



PRIMARY SIX

SCIENCE

SEMESTRAL ASSESSMENT 1

2012

BOOKLET A

Date : 9 May 2012

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 6 ()

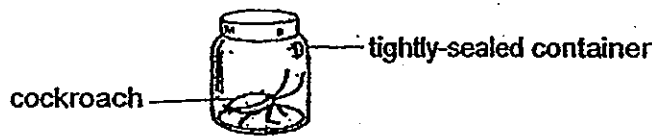
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FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet A consists of 23 printed pages including this cover page.

Section A (30 x 2 marks = 60 marks)

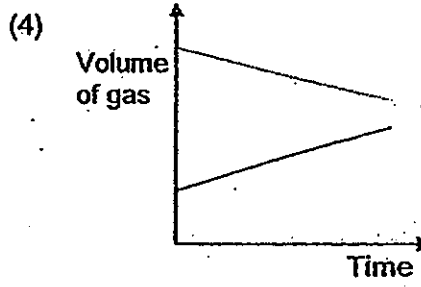
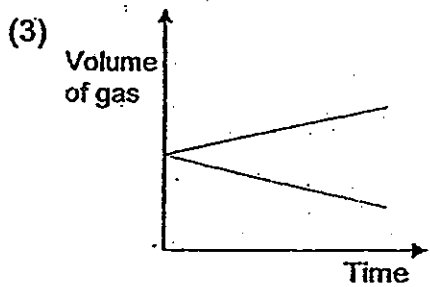
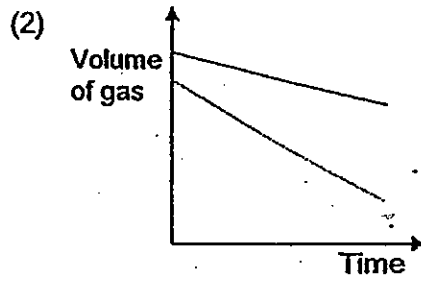
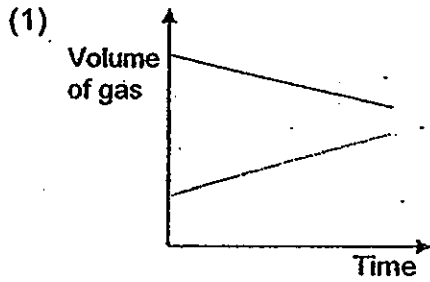
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

1. A cockroach was placed in a tightly-sealed container for three hours as shown in the diagram below.



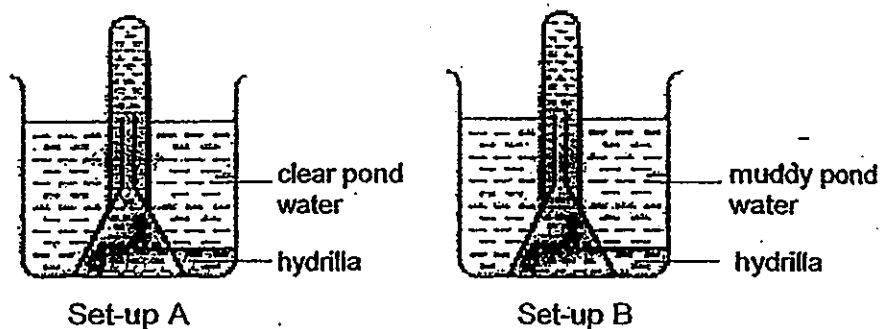
Which one of the following graphs showed the changes in the amount of carbon dioxide and oxygen in the container at the end of the three hours?

Key :
— : carbon dioxide
— : oxygen



Refer to the following experimental set-up to answer Questions 4 and 5.

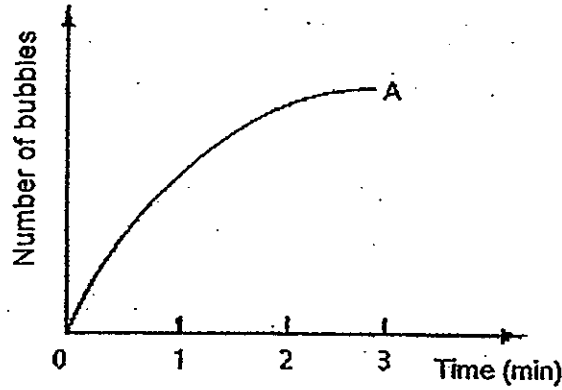
Terry set up an experiment using two similar hydrilla plants. He placed one in a beaker of clear pond water and the other in a beaker of muddy pond water and left both in the sun. He inverted a funnel and a test-tube filled with water over each plant and measured the amount of gas collected in the inverted test-tube after three minutes.



4. What was the aim of his experiment?

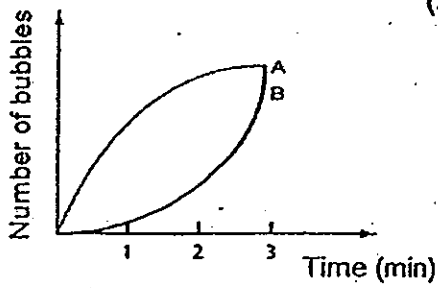
- (1) He wanted to find out if oxygen was produced during photosynthesis.
- (2) He wanted to find out if muddy water affected the amount of dissolved air in the water.
- (3) He wanted to find out if the clarity of water affected the rate of photosynthesis.
- (4) He wanted to find out if the amount of carbon dioxide in the water affected the rate of photosynthesis.

5. Terry counted the number of bubbles produced in Set-up A over a period of three minutes and plotted a graph as shown below.

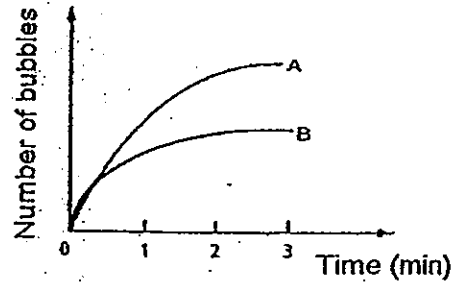


Which graph showed the number of bubbles produced in Set-up B over a period of three minutes?

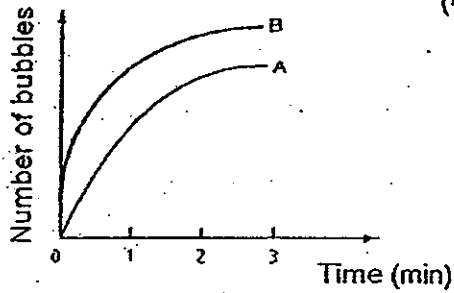
(1)



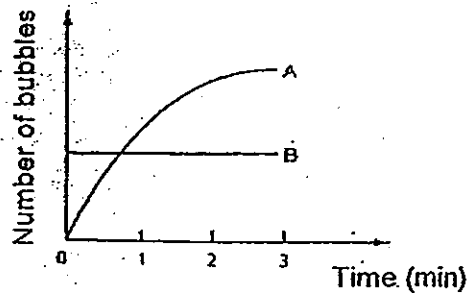
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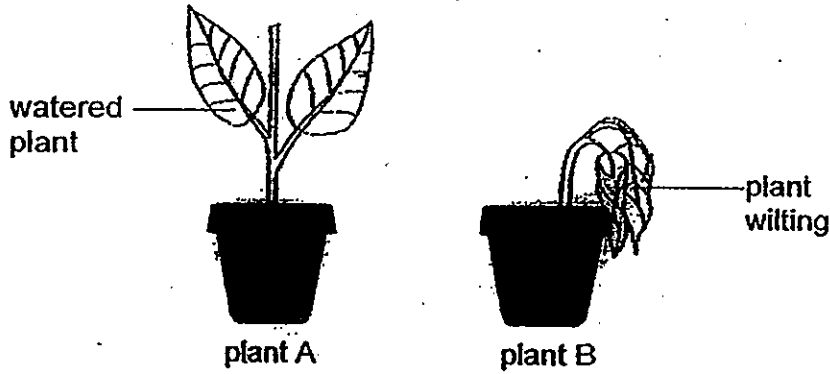
(3)



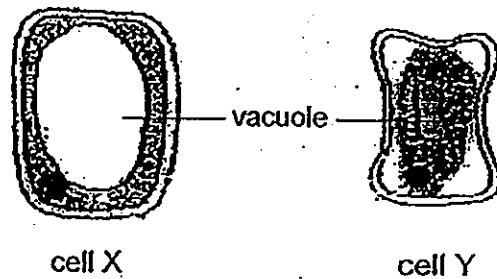
(4)



6. Kim conducted an experiment using two similar plants. She watered plant A daily but left plant B without water for a week. After a week, the plants appeared as shown below.



She then obtained a cell from each plant and observed them under a microscope.



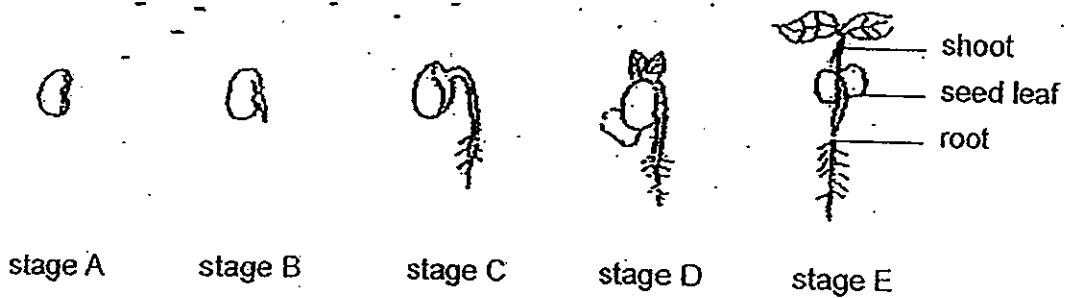
Which of the following statements correctly explained where the cells were taken from?

- A Cell X was taken from plant B as the vacuole was now filled with air.
- B Cell X was taken from plant A as the vacuole was filled with cell sap.
- C Cell Y was taken from plant A as more water had entered and filled the edge of the cell.
- D Cell Y was taken from plant B as it had an irregular shape since the plant had wilted.

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

- (2) A and D
- (4) B and D

7. The diagram below shows the stages of growth in a bean.

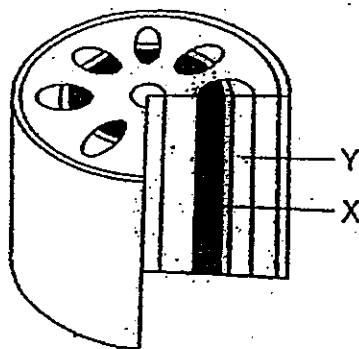


Which of the following statements about germination of the bean is incorrect?

- A Water is not required at stages A and B.
- B The seed leaves are still needed at stage C.
- C The bean needs light for growth at all the stages except stage A.

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

8. The diagram below shows the cross section of a stem. X and Y are tubes found in plant stems.



Which one of the following comparisons about tubes X and Y is true?

	Tube X	Tube Y
(1)	transports sugar	transports water and mineral salts
(2)	transports water	transports starch
(3)	present in aquatic plants	not present in aquatic plants
(4)	transports substances from the roots	transports substances from the leaves

9. Devi recorded the different organisms she saw in her school pond and presented her findings in the table as shown below.

Plants	Animals	Others
cattail hydrilla water lily water moss fern	tilapia tadpole wiggler mosquito dragonfly pondskater great diving beetle	algae

10. Based on the findings, which of the following statements are incorrect?

- A There are three communities in her school pond.
- B There are four plant populations in her school pond.
- C Algae is not interdependent on the other organisms as it is neither an animal nor a plant.

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

Alice studied the population of grasshoppers in a field over a few months and noticed that the number of grasshoppers decreased.

Which of the following could have caused the decrease in the population size of the grasshoppers?

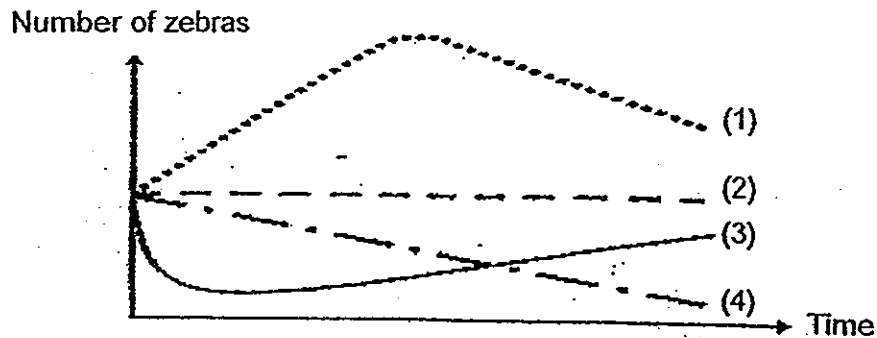
- A There were more deaths than births.
- B The plants in the field were infected with a disease.
- C A new bird species was introduced into the field.
- D There were too many competitors for the same food.

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

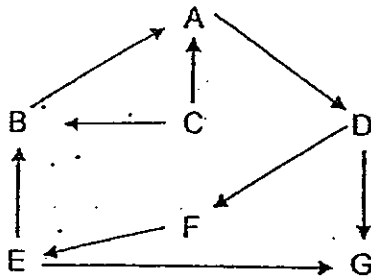
11. The food chain below shows the relationship between three organisms in the African grassland.

grass → zebra → cheetah

Which one of the following lines shows the change in the population of zebras if the cheetahs are completely removed from the grassland?



12. The food web below shows the relationship between organisms A, B, C, D, E, F and G.

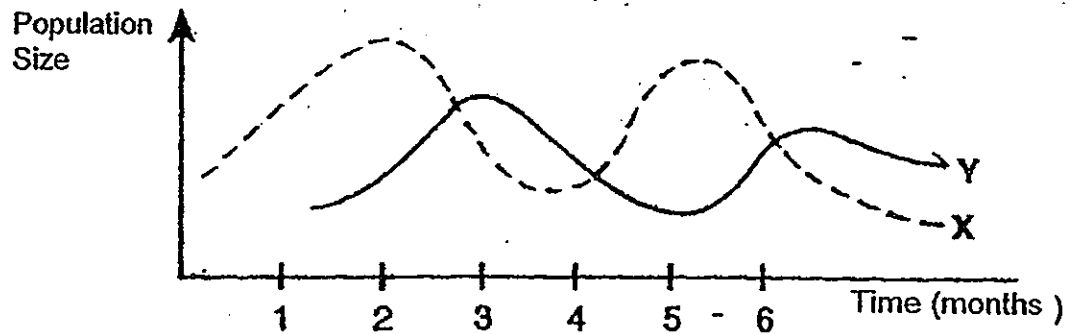


Based on the information from the food web, which of the following statements are correct?

- A There are two herbivores in the food web.
- B Organism B is both a prey and a predator.
- C Organism E gets all its energy from organism F.
- D There is only one food producer in the food web.

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

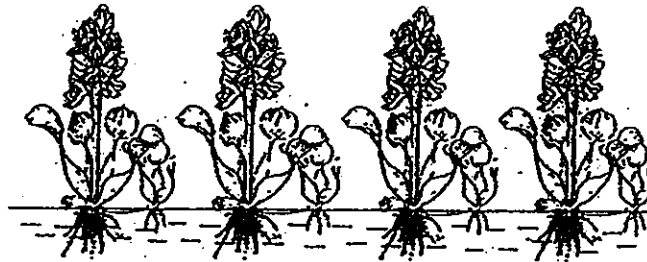
13. Study the graph shown below.



What is the relationship between population X and population Y?

- (1) X is the prey and Y is the predator.
- (2) X is the predator and Y is the prey.
- (3) X and Y have a common predator.
- (4) X and Y are competing for the same food

14. The diagram below shows some water hyacinth plants.



They are one of the fastest growing plants and if uncontrolled, can often cover the entire surfaces of ponds and lakes.

Which of the following are likely to happen as a result of the water hyacinth plants growing uncontrollably?

- A Aquatic animals have an abundant supply of food
- B Aquatic animals are unable to seek shelter and protection
- C The fully submerged plants are unable to photosynthesise and die
- D The amount of dissolved oxygen in the water is increased greatly

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

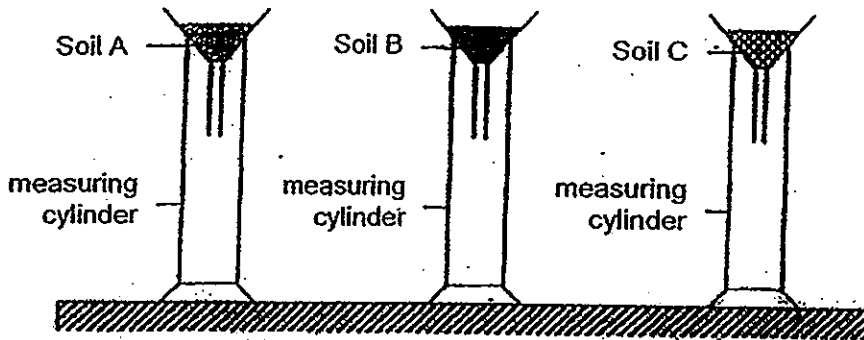
15. Megan set up an experiment to find out which type of soil was suitable for growing 3 different plants.

Plant X – naturally found in the desert

Plant Y – naturally found in the garden

Plant Z – naturally found in waterlogged area

She lined 3 funnels with filter paper and poured the same amount of soil (soil A, B and C) into each funnel. She then poured 50 ml of water into each funnel and recorded the volume of water collected in each measuring cylinder after 5 minutes.



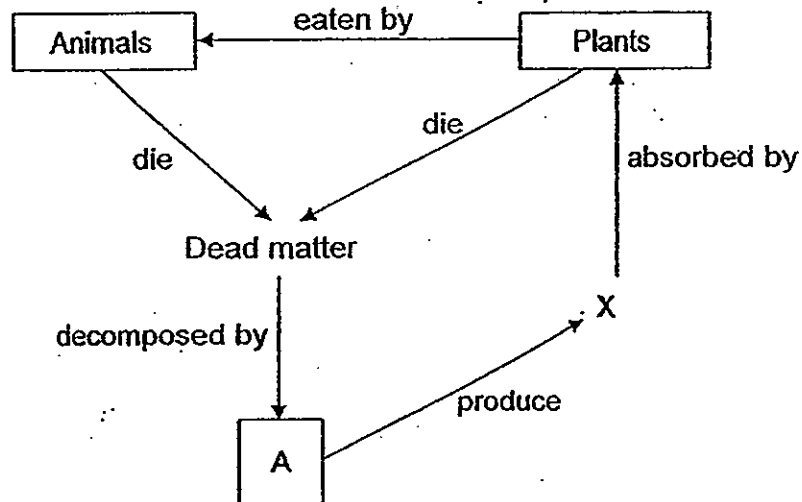
The table below shows the results Megan obtained.

	Soil A	Soil B	Soil C
Volume of water collected	23 ml	46 ml	5 ml

Which one of the following correctly matches the plants to their suitable soil?

	Soil A	Soil B	Soil C
(1)	plant X	plant Y	plant Z
(2)	plant X	plant Z	plant Y
(3)	plant Y	plant X	plant Z
(4)	plant Y	plant Z	plant X

16. Study the concept map carefully.



What do the letters A and X represent?

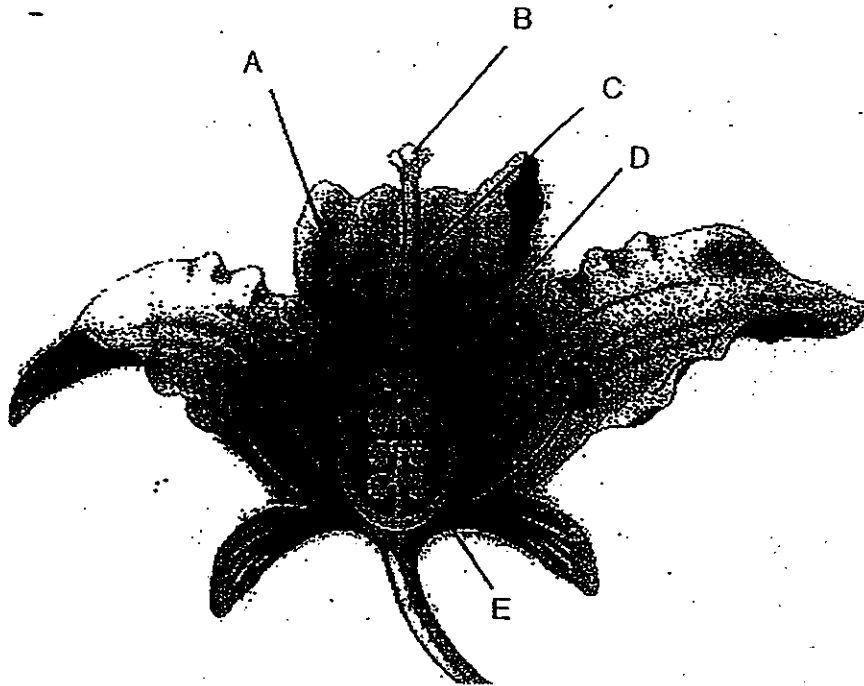
	A	X
(1)	maggot, millipede, vulture	fertilizer
(2)	earthworm, centipede, bread mould	carbon dioxide
(3)	bracket fungus; toadstool, bacterium	mineral salts
(4)	rhinoceros beetle, termite, woodlouse	water

17. Which of the following parts of the body directly make up the digestive system?

- A Heart
- B Stomach
- C Windpipe
- D Large intestines

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

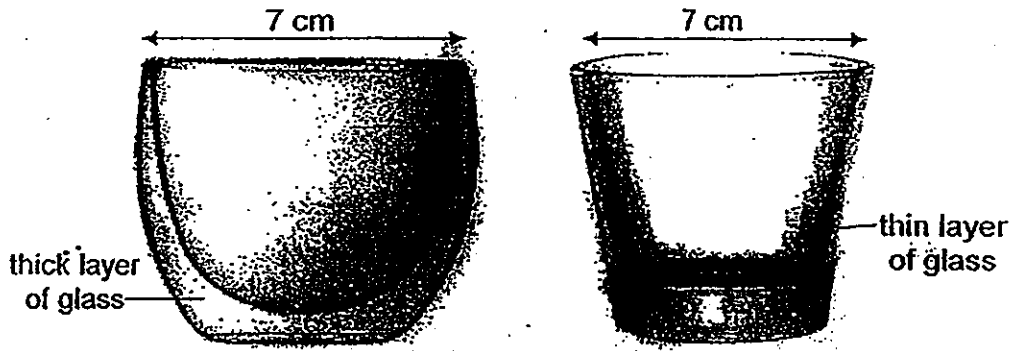
18. The diagram below shows the parts of a flower.



At which part of the flower do the processes of pollination and fertilisation occur?

	Pollination	Fertilisation
(1)	A	C
(2)	B	C
(3)	B	D
(4)	C	E

19. The following diagrams show a newly designed cup as compared to a typical cup. The newly designed cup has a thicker layer of glass as compared to the typical cup.



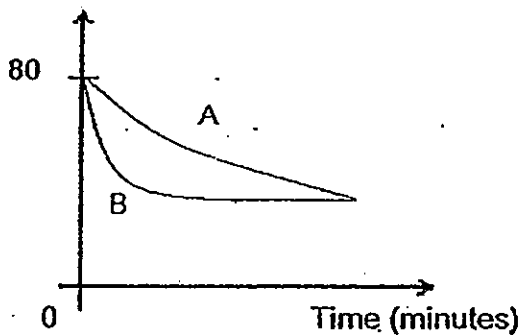
A: newly designed glass cup

B: typical glass cup

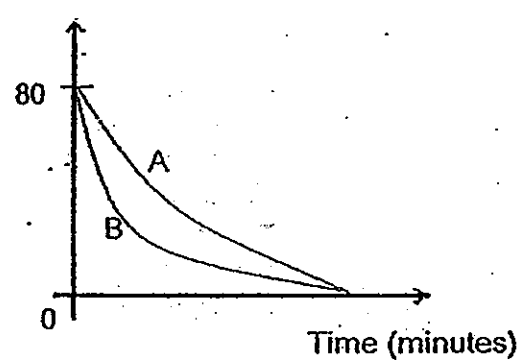
John poured coffee at 80°C into both the cups and left them to cool in a room.

Which one of the following graphs correctly shows how the temperature of the coffee changes with time in each of the cups?

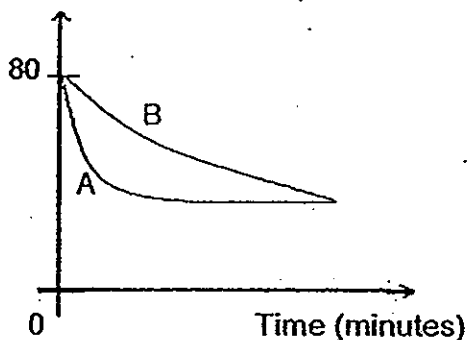
(1) Temperature ($^{\circ}\text{C}$)



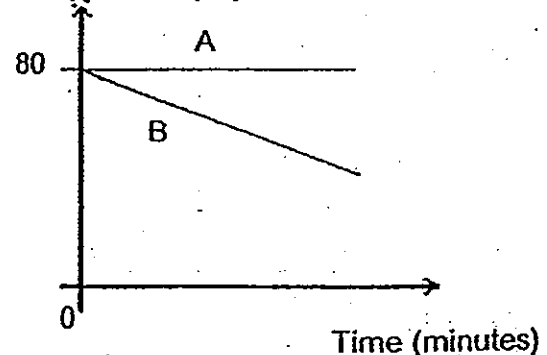
(2) Temperature ($^{\circ}\text{C}$)



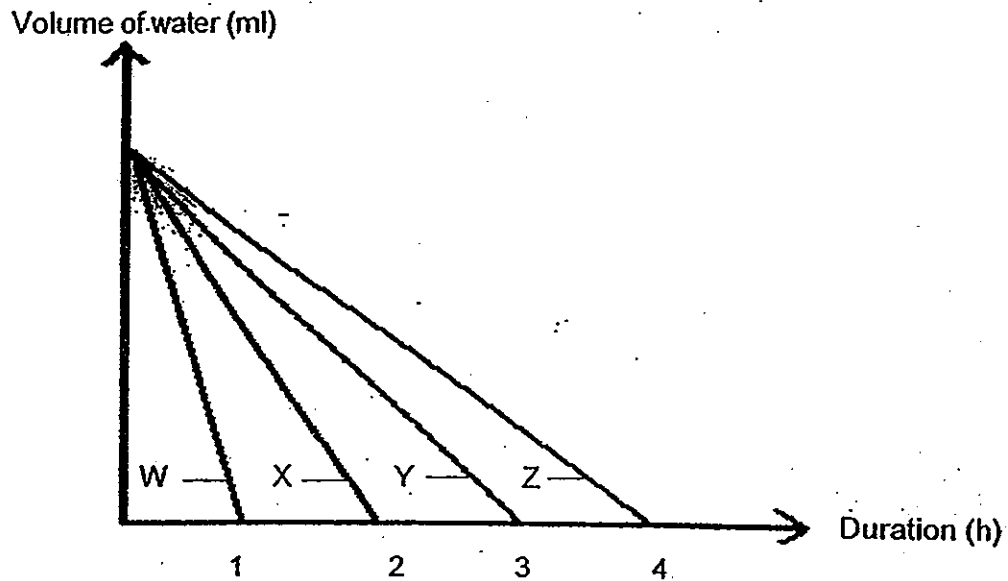
(3) Temperature ($^{\circ}\text{C}$)



(4) Temperature ($^{\circ}\text{C}$)



20. Four containers of water, W, X, Y and Z, were placed at different locations under different conditions. The graph below showed how the volume of water changed with time.



Jimmy studied the graph and gave the possible reasons to explain the difference in the time taken for all the water to evaporate under the different conditions.

- A The amount of liquid in W is lesser than the liquid in X at the start.
- B The temperature of the surroundings in X is higher than that of Z
- C The humidity level of the surrounding in Y is higher than that in Z
- D The exposed surface area of the liquid in Z is smaller than that of Y

Which of the statements made by Jimmy are possible explanations for the graph above?

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

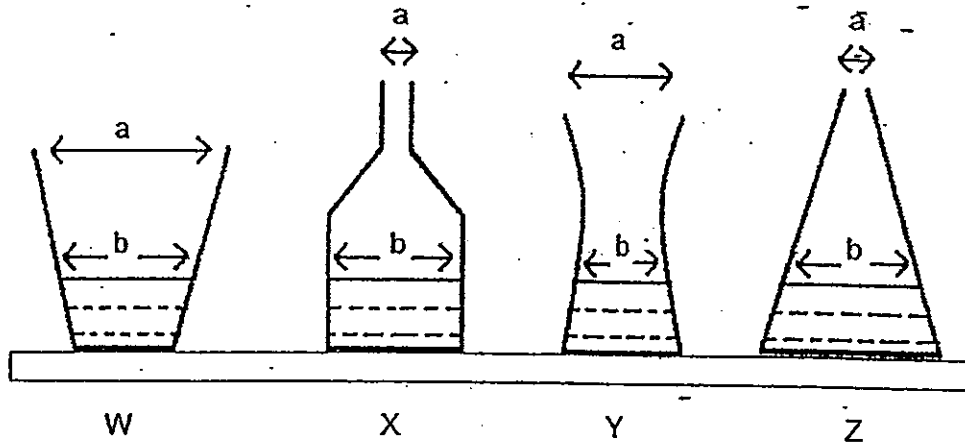
21. Jim conducted an experiment by measuring the time taken for ice to melt completely. Then he repeated his experiment by adding different amounts of salt to the ice and measured the time taken for the ice to melt completely. He recorded the details and results of his experiment in the table below.

	Amount of salt (teaspoon)	Time taken for the ice to melt (seconds)
Cup A	0	400
Cup B	1	300
Cup C	2	200
Cup D	3	100

Which one of the following statements best describes the outcome of the experiment?

- (1) Adding salt has no effect on the rate at which ice melts.
- (2) When more salt is added, the ice takes a longer time to melt.
- (3) The ice in cup D took the shortest time to melt as it has the most salt.
- (4) The ice will only melt faster when the 3rd teaspoon of salt is added.

22. Dennis set up an experiment as shown below.



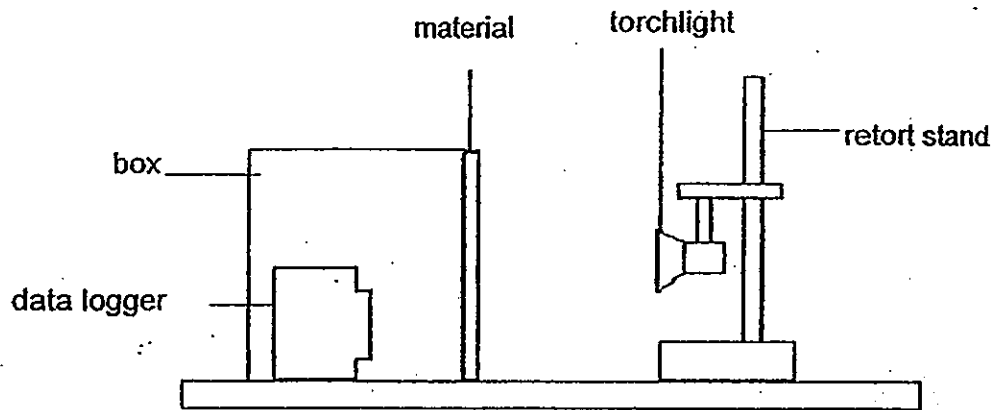
^{same volume} Similar amounts of water were poured into the 4 containers. The surface areas of the openings, a , as well as the surface area of the water, b , in each container were measured and recorded as shown in the table below. The containers were placed in the same room under similar conditions for 1 hour.

Container	Surface area	
	a (cm ²)	b (cm ²)
W	25	20
X	10	17
Y	20	16
Z	8	18

Arrange the containers according to the ^{volume of water left in each} height of the water level.

- least \longrightarrow most
- | | |
|-----|------------|
| (1) | W, Y, X, Z |
| (2) | W, Z, X, Y |
| (3) | Y, X, Z, W |
| (4) | Z, X, Y, W |

23. Erika set up the following experiment as shown below. She wanted to identify the material that she should use for the curtains in her house in order to block out as much sunlight as possible.



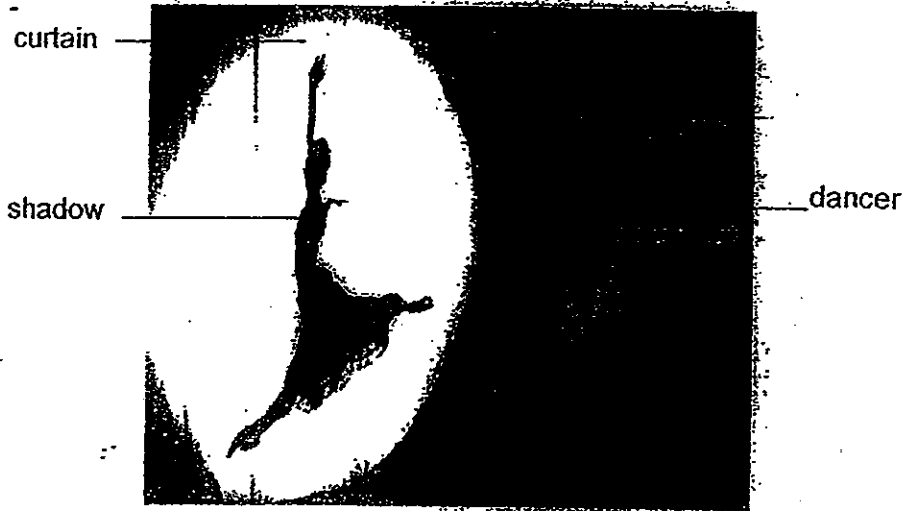
Each time she conducted the experiment, she used a different material to cover the opening of the box. The datalogger was then turned on once the forchlight was switched on. The following table showed the results captured by the data logger when different materials were used.

Material	Amount of light measured by the data logger (lux)
W	157
X	204
Y	423
Z	120

Which one of the above materials is the best for her to use for the curtains?

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

24. Study the photograph of a dancer in the diagram below.



Faith saw the photograph above and made the following conclusions:

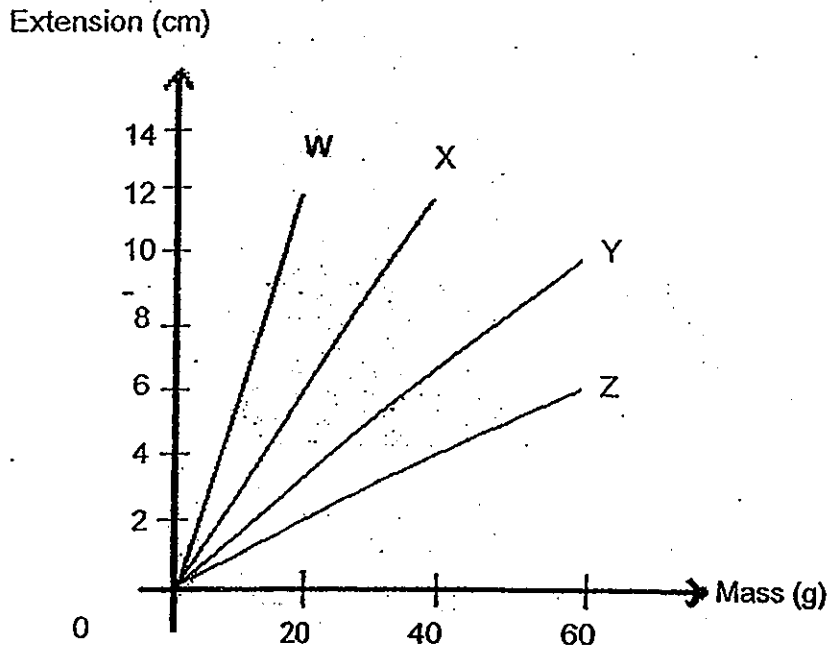
- A The light source is coloured.
- B The light source is very bright.
- C The light could not pass through the dancer.
- D There are more than one light sources shining on the dancer.
- E The dancer is closer to the light source than she is to the curtain.

Based only on the photograph, which of her statement(s) are true?

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

Study the graph shown below and answer questions 25 and 26.

Four different springs, W, X, Y and Z, had different weights hung on them and their extensions were recorded as shown in the graph below.



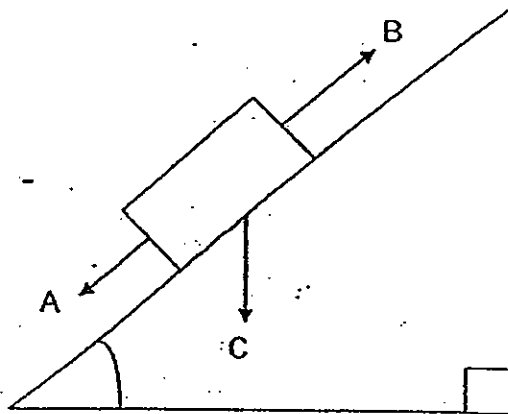
25. Based on the graph, arrange the springs from the one that extended the most to the one that extended the least.

	most → least
(1)	W, X, Y, Z
(2)	W, Z, X, Y
(3)	Y, X, Z, W
(4)	Z, Y, X, W

26. The original length of spring X was 6 cm, what was the length of the spring when a mass of 30 grams was hung on it?

- (1) 6 cm
- (2) 7 cm
- (3) 12 cm
- (4) 15 cm

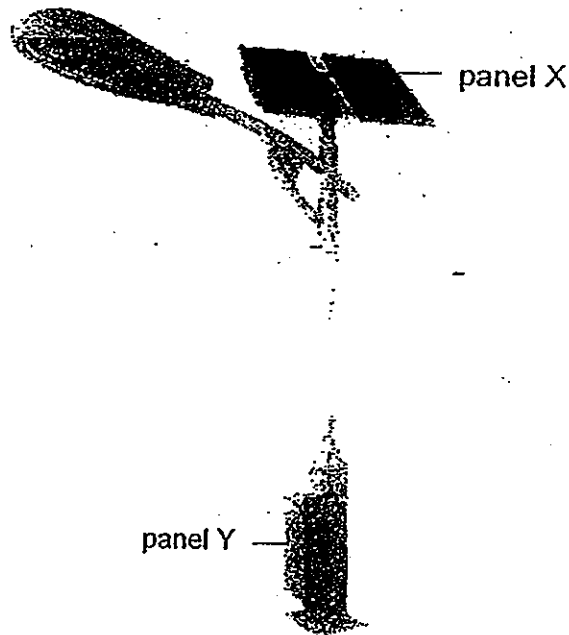
27. Study the diagram below. The box was being pushed up a ramp. Steven labelled the possible forces that were acting on the box



Which of the following correctly identifies forces A, B and C?

	A	B	C
(1)	Push force	Frictional force	Gravitational force
(2)	Frictional force	Push force	Gravitational force
(3)	Push force	Gravitational force	Frictional force
(4)	Gravitational force	Frictional force	Push force

29. The diagram below shows a street lamp powered by the Sun. During the day, energy from the sun is collected at panel X and stored in panel Y. At night, the lamp is switched on by a sensor using energy stored in panel Y.

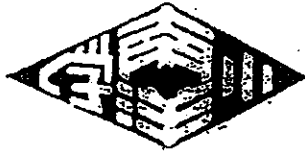


Which one of the following shows the correct energy conversion when the street lamp is switched on at night?

- (1) solar energy \rightarrow light energy + heat energy
(2) solar energy \rightarrow electrical energy \rightarrow light energy
(3) chemical potential energy \rightarrow electrical energy \rightarrow light energy
(4) electrical energy \rightarrow light energy \rightarrow chemical potential energy
30. Which of the following are examples of fossil fuels?

- A Coal
B Crude oil
C Cooking oil
D Natural gas

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



PRIMARY SIX SCIENCE
SEMESTRAL ASSESSMENT 1

2012

BOOKLET B

Date : 9 May 2012

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 6 ()

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Any query on marks awarded should be raised by 21st May 2012. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

Parent's signature:

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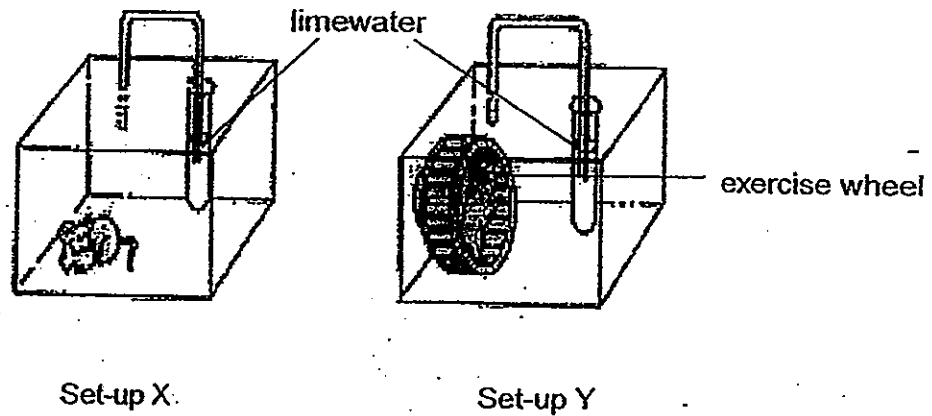
Booklet B consists of 16 printed pages including this cover page.

Section B (40 marks)

Write your answers to questions 31 to 44 in the spaces provided.

Marks will be deducted for misspelt key words.

31. - Stacey placed two healthy white mice separately in clear, plastic tanks. Each tank contained a test-tube of limewater. She added an exercise wheel in the tank for set-up Y.

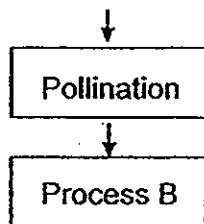


Stacey observed that the limewater in set-up Y turned chalky earlier than the one in set-up X. Explain why the limewater in set-up X took a longer time to turn chalky.

[2]

32. Study the flowchart below showing 2 processes that take place during plant reproduction.

Reproduction in Flowering Plants



- (a) Identify process B. State what happens during this process. [1]

- (b) In the table below, fill in the correct flower parts matching the changes that take place after process B. [1]

Part of flower	Changes occurring after Process B
(i)	falls off
(ii)	becomes the fruit
(iii)	become the seeds of the fruit

- (c) List two characteristics that help flowers to attract insects for pollination. [1]

(i) _____

(ii) _____

33. Kai Yin observed three cells, A, B and C, under the microscope and recorded her observations in the table below.

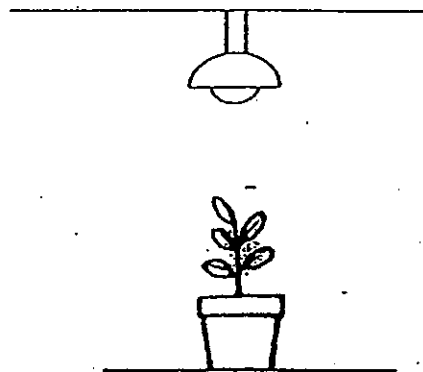
Cell Part	Cells		
	A	B	C
Nucleus	present	absent	present
Cell wall	present	absent	absent
Chloroplast	present	absent	absent
Cell membrane	present	present	present

- (a) Based on her observations, what are two possible functions that cells A and C can perform but not cell B? [1]

- (b) Which of the above cell(s) is/are likely to be an animal cell? Give a reason for your answer. [1]

- (c) Other than having a cell membrane, cells A, B and C have another common cell part that is not stated in the table. Name this part and describe its function. [1]

34. Da Ren set up an experiment using 5 pots of similar plants and placed them under different coloured light for the same period of time. Each pot contained the same type and amount of soil and was given the same amount of water. He measured the mass of the plants at the start of the experiment and again, at the end of the experiment.



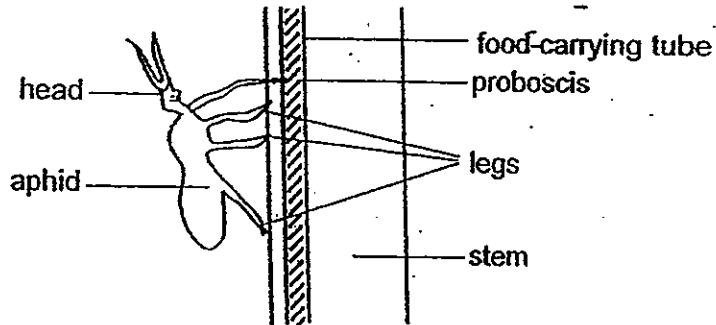
The table below shows the results of the experiment.

Pot	Colour of Light	Mass of Plant (g)		
		Start of Experiment	End of Experiment	Gain
J	Red	1.1	4.7	3.6
K	Blue	1.0	4.9	3.9
L	Green	1.0	1.7	0.7
M	Yellow	1.0	3.0	2.0
N	Violet	1.1	3.3	2.2

- (a) What was the aim of his experiment? [1]

- (b) List one variable other than those stated in the question, that he must keep constant in order to conduct a fair test. [1]

35. Aphids have a specialized mouthpart, called proboscis, which they use to pierce into the food-carrying tubes in a plant stem as shown in the diagram below.



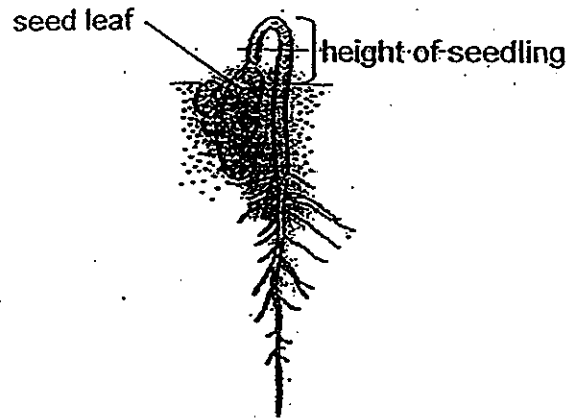
- (a) State the food that the aphids are obtaining from the food-carrying tube. [1]

- (b) Aphids are found to feed off plants more often during the day than at night. Give a possible reason for this behaviour in relation to plant processes. [1]

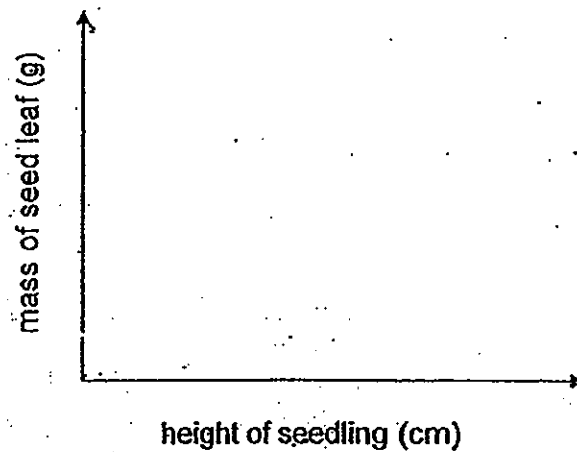
- (c) Aphids feed on tree sap just like female mosquitoes feed on human blood.

Identify the part of the human body which is similar to the food-carrying tube in the plant. Explain your answer. [1]

36. Ruihong planted a seedling. He weighed the seed leaves and measured the height of the seedling daily.

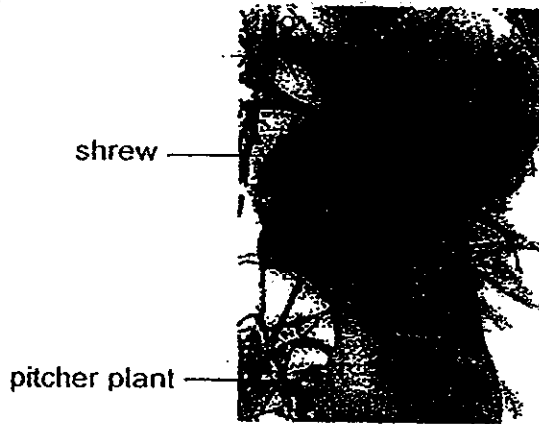


- (a)(i) Draw a line on the graph below to show the pattern that he should observe about the relationship between the mass of seed leaf and the height of the seedling. [1]



- (a) ii) Describe and explain your graph. [1]

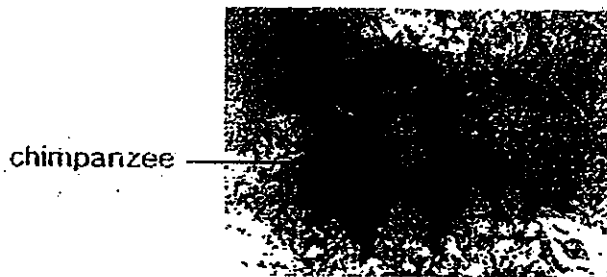
37. The pitcher plant grows in nutrient-deficient soil. It has been observed that a small mammal known as a shrew, visits the pitcher plant often. The shrew feeds on the sugary nectar from the pitcher plant and leaves behind its droppings.



- (a) How do the pitcher plant and shrew benefit each other through their interaction?

[1]

Chimpanzees in Nigeria often get infected with parasites which attach to their intestinal walls. The chimpanzees have been observed to swallow many large seeds of plant K. As these seeds pass through their intestines undigested, they remove the parasites by dislodging them from the intestinal walls.



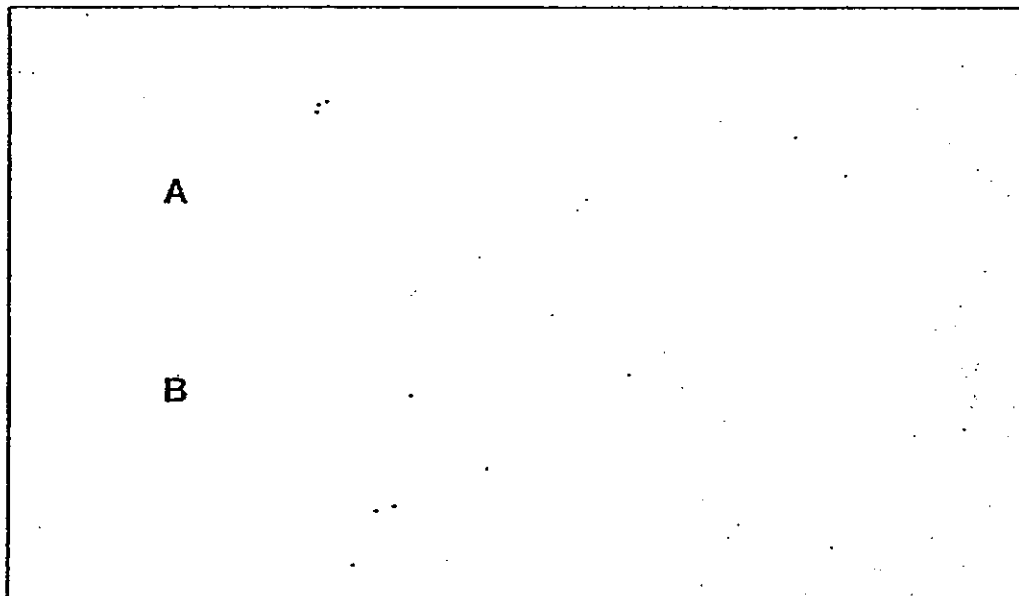
- (b) How does plant K benefit from its interaction with the chimpanzee?

[1]

38. The following information shows the relationship between seven organisms (A, B, C, D, E, F and G) of a community.

- Organisms A and B are the food producers and organism C feeds on both of them.
- Organism D feeds on organisms E and F.
- Organism E feeds on organism A while organism G feeds on organism B.
- Organism F feeds on organisms C and G.

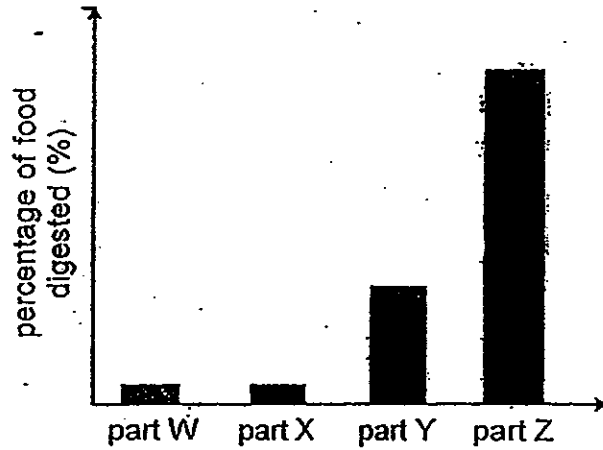
(a) Construct a food web using the information above. The position of organisms A and B has already been drawn for you. [2]



(b) How will the population size of organism C be affected if the population of organism G is reduced? Give a reason for your answer. [1]

(c) What is the relationship between organisms C and E? [1]

39. The graph below shows the percentage of digested food inside a person's digestive system. W, X, Y and Z represent different parts of the digestive system.

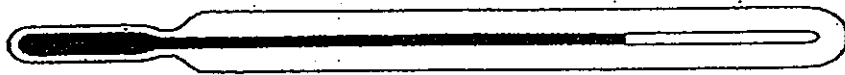


- (a) In the table below, fill in the corresponding parts of the digestive system with either part W, X, Y or Z. [1]

Parts of the digestive system	Part
Mouth	
Stomach	

- (b) Identify Part X and explain why the amount of digested food in X remained the same as in W. [1]

40. Nelson found an old laboratory thermometer and noticed that all the markings on the thermometer had faded. He knew that the laboratory thermometer was capable of measuring temperature below 0°C and temperatures of up to 120°C. The thermometer is as shown below.



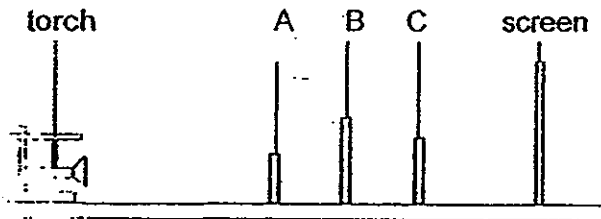
Using the items provided below, list down the procedure needed for him to replace the markings on the thermometer as accurately as possible, so that he could use the thermometer again. [3]

Items provided:

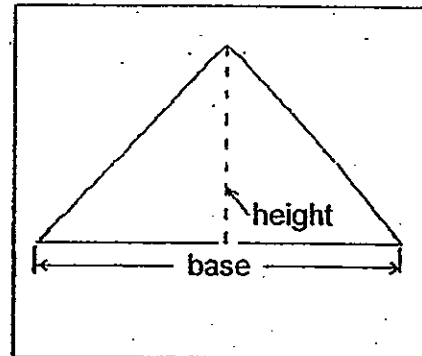
- bunsen burner
- beakers
- ice cubes
- long ruler
- permanent markers

Steps	Procedure
1	
2	
3	
4	Repeat the experiment at least 3 times to ensure the results are reliable.

- 41 Jane set up the experiment below to find out if the properties of the objects she used have an effect on the shadows that were cast. All the three objects, A, B and C, are triangles of different sizes with their bases aligned.



Side view of the experimental set-up



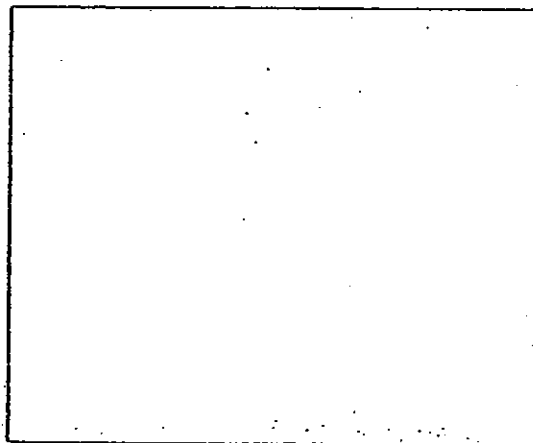
Front view of each triangle

The properties of the objects she used are as shown in the table below.

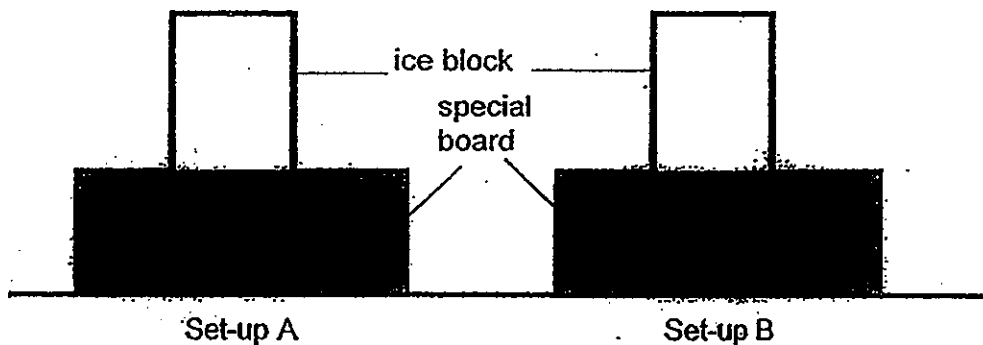
Object	Base (cm)	Height (cm)	Characteristic
A	10	4	Transparent
B	10	7	Translucent
C	10	5	Opaque

- (a) State one condition of the environment that Jane should ensure when she carries out the experiment. [1]

- (b) In the space provided below, draw the shadow(s) that is most likely to appear on the screen when she switched on the torch. Include the measurements and description of the shadow(s). [2]



42. In countries that experience winter season, special boards are used to bring frozen food to room temperature quickly. Michael set up the following experiment to find out which material was suitable for making these special boards. He placed an ice block on each of the boards and used a stopwatch to note the time taken for the ice blocks to melt. The experiment was carried out under similar conditions.



In set-up A, the special board was made of aluminium and in set-up B the special board was made of wood. The special boards and the ice blocks were of similar size.

- (a) i) In which set-up would the ice block melt first? [1]

- ii) Explain your answer in (ai). [1]

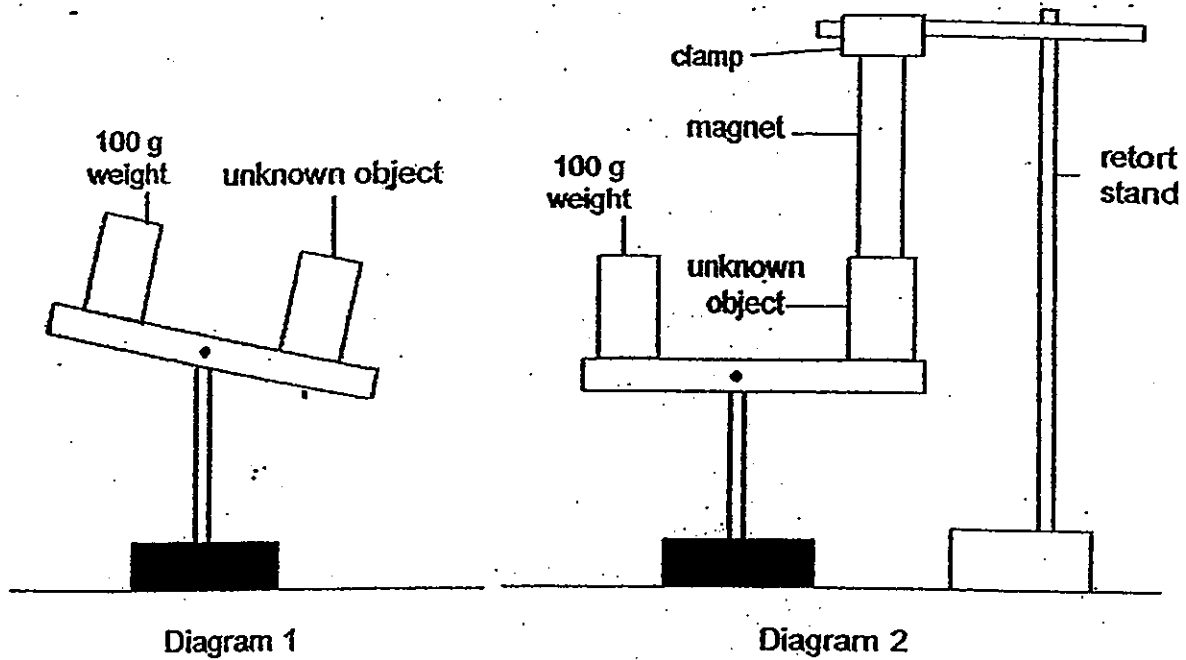
Michael only had one stopwatch. He measured the time taken for the ice to melt in set-up A and recorded the result in the table below. He immediately repeated the experiment a second time using an ice block of similar measurements on the same board.

Number of attempts on set up A	Time taken (Seconds)
1st	76
2nd	?

(b) i) Based on the information in the table above, predict the time taken for the 2nd ice cube to melt. [1]

ii) Explain your answer in part (b)(i). [1]

43. Tom set up an experiment using a beam balance as shown in diagram 1 below. The unknown object was balanced using a magnet as shown in diagram 2.



- (a) On diagram 2, name and draw the directions of the forces that are acting on the unknown object. [2]
- (b) Suggest a possible material that the unknown object could be made of. Explain your answer. [1]
-
-

44. In the diagrams below, figure 1 shows a portion of a roller coaster ride in an amusement park. During the ride, the roller coaster makes a complete turn. A simplified diagram is shown in figure 2.



figure 1

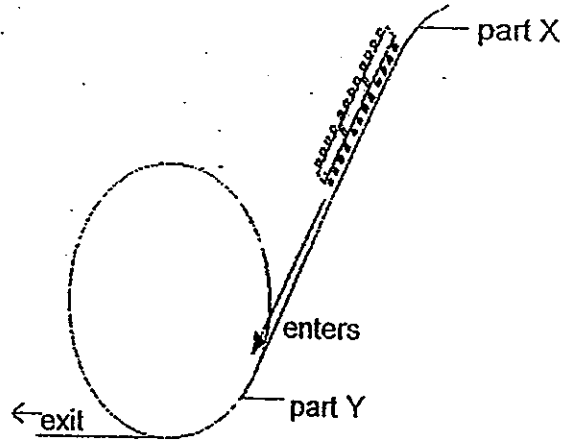


figure 2

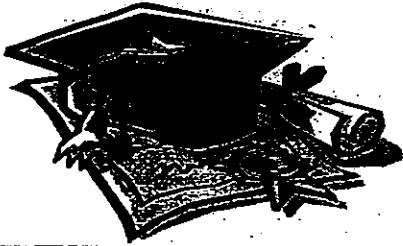
- (a) Name the form(s) of energy that the roller coaster possess at point X. [1]

- (b) Explain the energy conversion that takes place as the ride enters and exits the loop. [2]

- (c) Suggest a possible modification to the roller coaster to enable the ride to enter the loop at a higher speed. [1]

~ END OF PAPER ~





ANSWER SHEET

EXAM PAPER 2012

**SCHOOL : NANYANG
SUBJECT : PRIMARY 6 SCIENCE**

TERM : SA1

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

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

31)The mouse in Set-up X was not exercising so the rate of respiration is slower than Y and less carbon dioxide will be produce to take a longer time to turn limewater chalky.

32)a)Fertilisation. The male cell in the pollen grain fuses with the female egg in the ovule.

- b)i)Petals ii)ovary iii)ovules
c)i)Sweet scent. ii)Bright colours.**

33)a)Cells A and C undergo cell division. They can control all activities in the cell.

b)Cells B and C are animal cells as they do not have cell walls which only plant cells have.

c)Cytoplasm. Most cell activities take place in the cytoplasm.

34)a)It was to find out how the colour of light affected the growth of the plant.

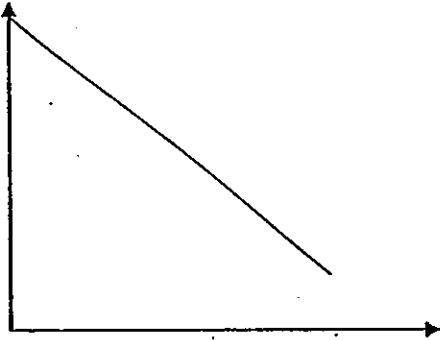
b)Brightness of the light.

35)a) Sugar.

b) Plants photosynthesise in the presence of light during the day so there will be more glucose in the food-carrying tube for the aphids to feed on.

c) Blood vessel. Blood vessel carries blood which contains digested food.

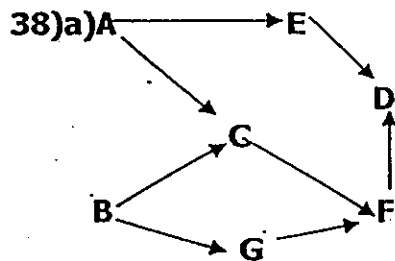
36)a)i)



ii) As the seedling grows, the seed leaf will be eventually used up, thus seed leaf being useless after the food has been used will drop onto the ground.

37)a) The shrew will benefit as the pitcher plant provides food for the shrew. The pitcher plant will benefit as the shrew will provide droppings which provide nutrients for the pitcher plant.

b) The chimpanzee disperses the seeds of plant K when it eats and passed out the undigested seeds.



b) Population size of C will decrease. If population of G is reduced, organism F will feed more on C.

c) They are competitors for food.

39)a) Mouth : Part W.

Stomach : Part Y.

b) Part X is the gullet. It does not have any digestive juice to carry out any digestion.

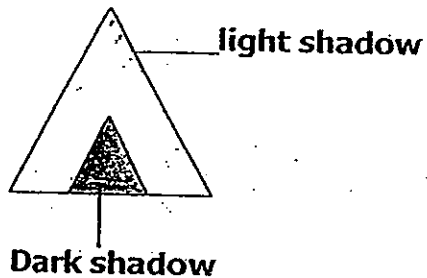
40) 1) Put the thermometer in a beaker of ice and make a marking on the thermometer as 0°C .

2) Heat the beaker of ice over the bunsen burner until the water boils. Mark 100°C on the thermometer.

3) Use the long ruler to measure the distance between the 0°C and 100°C . Mark and divide the distance equally for interval of 10°C .

41) a) Dark room.

b)



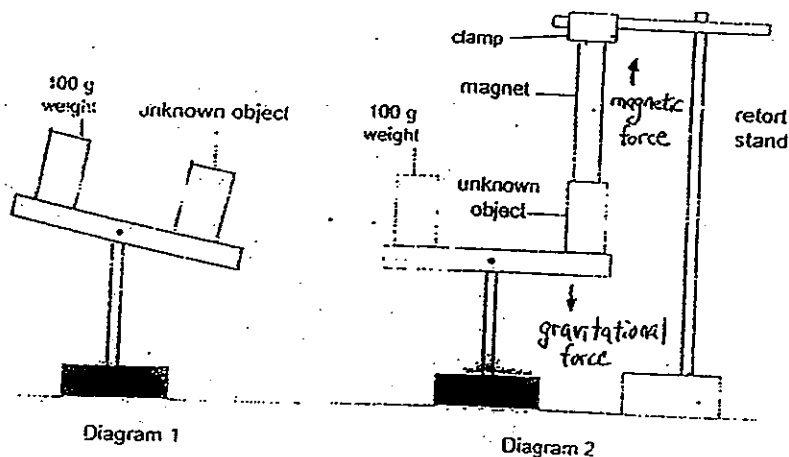
42) a) i) Set-up A.

ii) Aluminium is a better conductor of heat than wood so heat is transferred from the block to the ice faster to allow the ice to melt faster.

b) i) 100 seconds.

ii) After melting the first block of ice, the block is now colder so the second ice cube will gain heat slower from the block.

43) a)



b) Steel. It is a magnetic material that can be attracted to the magnet.

44)a)Gravitational Potential Energy and Kinetic Energy.

b)When the ride enters the loop, kinetic energy is converted to gravitational potential energy. When the ride exits the loop, gravitational potential energy is converted to kinetic energy.

c)Put grease on the wheel.