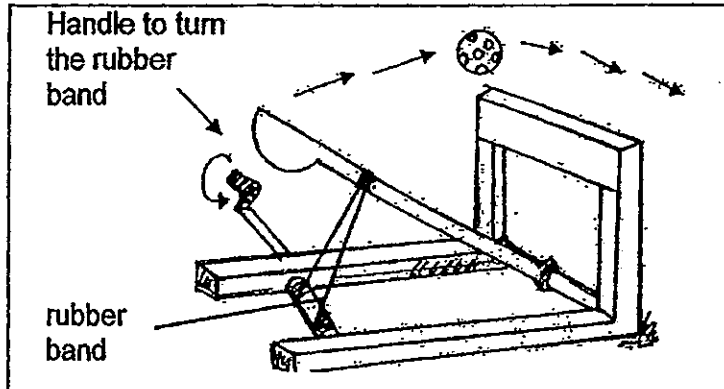


(b) State an advantage and a disadvantage of the above way of producing electricity. (2m)

Advantage:

Disadvantage:

42. Look at the diagram below.



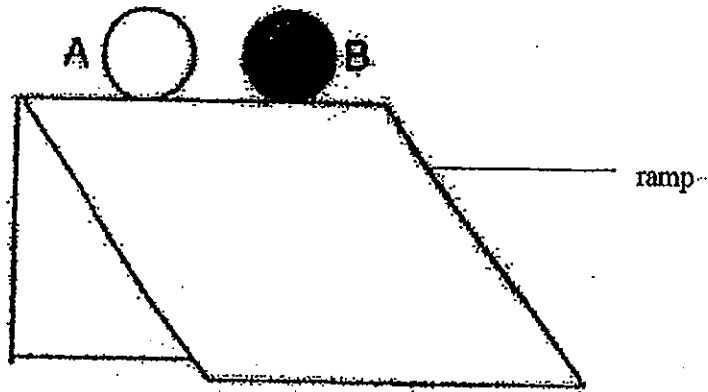
Steve wanted to test how the number of turns of the rubber band affects the distance travelled by the air-flown ball.

(a) What is the likely relationship between the number of turns of the rubber band and the distance travelled by the air-flown ball? (1m)

(b) Explain how the above relationship in (a) was possible. (1m)

(c) What is the source of energy in the above diagram? (1m)

43. Two balls of the same weight and size but of different surface textures were released from the top of a wooden ramp as shown in the diagram below. Ball A moved a greater distance along the ground than Ball B.

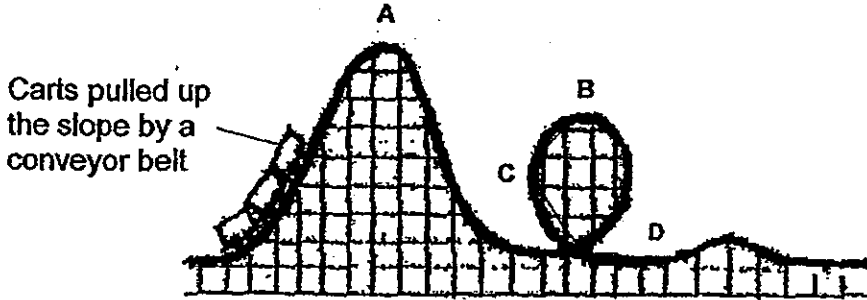


- (a) Which ball has a rougher surface? Support your choice. (1m)

- (b) What would you observe if the height of the ramp is increased? (1m)

- (c) Explain the reason for the observation in (b). (1m)

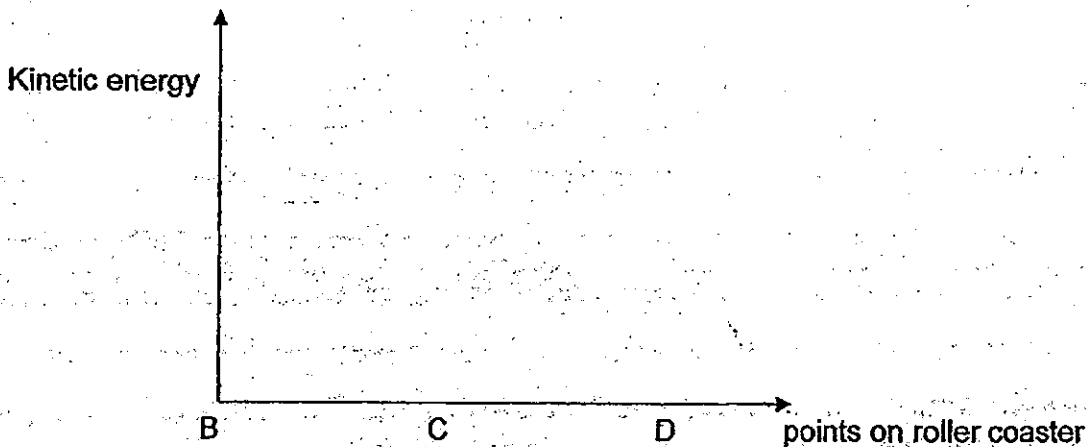
44. The diagram below shows a roller coaster ride at an amusement park.



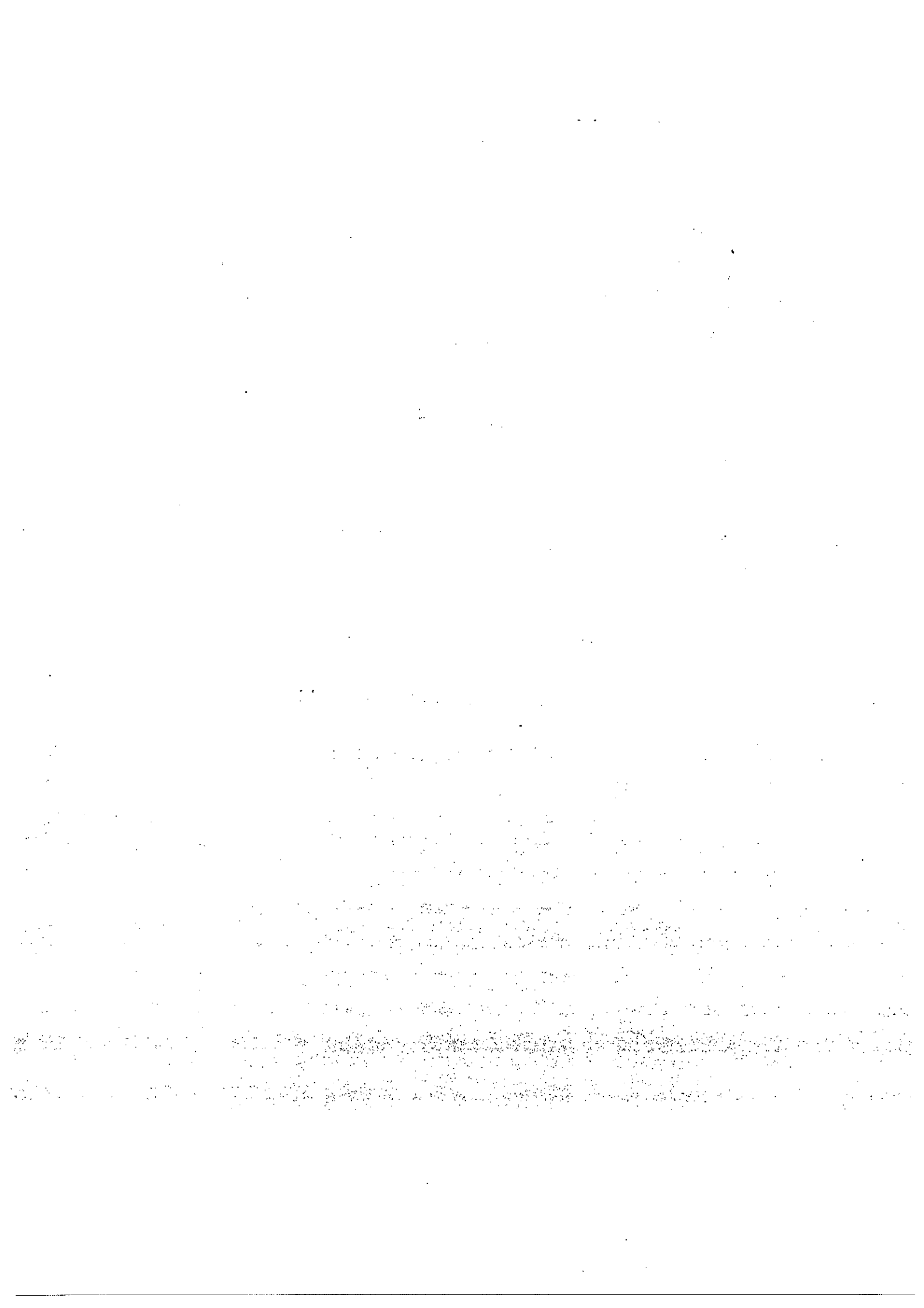
(a) Explain why the first hill (point A) must be the tallest part of the roller coaster. (1m)

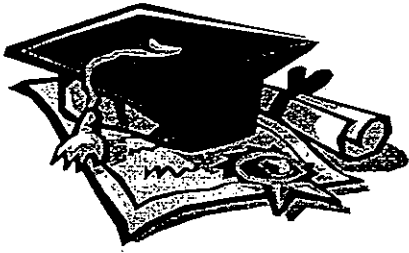
(b) The roller coaster will come to a stop even without the application of brakes. Explain why. (1m)

(c) In the graph below, draw the line graph to show the conversion of kinetic energy as the cart of the roller coaster goes through the loop (point B to D). (1m)



End of Paper





ANSWER SHEET

EXAM PAPER 2013

SCHOOL : ROSYTH

SUBJECT : PRIMARY 6 Science

TERM : SA1

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

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

31)a)i)Group X. ii)Group Y.

b)P: Lay eggs. Q: Give birth to young alive.

32)a)As the temperature increases, the height increases until it reaches a maximum of which the height drops.

b)In 44°C, the plant's rate of photosynthesis is the greatest to provide the most food.

33)a)During the larval stage ladybugs tend to eat more. Therefore they would eat more of the aphids.

b)There would be more ladybugs to eat the aphids.

It is so when the ladybug is immediately born it is easier for it to eat the aphids.

34)a)i)X→wind dispersal. ii)Y→ splitting.

b)Seed X. The wind can carry it further from the plant as it has wing-like structures.

c)When some seeds does not have the suitable conditions to grow, other seeds at different places which has suitable conditions can grow. This ensure the continuity of their own wind.

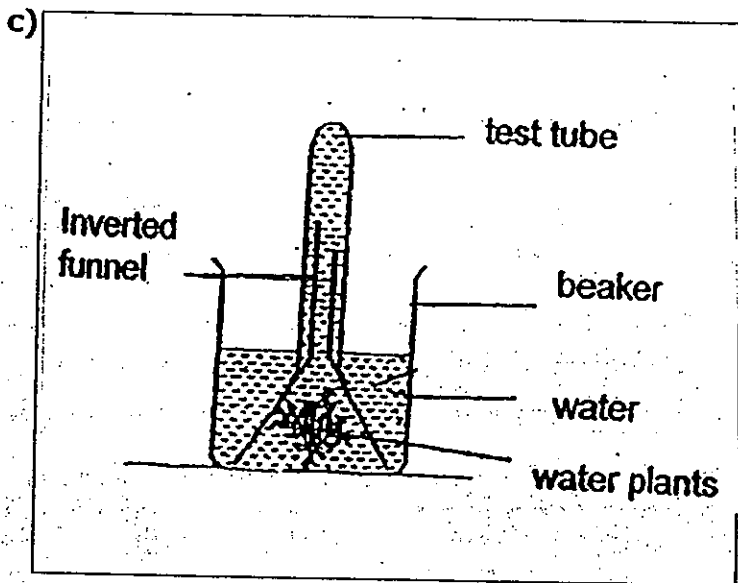
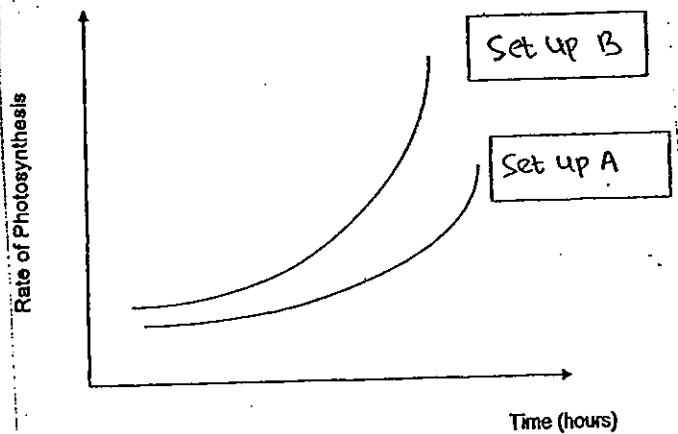
35)a) All the 3 food labels have carbohydrates, Total fats and Protein.

b) A. It has the most amount of carbohydrates which, gives me the most amount of energy.

c) When the plant captures the light from the sun to photosynthesize, it stores some energy from the sun as starch. When the chicken eats the plant, the energy from the sun is transferred to it.

36)a) The number of bubbles produced by the plant.

b)



d) To find out if the baking soda is the only factor affecting the rate of photosynthesis.

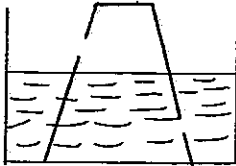
37)a) Chemical Z has increased the population of duckweeds.

b) The type of chemical.

c) When alga blooms it covers the surface of the water. When this happens, sun cannot enter the water and the plants cannot make food. This causes a lack of oxygen for fish and when they try to come up to the surface of the water to breathe, the alga does not let oxygen enter the water. Therefore fish die due to lack of oxygen.

38)a) There is air in the cup taking up space and only some can be compressed.

b)



39)a) The small stones had gaps in between. The fine beach sand filled up the gaps. Therefore the contents did not reach the 60ml mark.

b) When soil erosion takes place the place would be empty. The sink hole appears so as to fill up the space which was previously occupied by the soil.

c) Matter occupies space.

40)a) Tommy. It has a larger exposed surface area for more heat to be lost to the surrounding air.

b) African elephants live in a hotter place so it needs bigger ears to lose more heat.

41)a) Kinetic energy → Kinetic energy → Electrical energy

b) Wind is a renewable source of energy and it can be always available.

When the winds are low, less electricity would be produced.

42)a) The greater the number of turns of the rubber band, the further the distance travelled by the air-flown ball.

b) As the number of turns of the rubber band increases, the potential energy is converted to more kinetic energy.

c) The stretched rubber band.

43)a) Ball B. When the ball has a rougher surface, more friction would act on it. This causes it to move a lesser distance.

b) A and B will move a greater distance

c) The greater the height the more potential energy. More potential energy is converted to more kinetic energy.

44)a)To gain most potential energy to convert to most kinetic energy in order to complete the ride.

b)Kinetic energy has all been converted to heat energy and sound.

c)

