



**CATHOLIC HIGH SCHOOL
PRELIMINARY EXAMINATION 1
2013
PRIMARY SIX
STANDARD SCIENCE**

BOOKLET A

Name: _____ ()

Class: Primary 6 - _____

Date: 22 May 2013

30 questions

60 marks

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

Instructions to Candidates

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of 21 printed pages, excluding cover page.

Booklet A (30 × 2 marks)

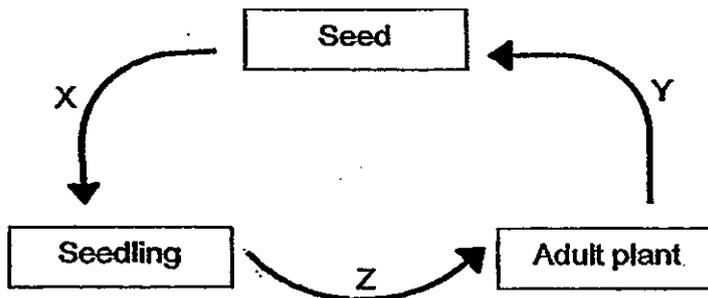
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet. (60 marks)

1. Four pupils recorded their observations of an animal they each saw at the Singapore Zoo.

Ezekiel Its body is covered with hair.
Sue It reproduces by laying eggs.
Raju Its young resembles the adult.
Jun Han It moves by swimming and crawling.

Who gave the correct observations about an orang utan?

- (1) Ezekiel and Raju
(2) Ezekiel and Jun Han
(3) Sue, Raju and Jun Han
(4) Ezekiel, Raju and Jun Han
2. Study the reproduction cycle of a plant below.

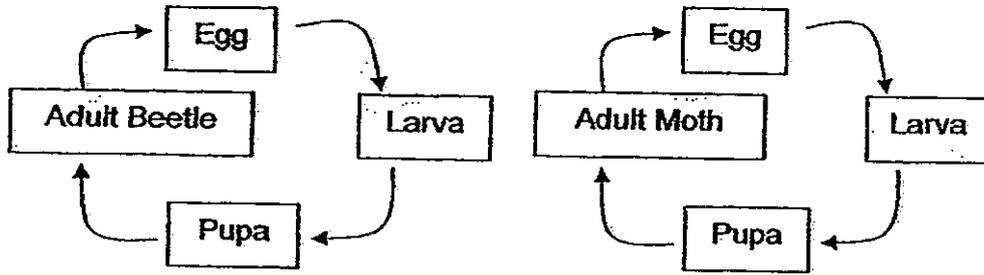


Which of the following processes does Y represent?

- A pollination
B fertilization
C germination
D seed dispersal

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

3. The diagrams below show the life cycles of 2 animals.



Which of the following statements about the life cycles of the animals are true?

- A Both give birth to young alive.
- B Both their young do not resemble the adult.
- C The young will only become insects at the adult stage.
- D The pupae will remain inactive before reaching the adult stage.

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

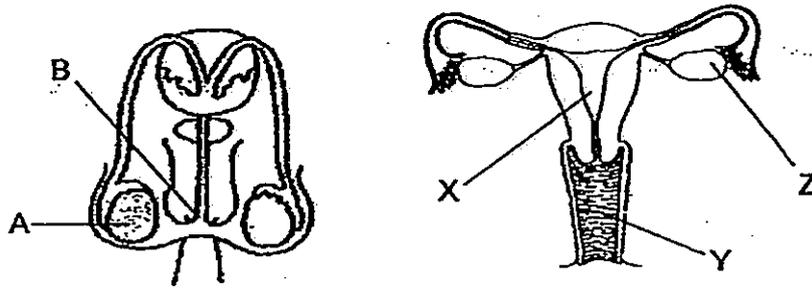
4. Darryl wanted to find out if the colour of flower petals has an effect on the number of pollinators attracted to the flower. He had the following flowers-

Flower	Type of flower	Colour of flower petals	Position of anther
P	Rose	red	within the flower
Q	Rose	white	within the flower
R	Spider lily	white	dangling outside the flower
S	Orchid	white	within the flower
T	Orchid	orange	dangling outside the flower
U	Sunflower	yellow	dangling outside the flower

Which of the flowers above should Darryl use to conduct his investigation?

- (1) P and Q only
- (2) S and T only
- (3) Q, R and S only
- (4) R, T and U only

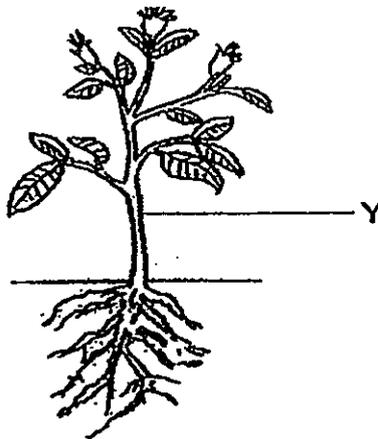
5. The diagram below shows the male and female reproductive systems.



In which parts of the reproductive systems are the reproductive cells produced?

- (1) A and X only
- (2) A and Z only
- (3) B and X only
- (4) B and Y only

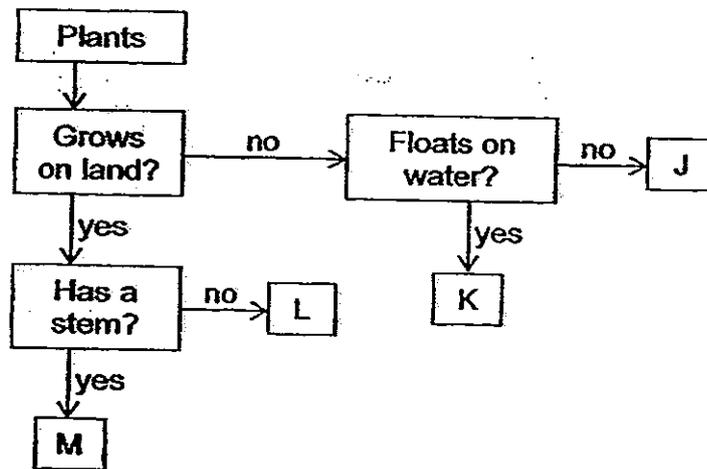
6. The diagram shows a plant.



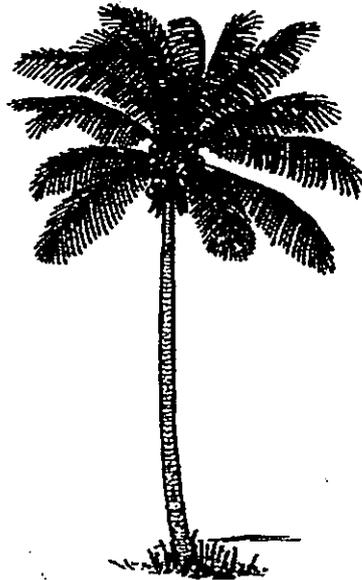
How are food and water being transported at part Y of the plant?

Direction for the transport of	
Food	Water
(1) upwards	upwards
(2) upwards	downwards
(3) downwards	downwards
(4) downwards	upwards

7. Study the flowchart below.



The diagram below shows a coconut plant.



Which plant, J, K, L or M, represents the coconut plant?

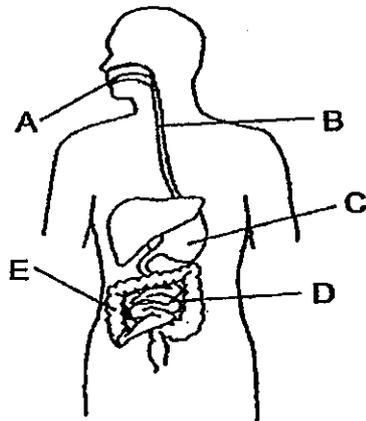
- (1) J
- (2) K
- (3) L
- (4) M

8. Zafir observed the following cell under a microscope and concluded that it is an animal cell.



Based on the diagram above, what characteristic of the cell led Zafir to make his conclusion?

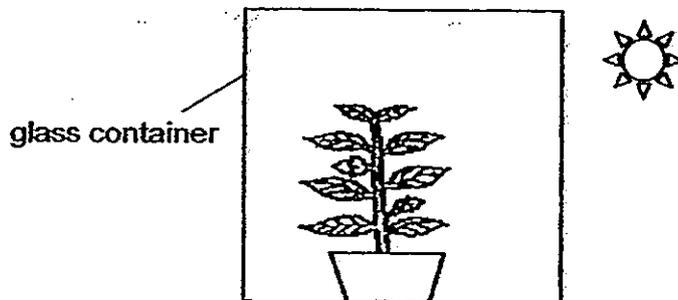
- (1) It has a cell wall.
 - (2) It has a cell membrane.
 - (3) It is of an irregular shape.
 - (4) It does not have chloroplasts.
9. The diagram below shows parts of a human digestive system.



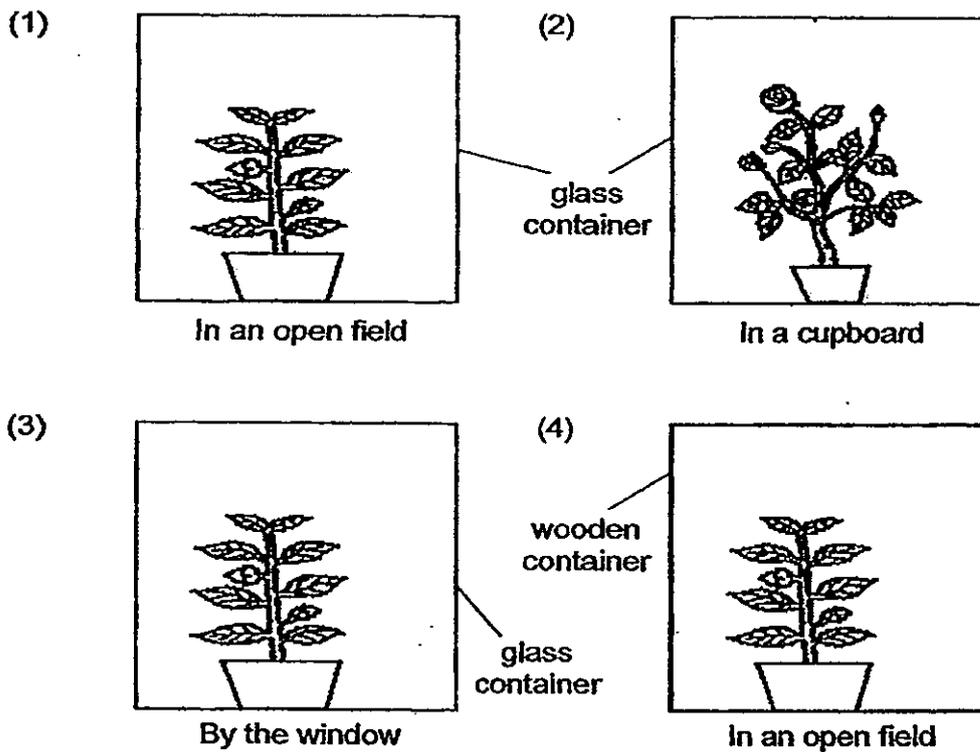
In which parts, A, B, C, D and E, are digestive juices found?

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

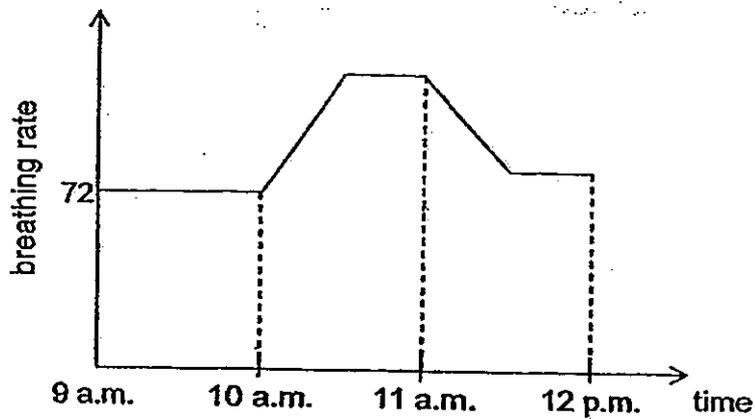
10. Manfred set up the following to investigate if plants need light to photosynthesise. He left the set-up in an open field and ensured that the plant was watered daily.



Which of the following should Manfred use as his control set-up?

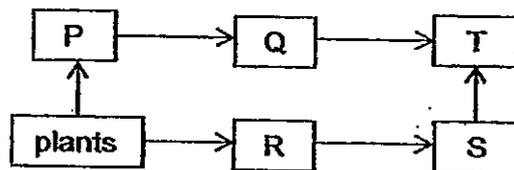


11. Yongzhen engaged in several activities and monitored the changes in his breathing rate. He then plotted his readings in the graph as shown below.



Which of the following can explain why Yongzhen's breathing rate increased between 10a.m. to 11a.m.?

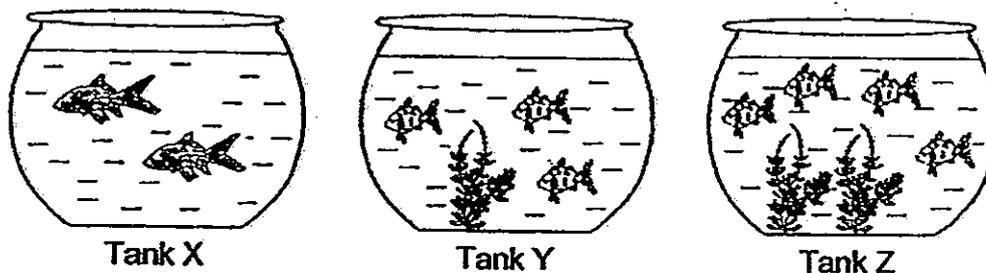
- (1) His heart needed to pump faster because he was exercising.
 - (2) His body needed more oxygenated blood because he was sleeping.
 - (3) He needed to take in more oxygen because he was mountain-climbing.
 - (4) He needed less oxygen because he was resting after a vigorous activity.
12. Study the food web below. P, Q, R, S and T are animals living in a habitat.



If a predator that feeds on animal T is introduced into this habitat, which of the following shows the effects on the populations of animals P and S after some time?

	Animal P	Animal S
(1)	increase	decrease
(2)	increase	increase
(3)	decrease	decrease
(4)	decrease	increase

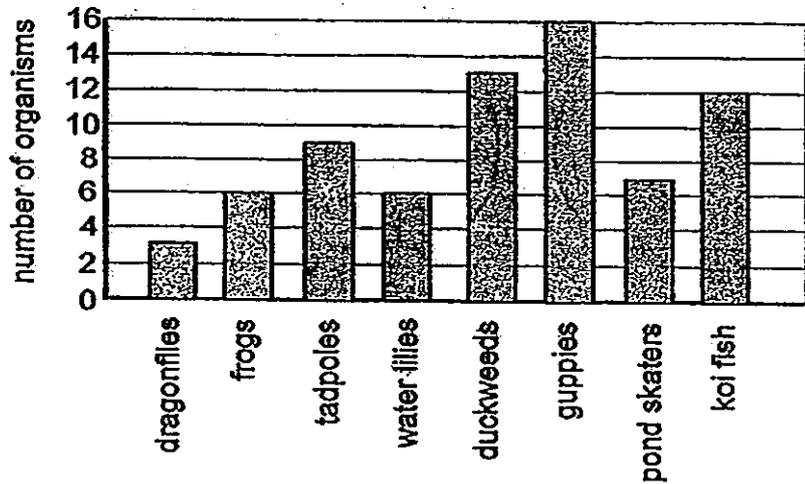
13. Sean wanted to find out if the presence of water plants affects the survival of the fish in a tank. He set up the following experiment and left the tanks by the window.



Sean's teacher remarked that his experiment was not a fair one. What should Sean do to make his experiment fair?

- A Remove one water plant from tank Z
 - B Use the same type of fish in each tank
 - C Add the same type of water plant to tank X
 - D Keep the number of fish in each tank the same
-
- (1) A and B only
 - (2) B and C only
 - (3) B and D only
 - (4) A, C and D only

14. Miss Lim plotted the number of different organisms she saw in a school pond in the bar graph below.

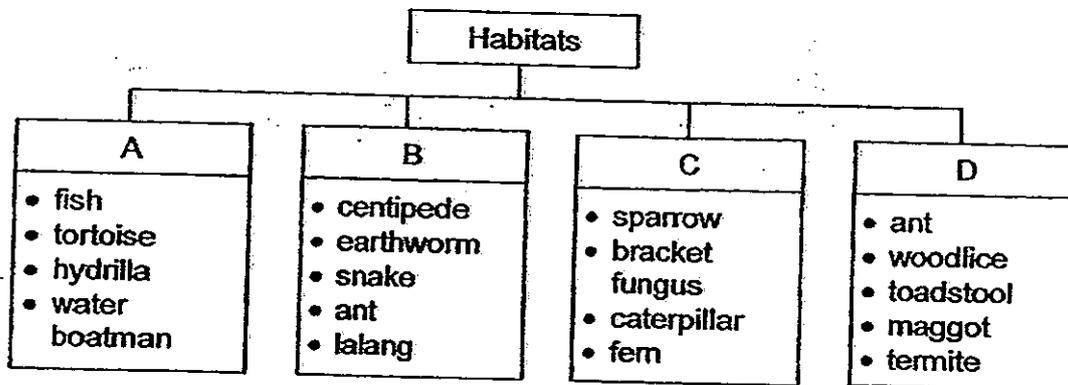


Which of the following conclusions can be made from Miss Lim's graph?

- A There are 2 insect populations.
- B There are 15 organisms in the frog population.
- C There are 8 communities living in the school pond.
- D There are more populations of plants than animals.

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

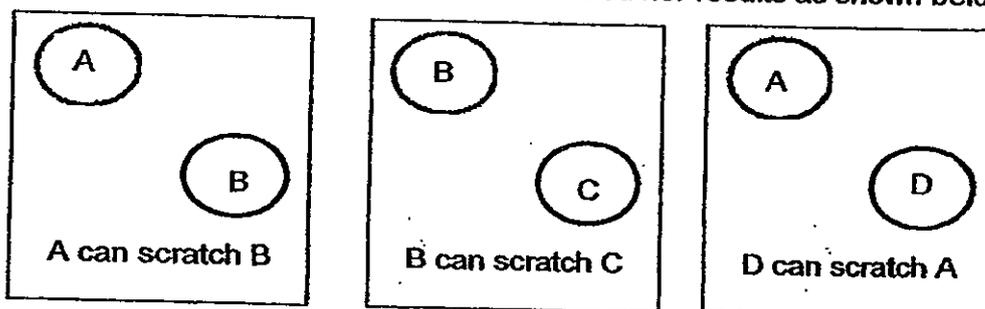
15. Study the classification chart below.



What could habitats A, B, C and D be?

	A	B	C	D
(1)	pond	field	tree	rotting log
(2)	pond	rotting log	mangrove	forest
(3)	lake	forest	field	desert
(4)	sea	tree	rotting log	beach

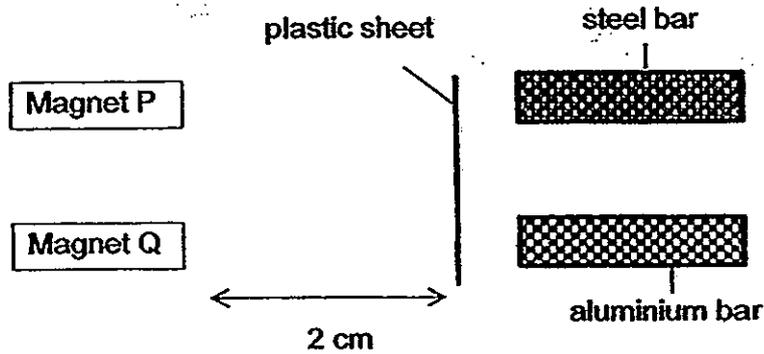
16. Susan had four materials of different hardness. She used some of the materials to scratch each other. She recorded her results as shown below.



Arrange the materials from the softest to the hardest.

	Softest	—————>	Hardest
(1)	D	A	B C
(2)	A	B	C D
(3)	B	C	D A
(4)	C	B	A D

17. Justin brought two identical magnets, P and Q, near a steel bar and an aluminium bar each 2 cm away. He placed a plastic sheet in between the magnets and the bars as shown in the diagram below.



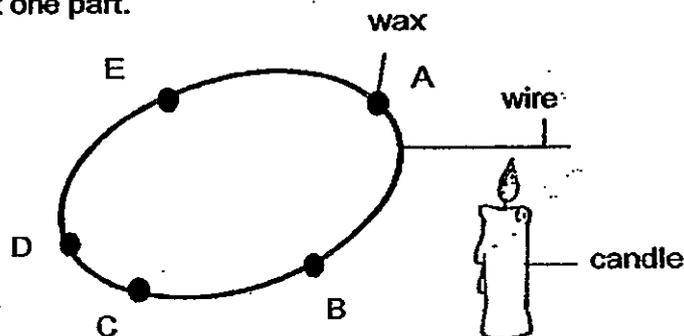
He observed that the steel bar moved towards Magnet P while the aluminium bar remained where it was.

What could Justin conclude from the experiment above?

- A Steel can be made into a magnet.
- B Magnet P is stronger than Magnet Q.
- C Magnetic force can act at a distance.
- D Magnetism can pass through non-magnetic substances.

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

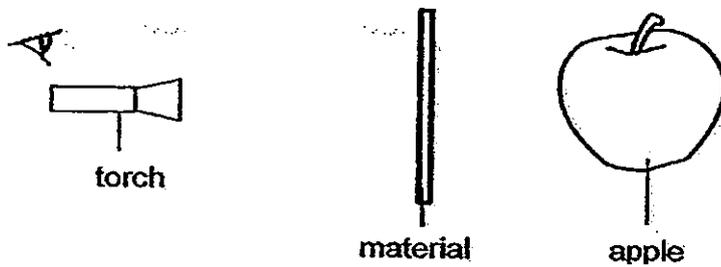
18. Sam placed five blobs of wax at different points on the wire. He then heated the wire only at one part.



Which blob of wax dropped right after wax B dropped?

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

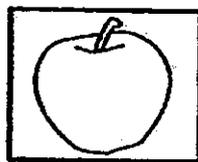
19. Siti placed Material P in front of an apple and shone a light at it. She repeated the experiment using Materials Q and R.



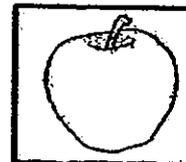
The diagrams below show what Siti would see when the light was shone through each of the materials.



Material P

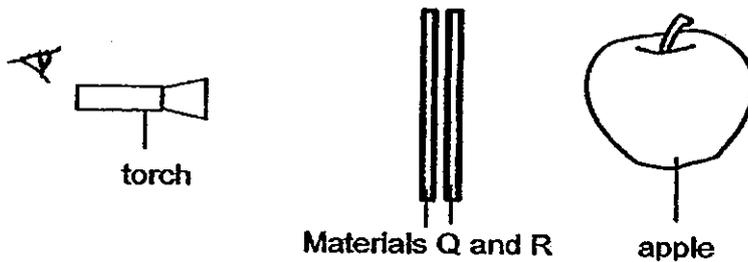


Material Q

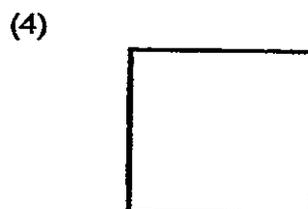
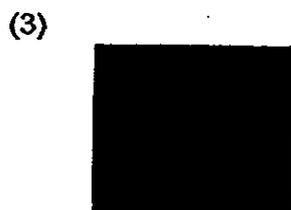
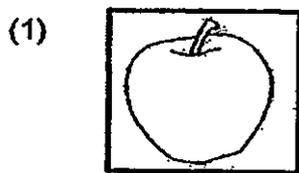


Material R

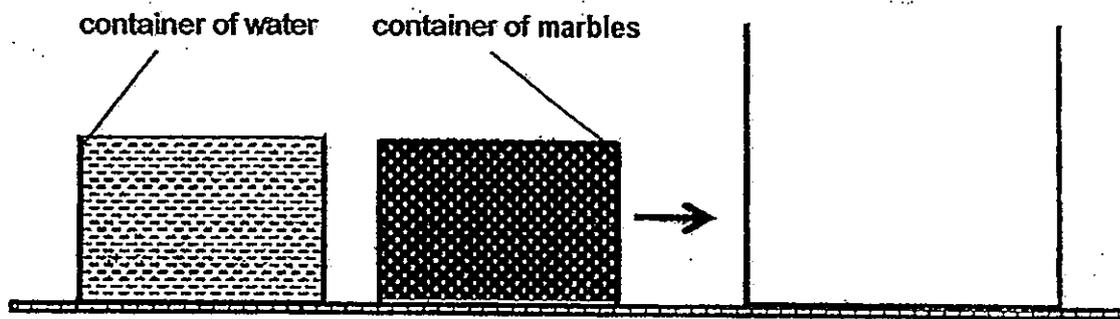
Siti then placed Materials Q and R as shown in the diagram below.



What would Siti see when she looked through both Materials Q and R?

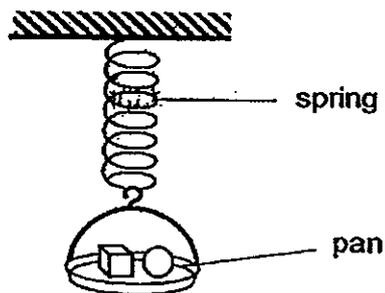


20. Karen filled a 200cm^3 container with water. She filled another 200cm^3 container with small marbles.



Which of the following is most likely to be the total volume of water and small marbles when they are transferred into the large container?

- (1) 100cm^3
 - (2) 200cm^3
 - (3) 375cm^3
 - (4) 400cm^3
21. Yvonne attached a pan holding a cube and a ball on a spring as shown below. The spring then stretched downwards.

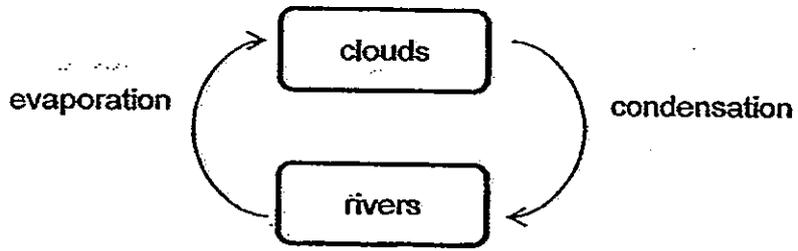


What was the force acting on the spring when it was stretched?

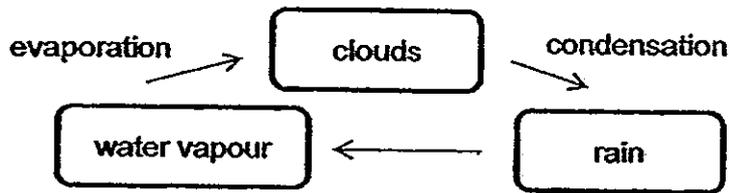
- (1) Gravity
- (2) Friction
- (3) Magnetic force
- (4) Elastic spring force

22. Which one of the following diagrams best represents the water cycle?

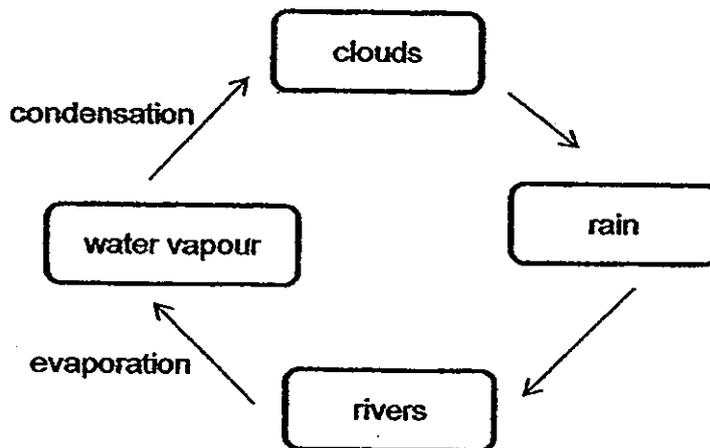
(1)



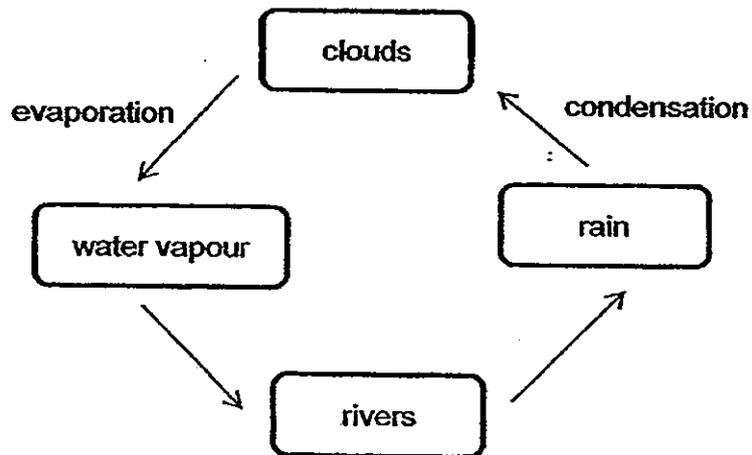
(2)



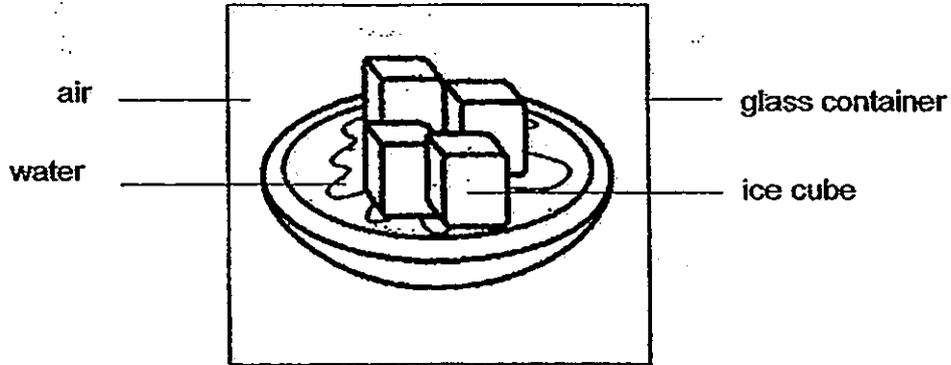
(3)



(4)



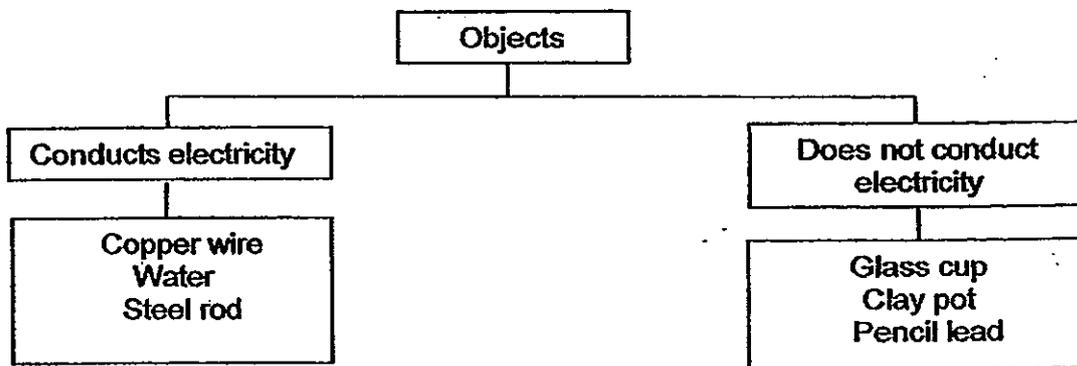
23. The diagram below shows a plate of ice cubes placed in a sealed glass container.



Which of the following correctly represents what happens to the substances inside the glass container after 15 minutes?

	Temperature of			Amount of water vapour
	Air around ice cubes	Water	Melting ice cubes	
(1)	Decreases	Increases	Increases	Increases
(2)	Decreases	Increases	No change	Decreases
(3)	Increases	Decreases	No change	No change
(4)	Increases	Increases	No change	No change

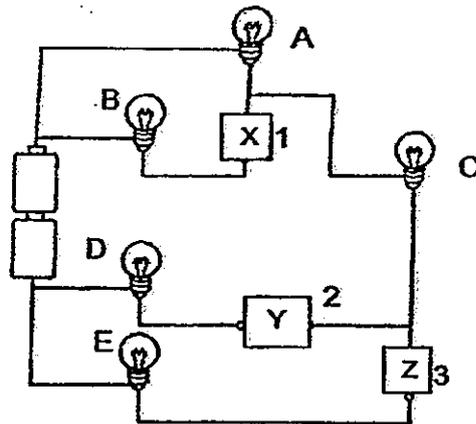
24. The objects below are classified according to whether they can conduct electricity.



Which of the following objects is classified wrongly?

- (1) water
- (2) glass cup
- (3) pencil lead
- (4) copper wire

25. Sam carried out an experiment to find out the electrical conductivity of three Materials X, Y and Z. He connected Materials X, Y and Z to the circuit at positions 1, 2 and 3 respectively as shown in the diagram below.

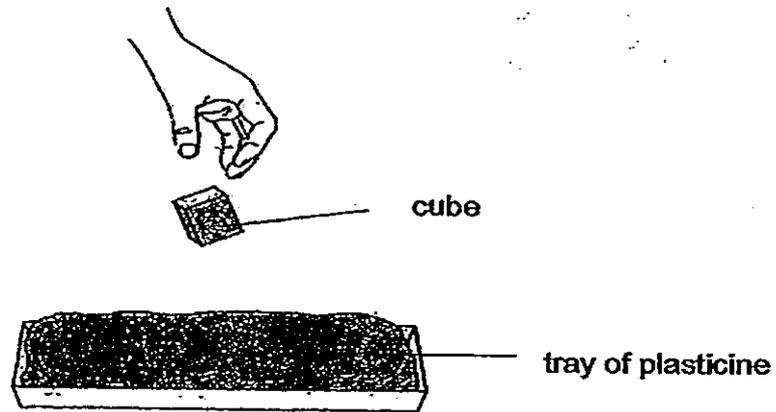


He observed that only bulbs A, C and D lighted up. He then swapped the materials to different positions and recorded his observations.

Which of the following connections and observations are possible?

	Position 1	Position 2	Position 3	Bulbs lit up
(1)	Y	Z	X	A, B and C
(2)	Z	X	Y	A, C and E
(3)	X	Z	Y	B, C and D
(4)	Y	X	Z	A and B

26. Kay dropped four identical cubes vertically into a tray of plasticine from different heights. She measured the depth of the mark made by the cube in the plasticine.



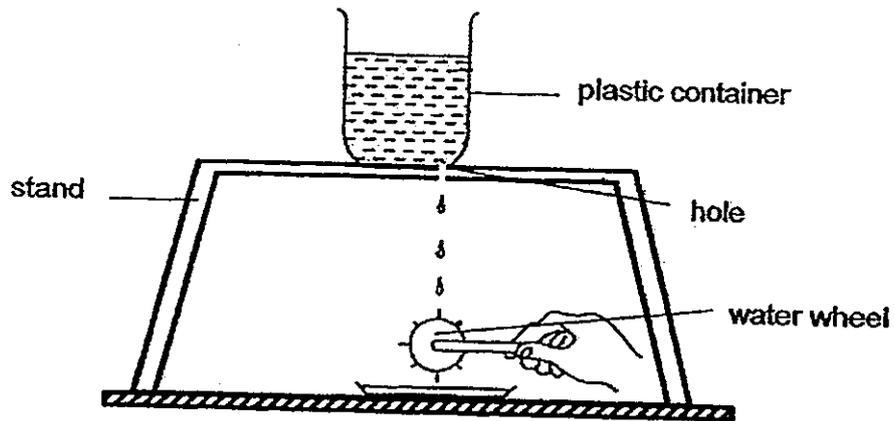
She recorded her observations in the table below.

Cube	Depth of mark in plasticine (cm)
A	0.5
B	1.2
C	0.8
D	1.1

Which of the cubes was dropped from the greatest height?

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

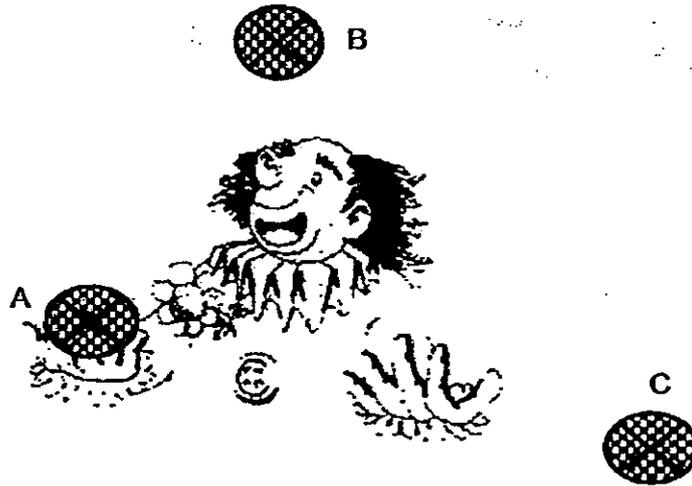
27. Helen placed a plastic container above a water wheel on a stand as shown in the diagram below. Water dripping from a hole in the plastic container caused the water wheel to turn.



Which one of the following actions would cause the water wheel to turn faster?

- A Raise the water wheel.
 - B Lower the plastic container.
 - C Raise the plastic container higher.
 - D Make the hole in the plastic container bigger.
- (1) D only
(2) A and B only
(3) C and D only
(4) B, C and D only

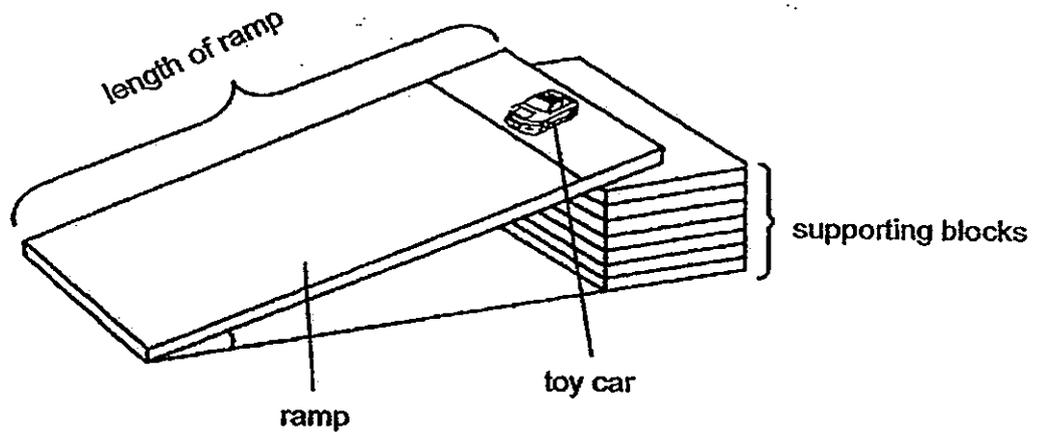
28. A clown was throwing a ball into the air during a circus show. He missed the ball and the ball started to fall to the ground.



Which of the following correctly identifies the energy the ball possessed at Positions A, B and C?

	Position A (starting point)	Position B (highest point)	Position C (before reaching the ground)
(1)	gravitational potential energy	gravitational potential energy	gravitational potential energy and kinetic energy
(2)	chemical potential energy	gravitational potential energy and kinetic energy	kinetic energy
(3)	gravitational potential energy and kinetic energy	kinetic energy	gravitational potential energy and kinetic energy
(4)	chemical potential energy and kinetic energy	gravitational potential energy	kinetic energy

29. Brian conducted an experiment to find out if the surface of a ramp would affect the distance travelled by a toy car. He placed the toy car at the same starting point, 5 cm away from the edge and let it slide to the bottom.

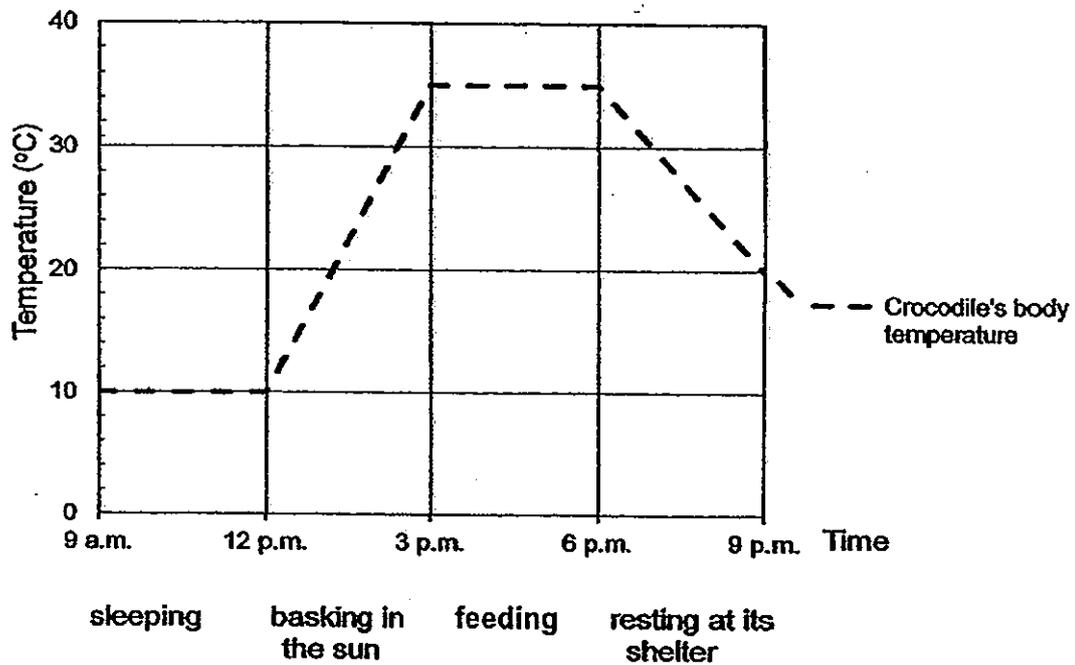


What variables must Brian keep constant in order to conduct a fair test?

- A The toy car
- B Surface of ramp
- C Distance travelled by the toy car
- D Number of supporting blocks

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

30. A crocodile lives both on land and in water. The graph below shows the body temperature of a crocodile as it goes through its day.



From the graph, which of the following has the greatest effect on the crocodile's body temperature?

- (1) Feeding
- (2) Sleeping
- (3) Basking in the sun
- (4) Resting at its shelter

-End of Booklet A-



**CATHOLIC HIGH SCHOOL
PRELIMINARY EXAMINATION 1
2013
PRIMARY SIX**

STANDARD SCIENCE

BOOKLET B

Name: _____ ()

Class: Primary 6 - _____

Date: 22 May 2013

Parent's Signature: _____

Booklet A	60
Booklet B	40
Total	100

14 questions

40 marks

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

Instructions to Candidates

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

This booklet consists of 13 printed pages, excluding cover page.

Booklet B (40 marks)

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

The number of marks available is shown in brackets [] at the end of each question or part question. (40 marks)

31. Elgin prepared three containers of water with six frog eggs in each of the containers. He then placed the containers at different locations as shown below.

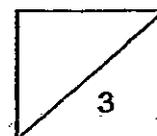
Container	Location	Temperature of surroundings (°C)
Q	refrigerator	5
R	room	30
S	incubator	50

After 3 weeks, he noticed that only the eggs in container R hatched into tadpoles.

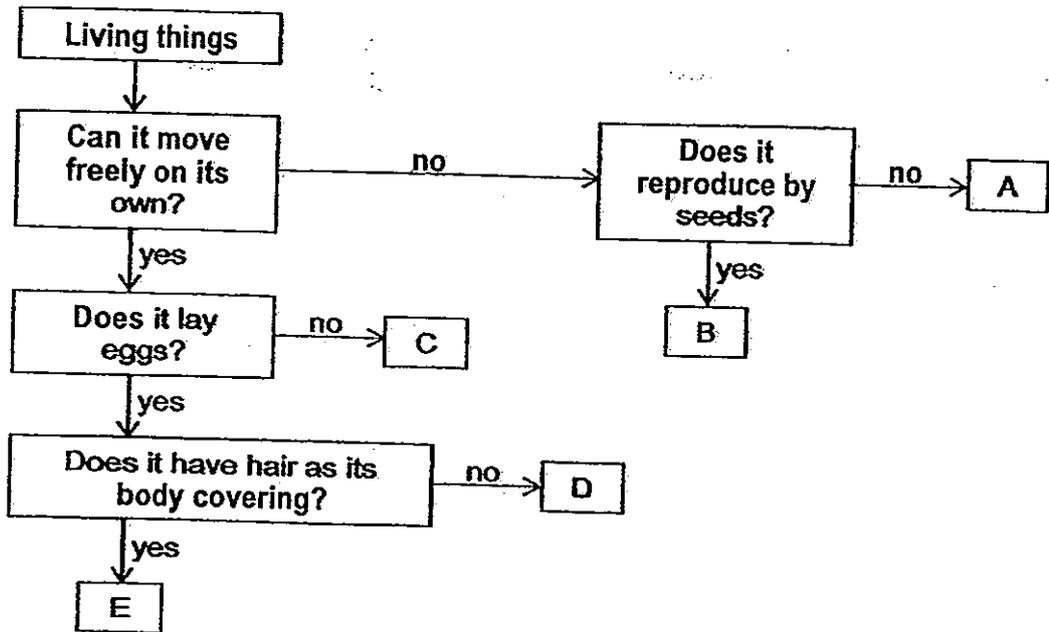
- (a) What was Elgin trying to find out in this experiment? [1]

- (b) Frogs lay many eggs at one time. Why do they need to lay so many eggs? [1]

- (c) State one similarity between the life cycle of a frog and a mosquito. [1]



32. Study the flowchart below.



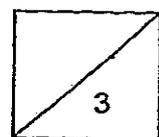
(a) What are the characteristics of organism A? [1]

(b) Can organism D be a mammal? Explain. [1]

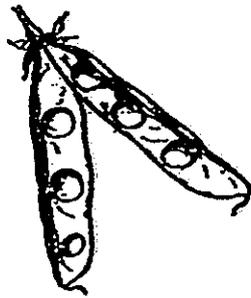
(c) Which organism, A, B, C, D or E, represents the following living things? [1]

(i) Balsam plant: _____

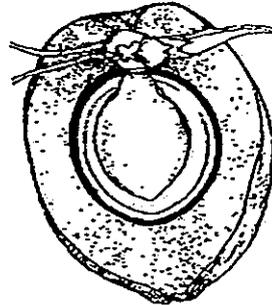
(ii) Butterfly: _____



33. The diagram below shows fruits X and Y.



Fruit X



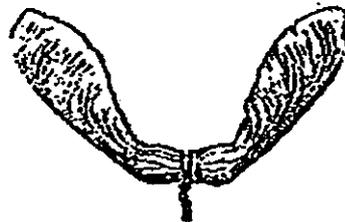
Fruit Y

(a) How are fruits X and Y dispersed? [1]

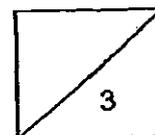
Fruit X: _____

Fruit Y: _____

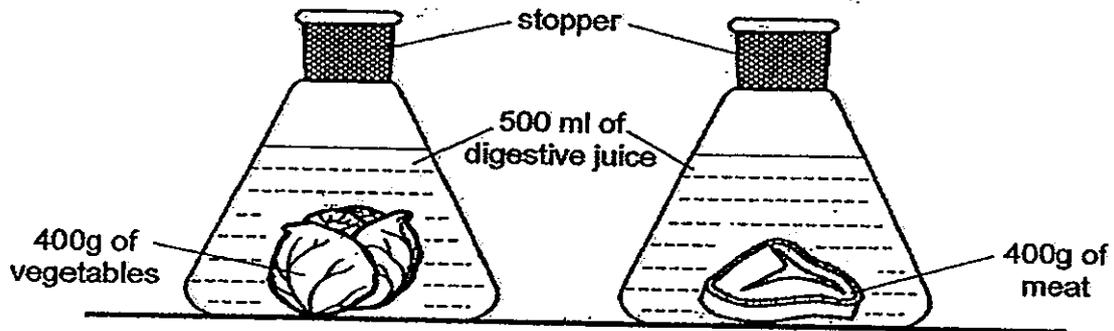
(b) Study the fruit below.



Name the structure that helps the fruit above to be dispersed. How does this structure help it to grow healthily? [2]

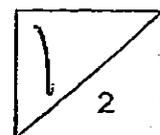


34. Salleh wanted to find out if vegetables are digested faster than meat. He placed 400g of vegetables and 400g of chicken meat into identical flasks, each containing 500ml of digestive juice, and left them in the laboratory for 4 hours.

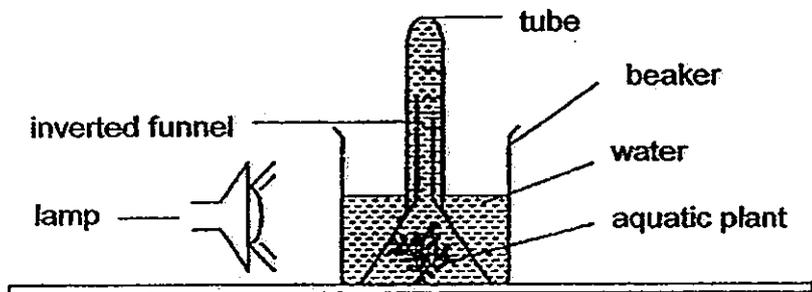


- (a) What does Salleh need to measure and record in order to arrive at his experimental conclusion? [1]

- (b) In which part of the human digestive system is water removed from the undigested food? [1]



35. Peter carried out an investigation to find out how the distance between a light source and the plant affects the rate of photosynthesis of the plant. He set up the following experiment.

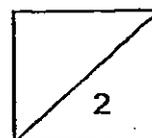


- (a) At each distance, Peter waited for 30 minutes before recording the amount of gas collected at the top of the test-tube. His results are shown in the table below.

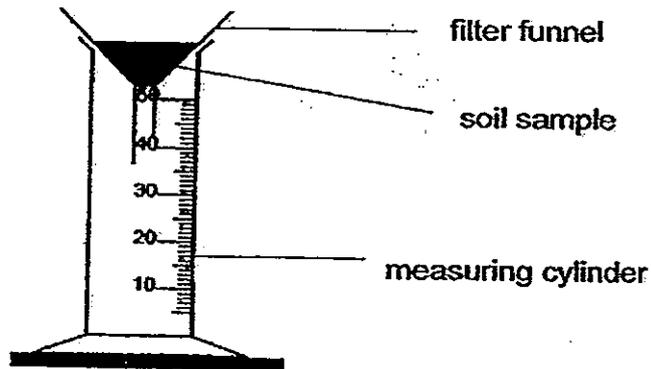
Distance between the light source and plant (cm)	Amount of gas collected in the test-tube (cm ³)
10	10
30	7
50	5
70	2

Based on Peter's results, how is the rate of photosynthesis of the plant affected by the distance between the light source and the plant? [1]

- (b) What would Peter observe about his results if he had used a light source of brighter light intensity in his experiment? [1]



36. Irene collected soil samples, A, B and C. She prepared the set-up below and poured 35ml of water onto each soil sample during the experiment.

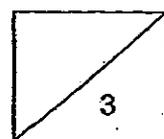


Irene measured the amount of water collected in the measuring cylinder after 2 minutes and recorded it in the table below. She repeated this for all three soil samples.

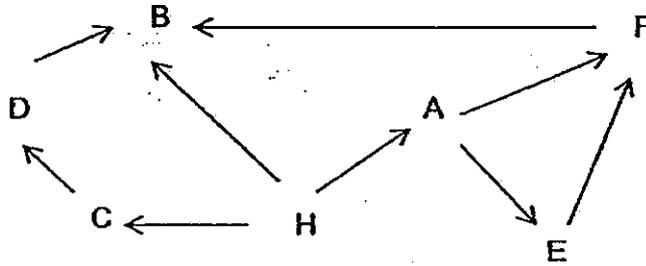
Sample	Amount of water collected (ml)
A	33
B	5
C	17

- (a) Explain what would happen if Irene used sample A for her plants in the garden. [2]

- (b) In a rice plantation, a flooded paddy field is needed for the seedlings to grow. Which soil sample, A, B or C, is the most suitable for use in the paddy field? [1]



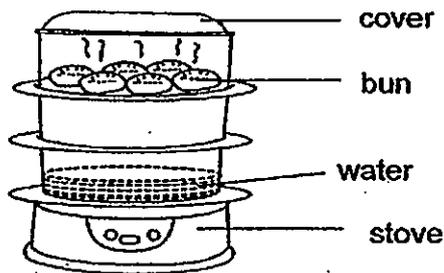
37. Study the food web below.



(a) Which one of the organisms above is a plant and animal eater? [1]

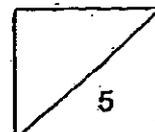
(b) A disease caused the population of organism A to decrease. Explain how this will affect the population of organism F. [1]

38. Mother used a steamer shown below to steam some buns.

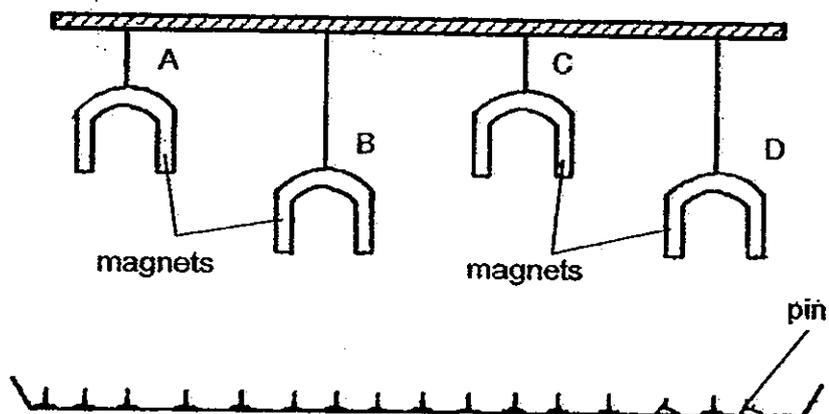


(a) What would Mother observe on the underside of the cover after some time? [1]

(b) Explain clearly the reason for your observation. [2]



39. Kathy conducted an experiment to compare the strength of four U-shaped magnets as shown below. She hung the magnets from strings of different lengths over a tray of pins.



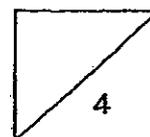
She recorded the number of pins attracted to the magnets in the table below.

Magnet	Number of pins attracted
A	3
B	2
C	5
D	3

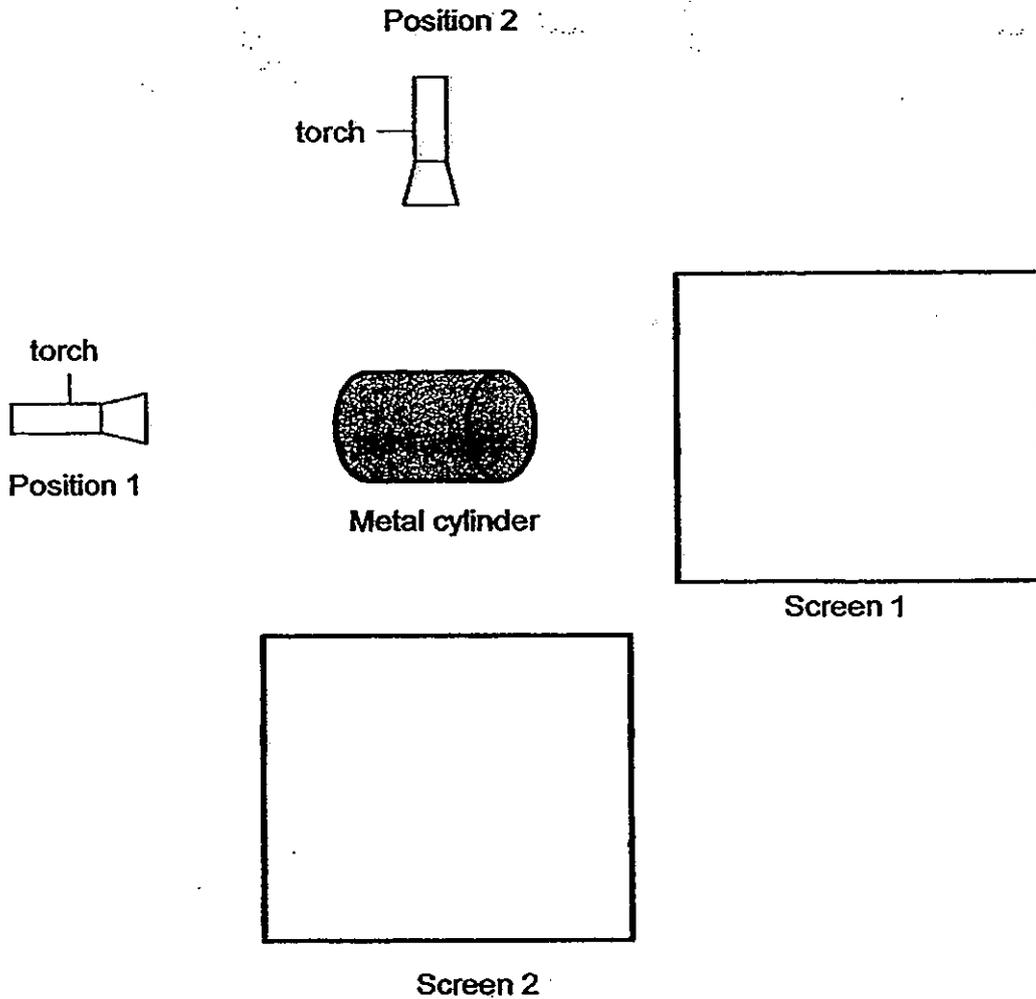
- (a) Which is the weakest magnet? [1]

- (b) Based on the set-up above, why is it difficult to compare the strength of Magnets C and D? [1]

- (c) If Magnet A is replaced by a very strong magnet, state two possible observations that will happen. [2]



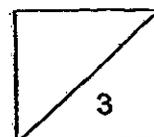
40. Sam shone a torch on a metal cylinder from two different positions as shown in the diagram below.



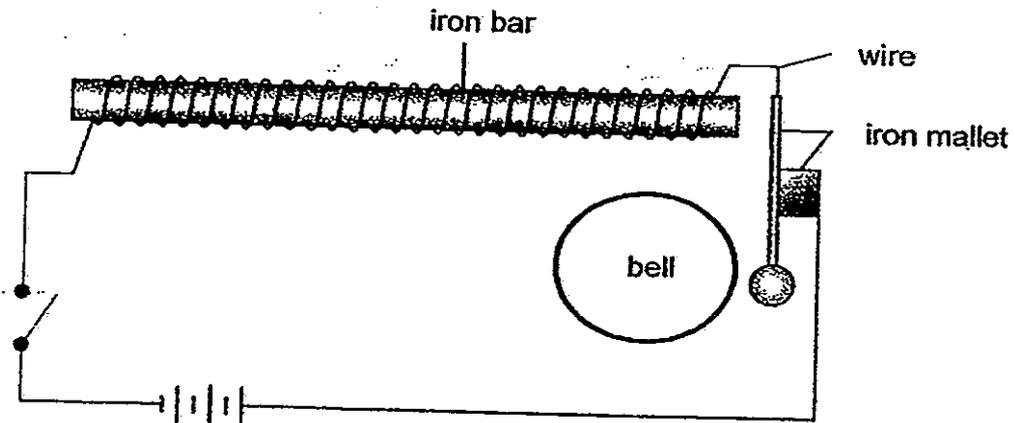
- (a) Draw the shadows that will be formed on the two screens, 1 and 2, respectively. [1]

- (b) How is a shadow formed? [1]

- (c) If Sam were to move the metal cylinder closer to the torch in Position 1, what change would he observe about the shadow on screen 1? [1]

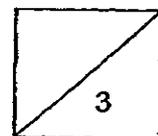


41. The diagram below shows a simplified version of an electric bell found in homes.

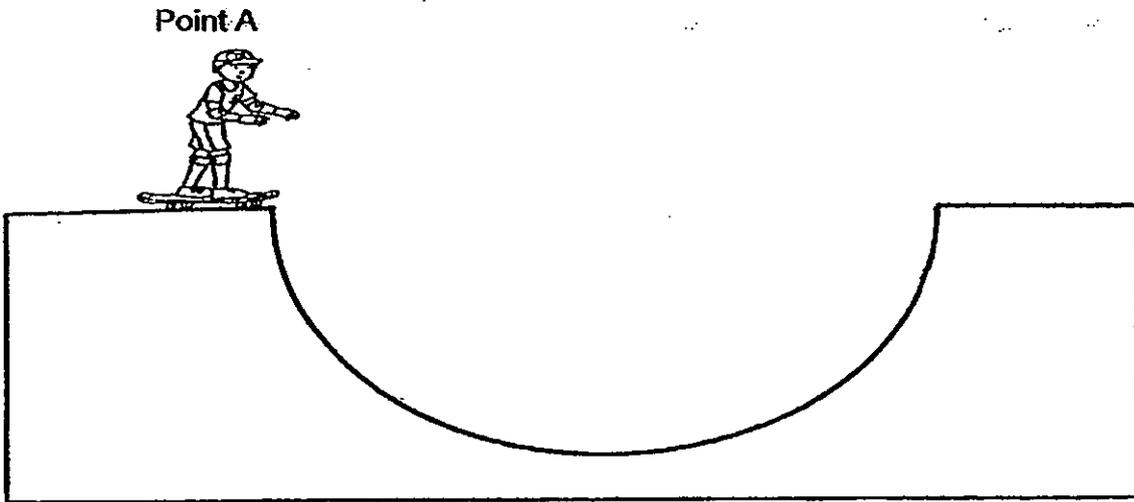


- (a) When the switch is closed, the bell will ring. Explain why this happens. [2]

- (b) The iron bar is now replaced with a copper bar. Will the bell ring when the switch is closed? Give a reason for your answer. [1]



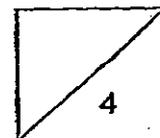
42. Tom is skateboarding down a slope as shown below.



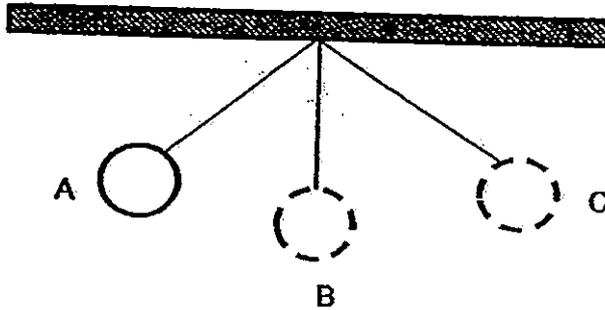
(a) State the form(s) of energy that Tom possesses at Point A. [1]

(b) Mark an X on the other side of the slope to show the height that Tom can reach. [1]

(c) List two things that Tom can do to go higher than Point X without changing the slope. [2]



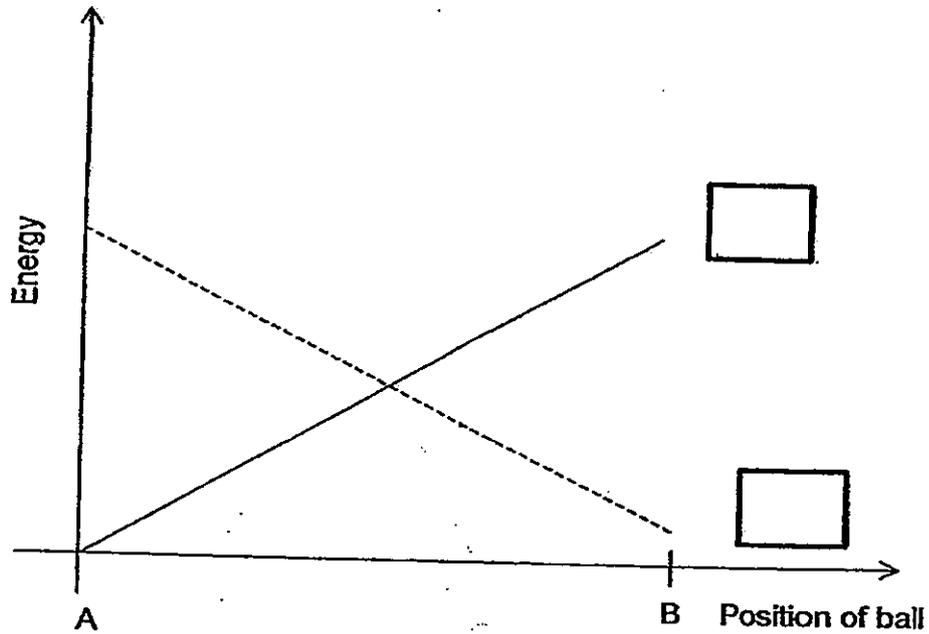
43. Sam released a metal ball from Point A. The diagram below shows the various positions of the metal ball.



Based on the diagram above, which one of the following lines in the graph best represents the change in potential energy of the metal ball from positions A to B?

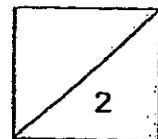
- (a) Write the letter 'P', in the appropriate box given below.

[1]

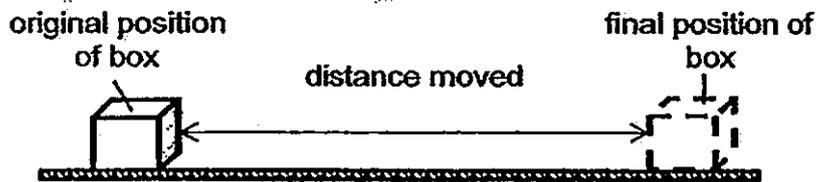


- (b) Explain your choice in (a) above.

[1]



44. Mark pushed a box over a surface that was covered with Liquid A. When the box came to a stationary position, the distance it had moved was measured. He repeated the experiment two more times.



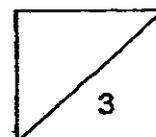
He repeated the experiment with Liquids B, C and D. He recorded the results in the table below.

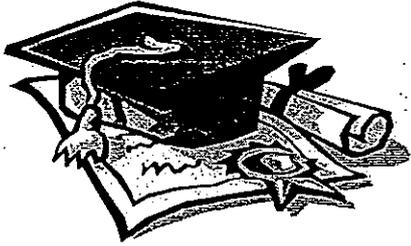
Type of liquids	Distance moved by box (cm)			
	1 st reading	2 nd reading	3 rd reading	Average
A	12.3	12.6	12.3	12.4
B	25.6	25.3	25.9	25.6
C	14.6	14.8	15.3	14.9
D	21.6	22.2	22.5	22.1

- (a) Based on the data in the table, which of the four liquids used by Mark helps to reduce wear and tear the most? Explain your answer. [2]

- (b) Why did Mark repeat his experiment a few times for each liquid? [1]

-End of Booklet B-





ANSWER SHEET

EXAM PAPER 2013

SCHOOL : CATHOLIC HIGH

SUBJECT : PRIMARY 6 SCIENCE

TERM : PRELIM (SA1)

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

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

31)a)He was trying to find out if the temperature of the surrounding air affects the growth of a frog egg.

b)So at least some of the eggs will hatch and grow.

c)They both lay their eggs in the water.

32)a)Organism A is a living thing that does not move freely on its and does not reproduce by seeds.

b)No. Organism D does not have hair as its body covering while all mammal have hair as its body covering.

c)i)B ii)D

33)a)X: splitting Y: water

b)It helps to disperse to disperse the seeds further from the parent plant preventing overcrowding so that they do not compete for sunlight, water nutrients and space.

34)a)The mass of vegetables and meat at the end after 4 hours.

b)The large intestine.

35)a)The further the distance between the light source and plant the slower the rate of photosynthesis of the plant.

b)There will be more gas collected in each test tube.

36)a)Her plants will die. Sample A allowed most of the water to pass through, retains the least amount of water as the particles are large and there are many air spaces.

b)Soil sample B.

37)a)Organism B.

b)When organism A decrease, organism E which eats organism A will also decrease, leaving organism F to have lesser food to consume, causing organism F to decrease.

38)a)She would observe some water droplets.

b)The water gets heated and evaporates to form water vapour. The hot water vapour loses heat and touches the cool inner surface of the cover and condensing to form water droplets.

39)a)Magnet B.

b)They are placed at different heights from the tray of pins.

c)More pins will be attracted to the magnet and magnet B might be attracted to magnet A too.

40)a)Screen 1



Screen 2



b)A shadow is formed when a opaque object is blocking the light from traveling in a straight line.

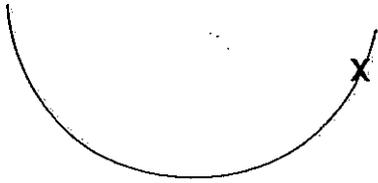
c)The shadow on screen I will increase in size.

41)a)When the switch is closed, the circuit will be a closed circuit,causing the iron bar to become an electro-magnet and attract the iron mallet so that it will hit the bell, causing the bell to ring.

b)No. Copper is a non-magnetic material.

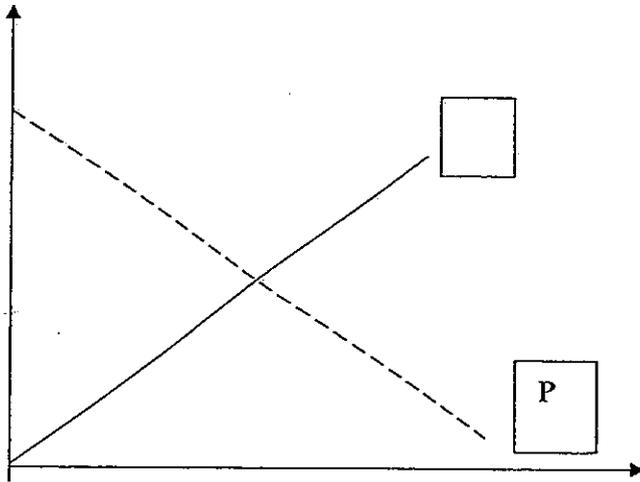
42)a) Gravitational potential energy and chemical potential energy.

b)



c) Put lubricant on the wheels.
Push off with his feet.

43)a)



b) At position A, the gravitational potential energy is the highest as it is of the greatest distance away from the ground and the gravitational potential energy decreases until position B.

44)a) Liquids B. When the box is pushed over liquid B, it travelled the furthest, that means that the friction between liquid B and the box was the least, without much friction, heat will not be produced and it will reduce wear and tear.

b) He wanted to make his test a reliable test and to compare and confirm which liquid produces the least friction.

