HENRY PARK PRIMARY SCHOOL

2010 SEMESTRAL EXAMINATION 1

PRIMARY 6 SCIENCE

Booklet A

Name: _____ ( )

Class: Primary 6_____

60

30 Questions
60 Marks

Total Time for Booklet A and B: 1 h 45 min

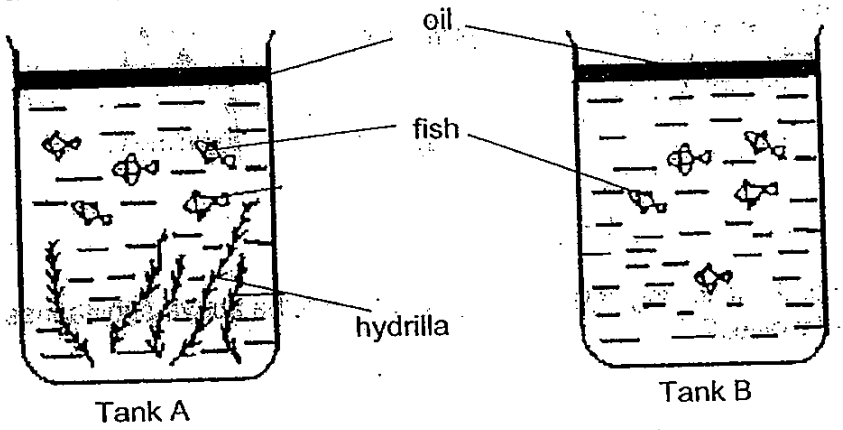
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

READ AND FOLLOW INSTRUCTIONS CAREFULLY.

Booklet A (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. Jean put the same number of fish in two similar tanks with a layer of oil on the surface. Only Tank A had hydrilla in it.

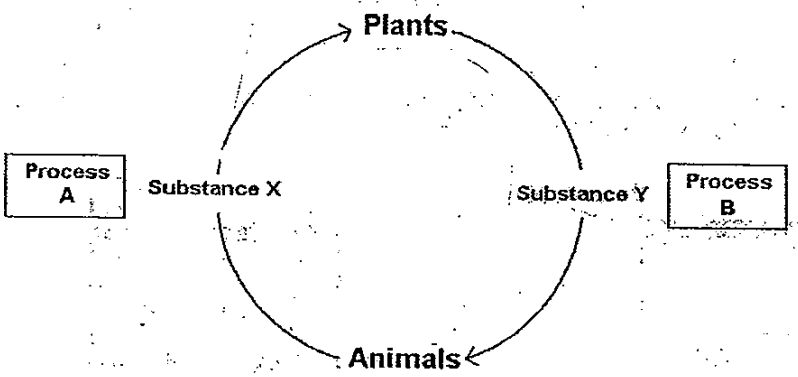


After half an hour, Jean observed that some fish in Tank B had died. Which of the following explains her observation?

A: There was no food for the fish in Tank B.
B: The oil killed the fish in Tank B.
C: There was not enough oxygen in Tank B.
D: Carbon dioxide breathed out by the fish in Tank B was not removed.

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

2. The diagram below shows how plants and animals depend on each other.



Which one of the following sets correctly represents the above substances and processes involved?

	Processes		Substances	
	A	B	X	Y
(1)	Photosynthesis	Respiration	Oxygen	Carbon dioxide
(2)	Photosynthesis	Respiration	Carbon dioxide	Oxygen
(3)	Respiration	Photosynthesis	Oxygen	Carbon dioxide
(4)	Respiration	Photosynthesis	Carbon dioxide	Oxygen

( )

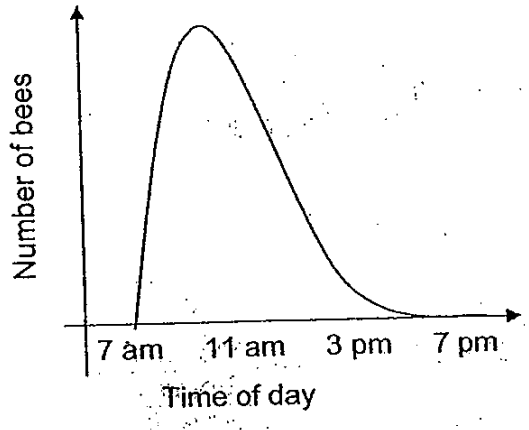
3. Which of the following statements about energy from the Sun is true?

A: Only plants use energy from the Sun.
B: Plants use energy from the Sun to make food.
C: Energy from the Sun can be transferred from one organism to another.

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

( )

4. The graph below shows the number of bees that visit a sunflower garden from 7 am to 7 pm on a certain day.

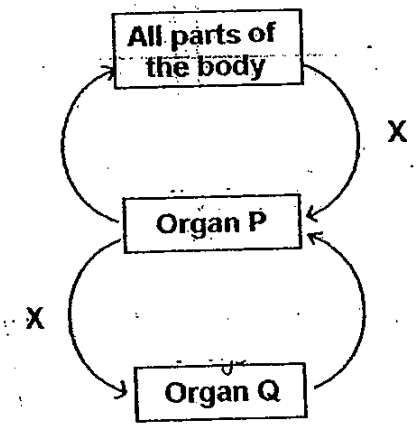


The gardener wants to spray the plants with insecticide which kills pests in the sunflower garden without harming the bees.
What could be the best time to spray?

(1) 7am
(2) 11 am
(3) 3 pm
(4) 7 pm

( )

5. The diagram below shows how our blood travels in the body.



Which one of the following represents P, Q and X correctly?

	P	Q	X
(1)	lung	heart	blood richer in oxygen
(2)	lung	heart	blood richer in carbon dioxide
(3)	heart	lung	blood richer in oxygen
(4)	heart	lung	blood richer in carbon dioxide

( )

6. X, Y and Z are structures found in green leaves. They are useful for the process of photosynthesis.

X : found in cells and contains green pigments
Y : a green pigment to absorb light energy
Z : found mostly underneath the leaves through which gaseous exchange occurs

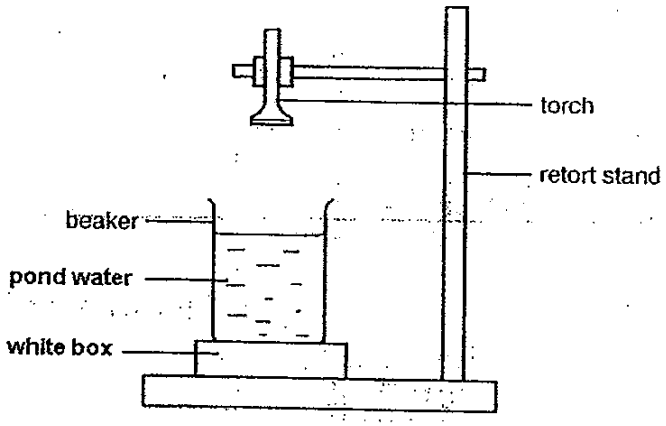
Which of the following represents X, Y and Z correctly?

	X	Y	Z
(1)	Chloroplast	Chlorophyll	Stoma
(2)	Chlorophyll	Chloroplast	Stoma
(3)	Chloroplast	Chlorophyll	Cell wall
(4)	Chlorophyll	Chloroplast	Cell wall

( )

7. Kyle set up the experiment below to find out how much light can pass through different samples of pond water.

Test variable



Which one of the following correctly identifies the test and dependent variables respectively?

	Test variable	Dependent Variable
(1)	Type of pond water sample in beaker	Amount of light passing through each water sample
(2)	Amount of each water sample in beaker	Brightness of light shining from torch to water sample
(3)	Depth of each water sample in beaker	Amount of light passing through each water sample
(4)	Amount of light each type of pond water sample exposed to	Temperature of each type of pond water sample

( )

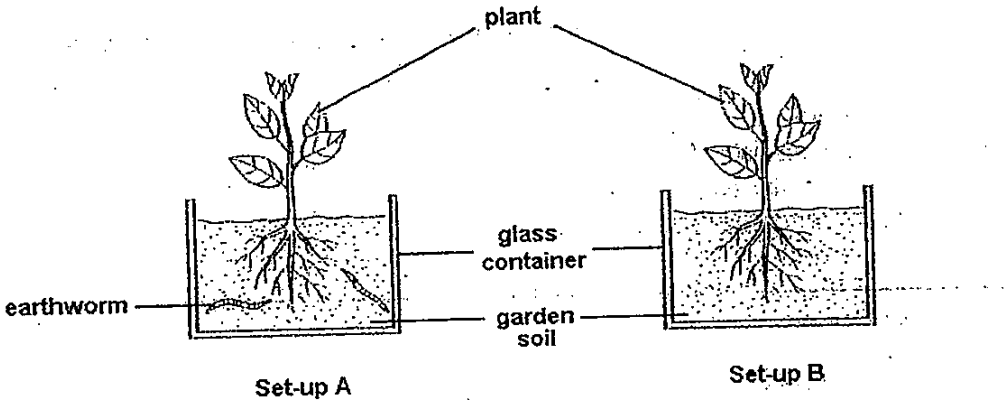
8. Organisms obtain their energy from the food they consume.
Which of the following statements correctly describe what happens to this energy obtained from food?

A: Some of the energy is converted to heat energy.
B: Some of the energy is used to carry out life processes.
C: Some of the energy is transferred to another organism that preys on it.
D: Some of the energy is destroyed when it is being eaten by another organism.

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

( )

9. Lindsay decided to find out if earthworms do make plants grow healthier.
She prepared two set-ups, Set-up A and Set-up B.



At the end of the experiment, Lindsay concluded that earthworms do make plants grow healthier.
Which of the following sets of results did Lindsay get to make her conclusion?

	Observation after 2 weeks	
	Set-up A	**Set-up B**
(1)	Bigger leaves and thicker stems	Bigger leaves and thicker stems
(2)	Smaller leaves and thinner stems	Smaller leaves and thinner stems
(3)	Bigger leaves and thicker stems	Smaller leaves and thinner stems
(4)	Smaller leaves and thinner stems	Bigger leaves and thicker stems

( )

10. The table below shows the number of organisms in a habitat.

Organism	Number of organisms
Snail	3
Lime Caterpillar	5
Ant	7
Earthworm	2
Lime Butterfly	6
Sparrow	4
Mynah	3

How many populations of organisms are there in this community?

(1) 5
(2) 6
(3) 7
(4) 30

( )

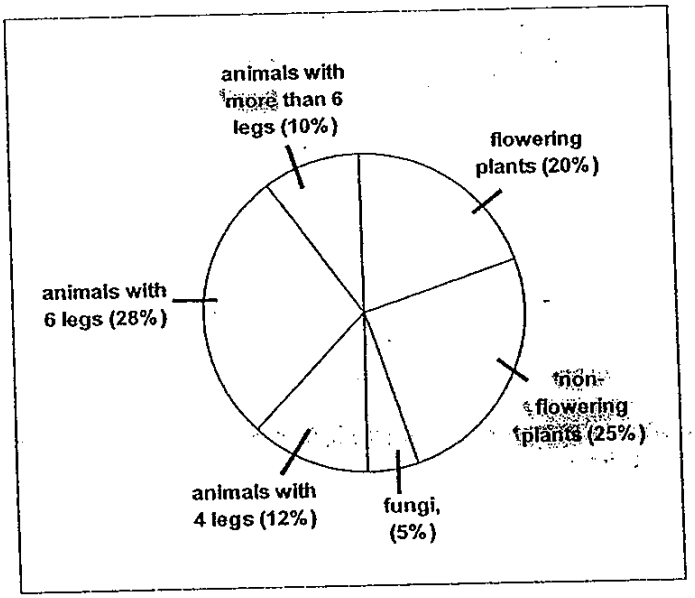
11. Which of the following will lead to a decrease in the population size of an organism in a habitat?

A: Lack of food
B: High birth rate
C: Presence of diseases
D: Sudden change in temperature

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

( )

12. Mr Lee counted the organisms found in his garden. He then plotted a pie chart below to show his findings.



Which of the following statements describe the pie chart above correctly?

A: There are 6 organisms in the garden.
B: There are at least 6 populations of organisms.
C: The community is made up of animals and plants only.
D: There are as many animals as plants in this community.

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

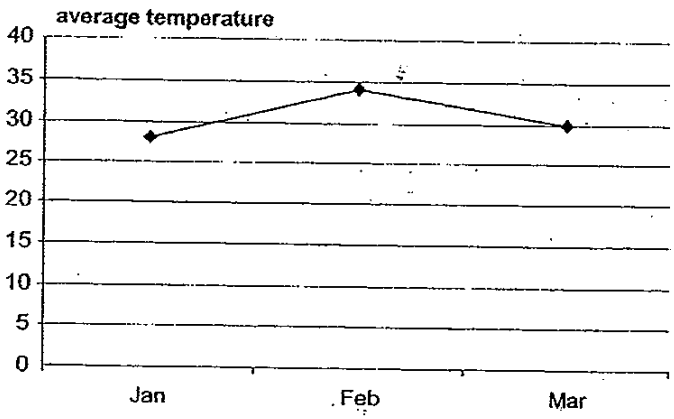
( )

13. Peter wanted to find out how the temperature of water affects how fast sugar dissolves in water. Which of the following is the least important variable to control?

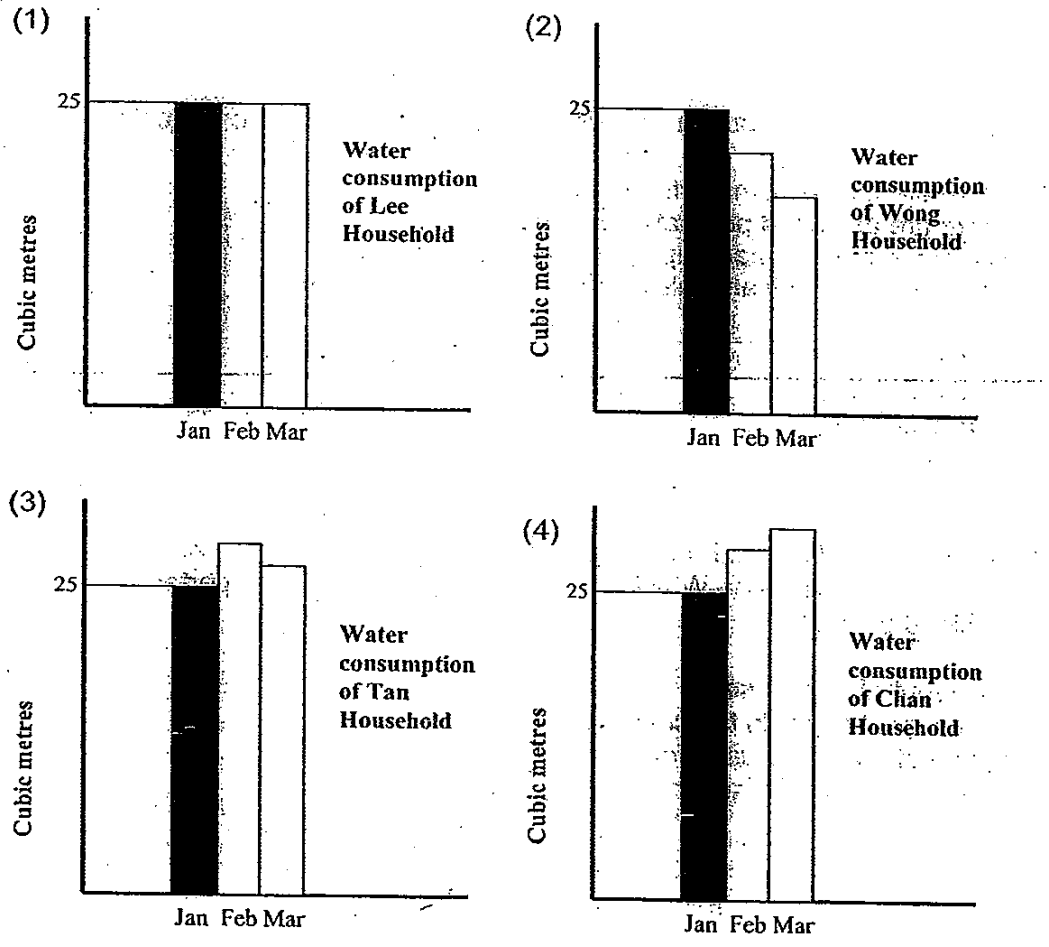
(1) Amount of water used
(2) Amount of sugar in the container
(3) Type of container used for the water
(4) Time taken for the sugar to dissolve completely

( )

14. The average temperature of the country for 3 months in 2009 are shown in the graph below.

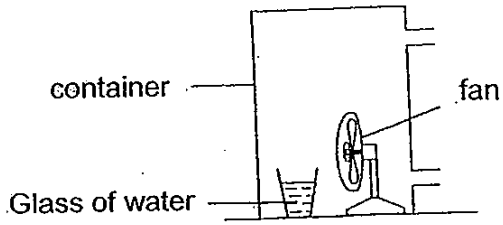


The graphs below show the water consumption of 4 similar households for the same period of time.



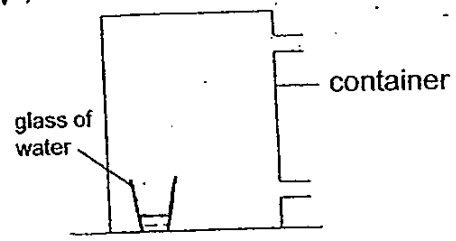
Water consumption in which household is affected by the change in temperature from Jan to Mar in 2009? ( )

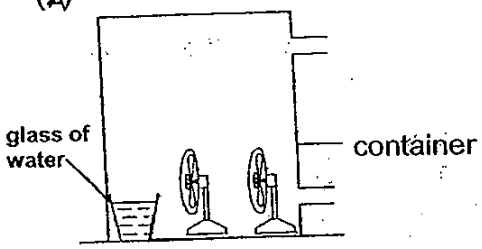
15. Dylan carried out an experiment using set-up A as shown below to find out if the presence of wind affects the rate of evaporation of water.

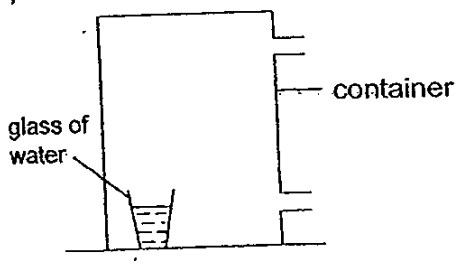


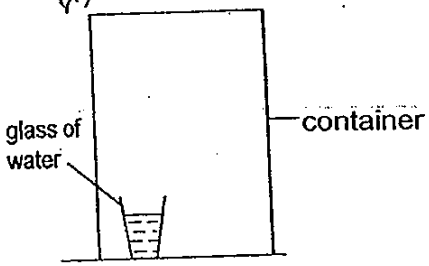
Set-up A

Which one of the following should he use as a control set-up?

(1)


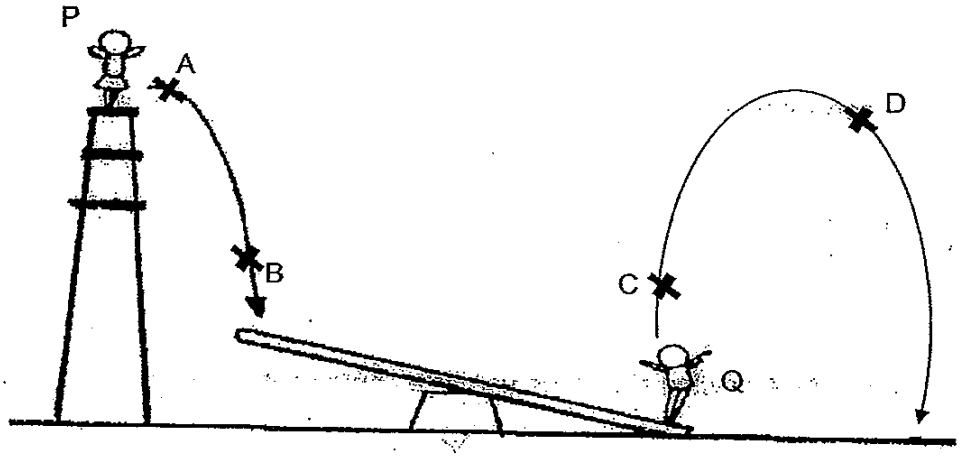
(2)


(3)


(4)


( )

16. In the gymnasium, 2 gymnasts, (P and Q) were practising for the Youth Olympics Games. The diagram below shows the somersault performance.

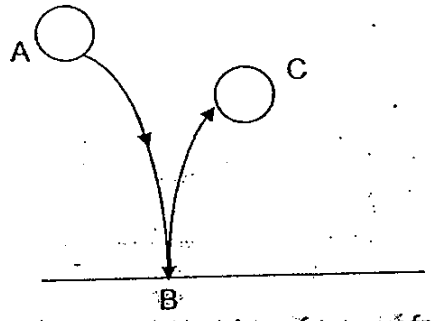


At which position/s will the gymnasts possess more kinetic energy than gravitational potential energy?

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

( )

17. A ball is dropped from a height (Point A). It landed at Point B and rebounded to the height (Point C) as shown in the diagram below.



What is the conversion of energy from Point A to Point C?

(1) Kinetic energy → Heat energy + Sound energy → Gravitational potential energy

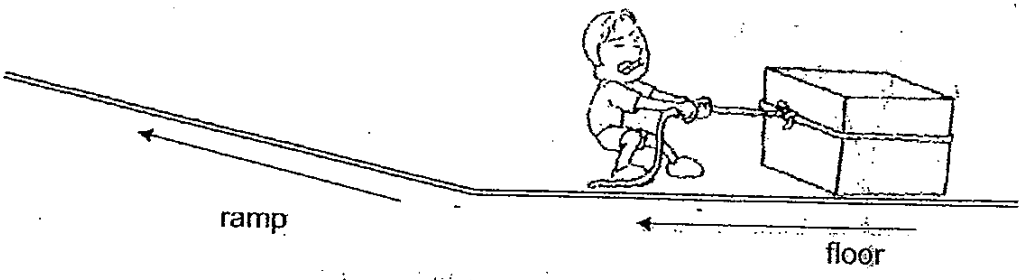
(2) Gravitational Potential energy → Kinetic energy + Heat energy + Sound energy → Gravitational potential energy

(3) Gravitational Potential energy → Kinetic energy → Heat energy + Sound energy → Gravitational potential energy

(4) Gravitational Potential energy → Kinetic energy → Sound Energy → Elastic potential energy

( )

18. Ken was dragging a box across the floor and up a ramp as shown below. The floor and the ramp are made of the same type of material.



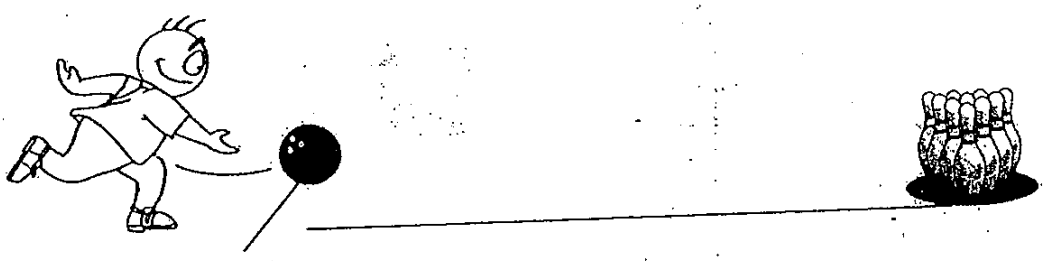
Which of the following statements is correct about the forces acting on the box as it is dragged across the floor and then up the ramp?

A: Frictional force increases.
B: Gravitational force increases.
C: Frictional Force remains the same.
D: Gravitational force remains the same.

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

( )

19. The picture below shows a game of bowling.



Point X

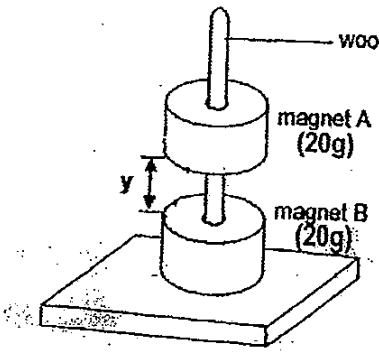
What forms of energy are involved from the point the ball is released (Point X) to the point it hits the pins?

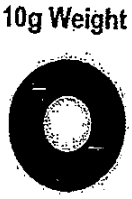
A: Gravitational potential energy
B: Kinetic energy
C: Heat energy
D: Sound energy

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

( )

20. Henry placed two identical ring magnets A and B through a wooden rod as shown below. She observed that magnets A and B were y cm apart from each other.



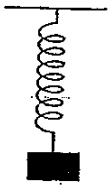


Which of the following is most likely to happen to distance y when a 10-g weight is placed on top of magnet A?

(1) Distance y will increase
(2) Distance y will decrease
(3) Distance y will become zero
(4) Distance y will remain the same

( )

21. The diagram below shows a weight being hung from a spring whose original length was 3 cm. When a 100N weight was hung from the spring, the length of the spring was 4 cm.



The table below shows the extension of the spring when different weights were hung from it.

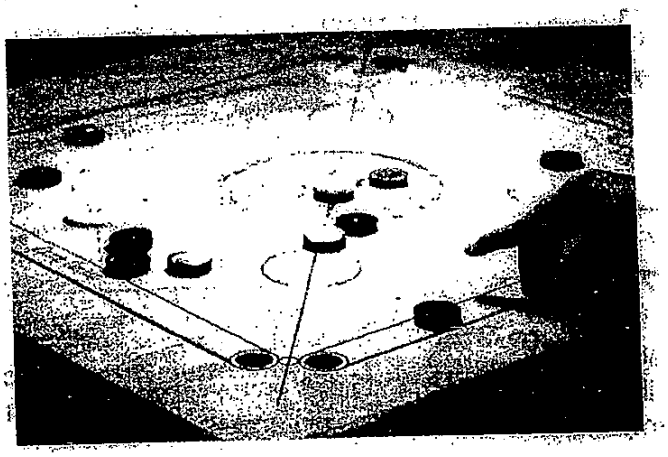
Weight/N	Extension of the spring
100	1 cm
200	2 cm
500	5 cm

What is the weight of a notebook if the **length** of the spring is 5 cm when the notebook is hung on it?

(1) 100N
(2) 200N
(3) 400N
(4) 500N

( )

22. The game, carom, is played using seeds and a board. 4 players will take turns to use a black seed to hit their home seeds into one of the pockets in the four corners. As the black seed hits the other seeds, what are some possible effects of force on the seeds?

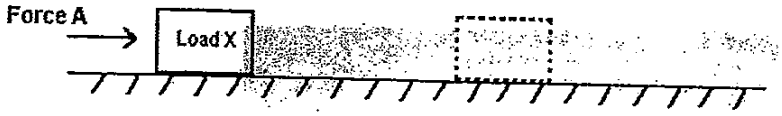


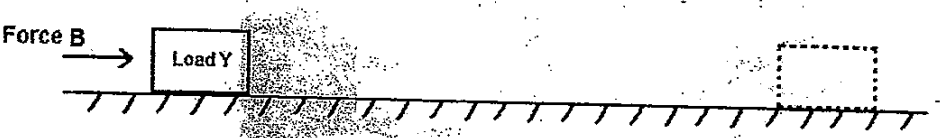
A: It can cause the seed to wear off.
B: It can move stationary seeds.
C: It can change the position of seeds.

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

( )

23. Marcell exerted two equal forces, Force A and Force B, on two loads, Load X and Load Y. He observed that Load Y moved a longer distance as compared to Load X as shown below.





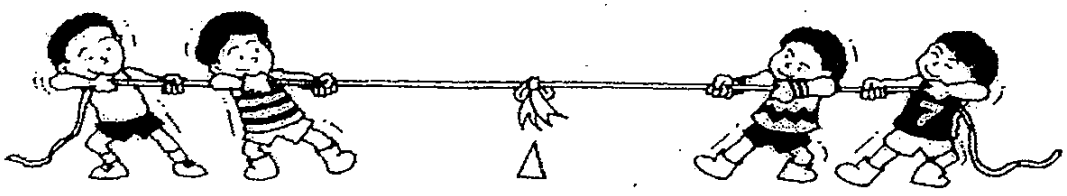
Assuming that Load X and Load Y started at the same point, which of the following are possible reasons why the distance moved by Load X and Load Y are different?

A: Load X has a smaller mass than Load Y
B: Load Y has a smaller mass than Load X
C: Load X travelled on a smoother surface than Load Y
D: Load Y travelled on a smoother surface than Load X

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

( )

24. In the diagram below, two teams of boys are pulling the rope as hard as they could. However, the rope does not seem to move to either side.

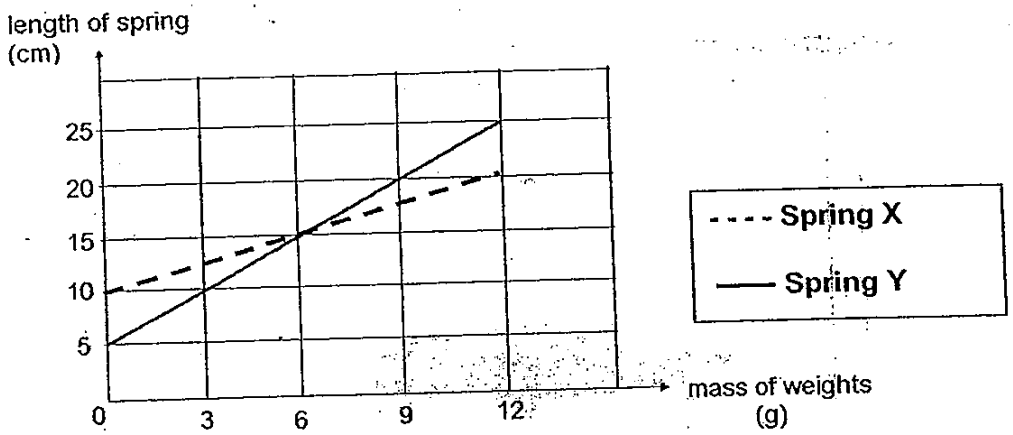


What is the reason for the rope not to move to either side?

(1) No force is acting on the rope.
(2) Pulling forces are not equal on either side.
(3) Pulling forces on each side are equal but in opposite direction.
(4) Pulling forces on each side are equal but in the same direction.

( )

25. Sarah conducted the following experiment on Spring X and Y by hanging weights of different masses one at a time on each spring and recorded its corresponding length. She then plotted her results as shown below.

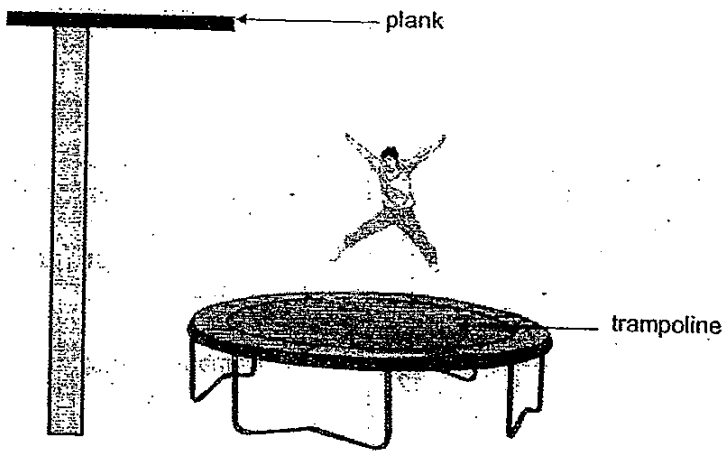


Based on her results, which one of the following correctly represents her conclusion?

	Spring which is shorter before start of experiment	Spring that extend more with the same load
(1)	X	X
(2)	Y	Y
(3)	X	Y
(4)	Y	X

( )

26. When James jumped out from the plank, he was immediately pulled down by Force A. When he lands on the trampoline, he was pushed upwards by Force B.

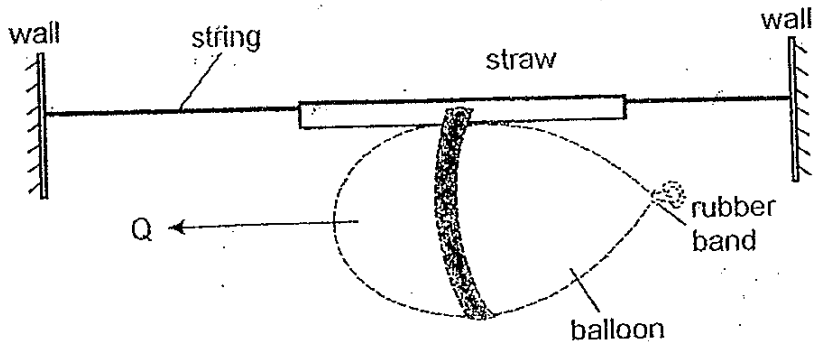


Which one of the following identify correctly Force A and B?

	Force A	Force B
(1)	Magnetic Force	Gravitational Force
(2)	Frictional Force	Elastic Spring force
(3)	Gravitational Force	Elastic Spring Force
(4)	Elastic Spring Force	Gravitational Force

( )

27. The diagram below shows a rocket balloon. A force is produced from the air released from the balloon, causing the balloon and the straw to move in direction Q. However, after a few seconds, the balloon will eventually come to a stop.



Which of the following statements explain why the balloon comes to a stop?

A: There is frictional force between the straw and the string.
B: The mass of the balloon decreased as air was released.
C: All the air in the balloon has been released.

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

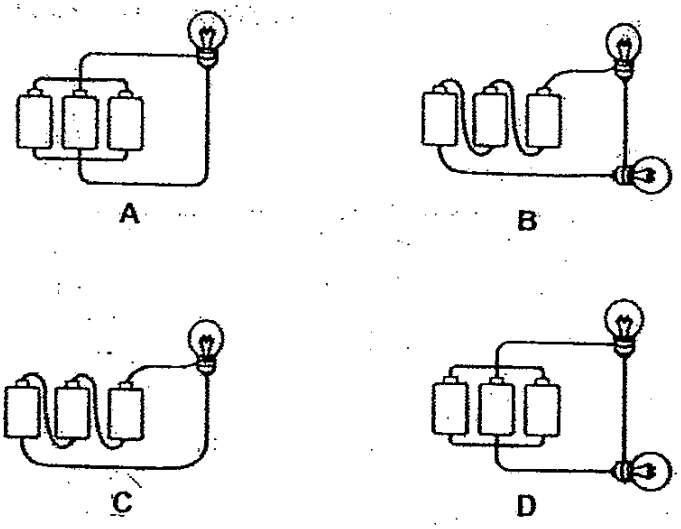
( )

28. Which one of the following comparisons between the mass and weight of an object is correct?

	Mass of an Object	Weight of an object
(1)	Can be measured	Cannot be measured
(2)	Does not depend on the matter in it	Depends on the matter in it
(3)	Is not caused by the force of gravity acting on it	Caused by the force of gravity acting on it
(4)	Changes from place to place	Does not change from place to place

( )

29. Study the circuit diagrams below carefully.

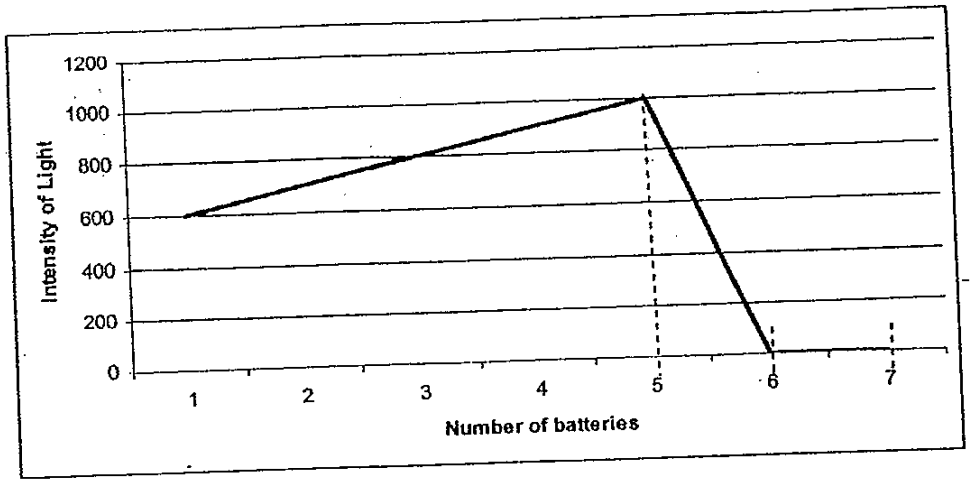


Which one of the following circuits will produce the brightest bulb?

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

( )

30. Siti conducted an experiment to find out how the intensity of light from a bulb is affected by the number of batteries in a closed circuit. She recorded her data in a graph as shown below.



Based on the data in the graph, what can be concluded from this experiment?

A: The light intensity will continue to increase as the number of batteries added increases.
B: Light intensity decreases as six or more batteries are added.
C: Bulbs fuse when too many batteries are added to the circuit.

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

( )

End of Booklet A

HENRY PARK PRIMARY SCHOOL

2010 SEMESTRAL EXAMINATION 1

PRIMARY 6 SCIENCE

Booklet B

Name: _____ ( )

/40

Class: Primary 6_____

14 Questions
40 Marks

Total Time for Booklet A and B: 1 h 45 min

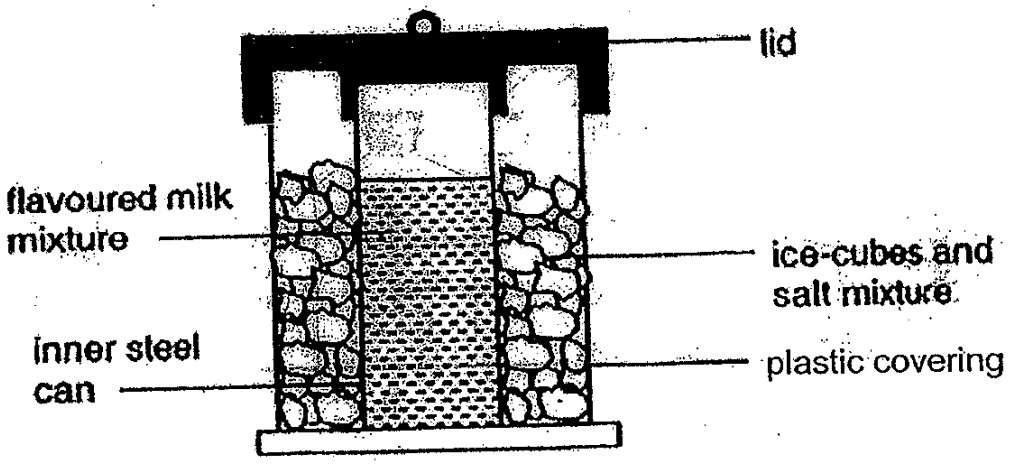
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

READ AND FOLLOW INSTRUCTIONS CAREFULLY.

Booklet B (40 marks)

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

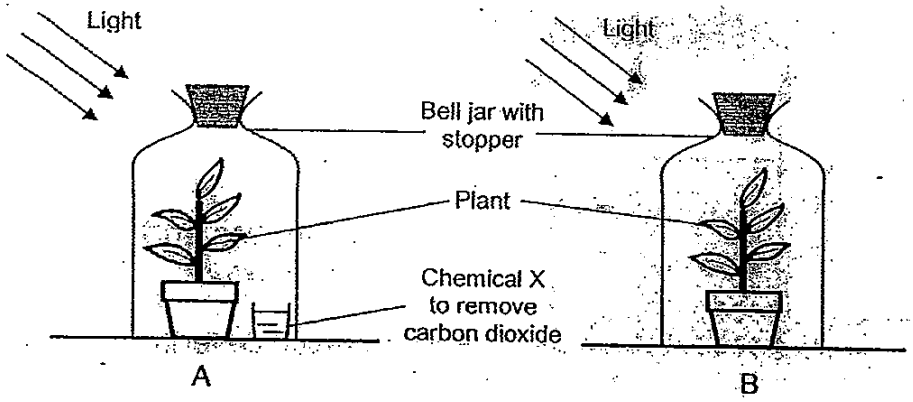
31. Mrs Lim wanted to make some ice-cream. She used the ice-cream maker shown in the diagram below.



a) Explain how the ice-cream maker works to change flavoured milk mixture to ice-cream. *(2m)*

b) Why is the inner can made of steel and not plastic? *(1m)*

32. Sally wanted to find out if carbon dioxide is needed for a plant to carry out photosynthesis. She set up the following in the presence of light for a period of time. Study the two set-ups, A and B, below carefully.

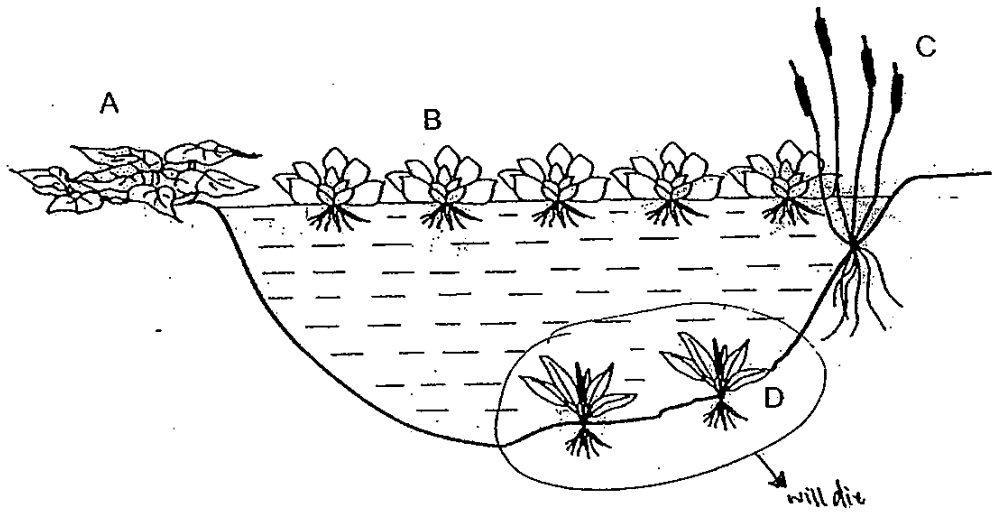


At the end of the experiment, Sally took a leaf each from Set-ups A and B to test for the presence of starch using iodine solution after decolorising the leaves with alcohol.

a) Describe the results of the starch test observed for the leaf taken from Set up A. *(1m)*

b) Give a reason for your answer in (a). *(1m)*

33. The diagram below shows a pond with plants A, B, C and D.



a) Which population of plants died completely after a week? *(1m)*

_____

b) Explain why the plant in (a) could not survive but the rest of the plants continue to survive. *(2m)*

_____

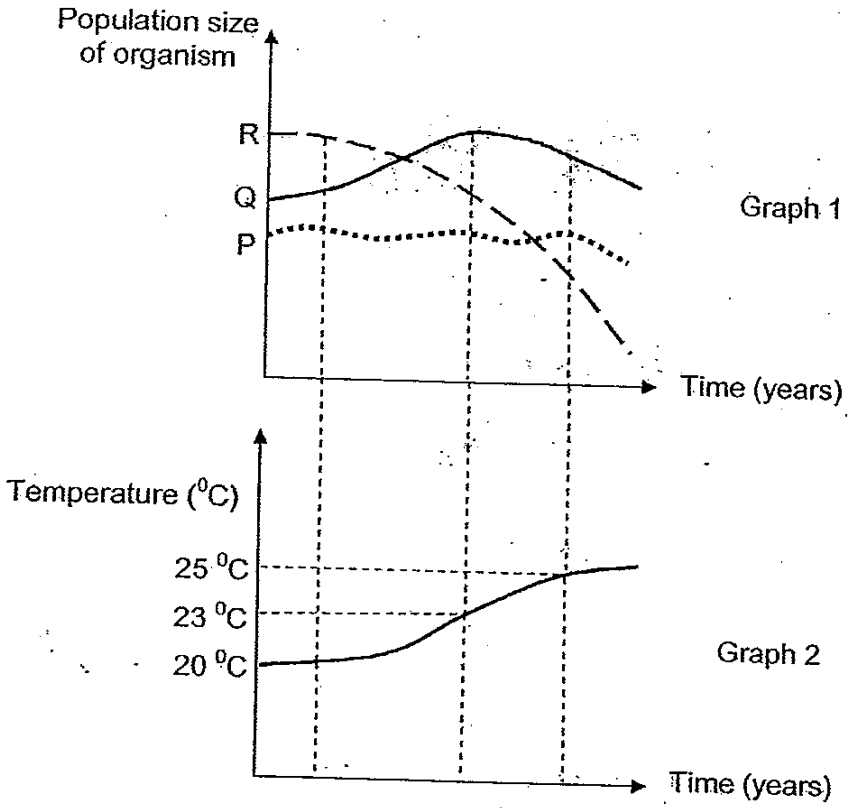
_____

_____

_____

_____

34. Graph 1 shows the changes in the population size of 3 different organisms P, Q and R over a period of time.
Graph 2 shows the changes in temperature over the same period of time.



a) Using the given information, what kind of living condition is favourable for Organism Q? *(1m)*

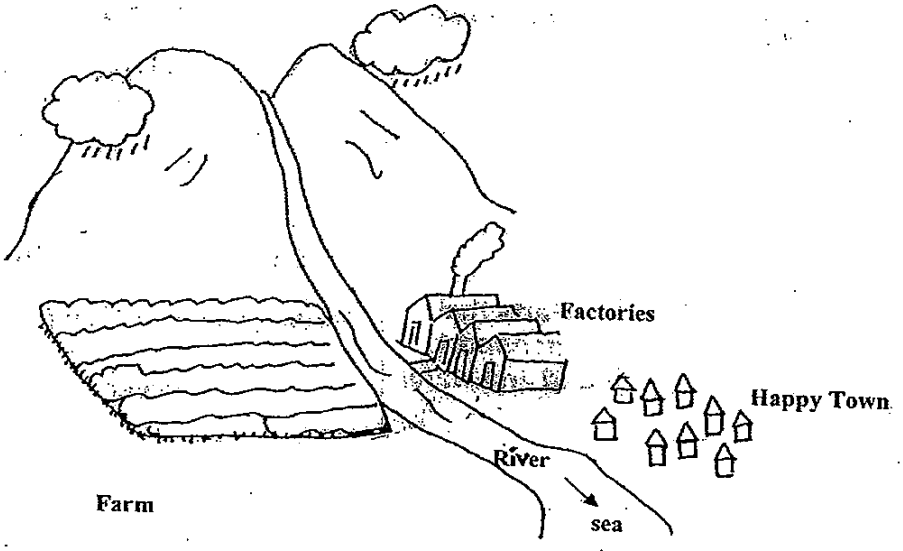
b) Which organism is **least** affected by changes in the surrounding temperature? Give a reason for your answer. *(2m)*

c) What will happen to the population size of all 3 organisms if the surrounding temperature continues to rise? *(1m)*

35. Haikal was asked by his teacher to compare the differences between the circulatory system of a human and transport system of a plant. *(2m)*

	In Plants	Differences in	In Human
(i)	_____ _____ _____	**Parts that transport food and water**	Blood vessels in the circulatory system transport both food and water
(ii)	Water moves from roots to other parts	**Direction of movement of water**	_____ _____ _____

36. The diagram below shows the location of Happy Town. The river is the main source of water for Happy Town. A river flows past Happy Town downstream towards the sea.



People from Happy Town want to build a water treatment plant which supplies water for home use. The water that is to be treated is pumped to the treatment plant from the point in the river that is nearest to it.

a) **Indicate** the most suitable position to build the treatment plant by putting an **X** in the picture above. *(1m)*

b) Explain how this location for the water treatment plant ensures clean water for the people of Happy Town. *(1m)*

_____

_____

_____

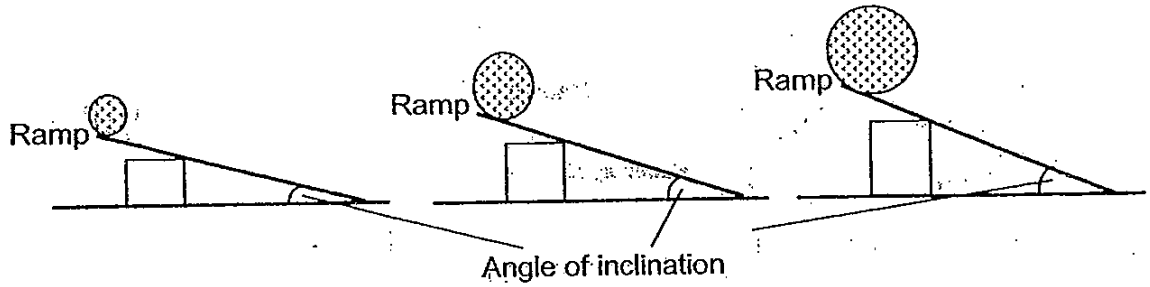
c) If the people want to depend less on the river for water, suggest one thing they can do to obtain more fresh water for daily use. *(1m)*

_____

_____

_____

37. Ali sets up an experiment as shown below to find out how the angle of inclination affects the distance a ball travels along the floor. He uses 3 balls of different sizes.



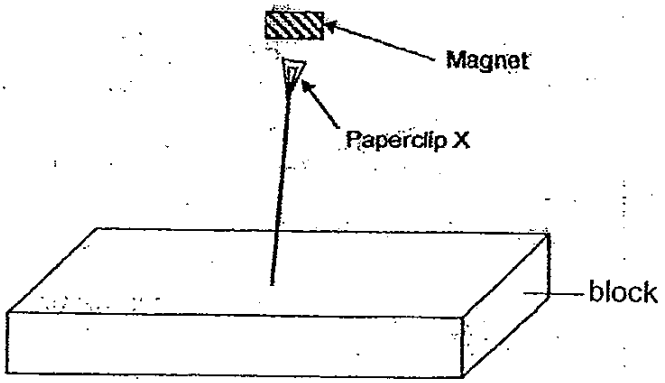
Ali's brother told him that this was not a fair test.

a) Do you agree with Ali's brother? Give a reason for your answer. *(2m)*

b) State a suitable hypothesis for this experiment. *(1m)*

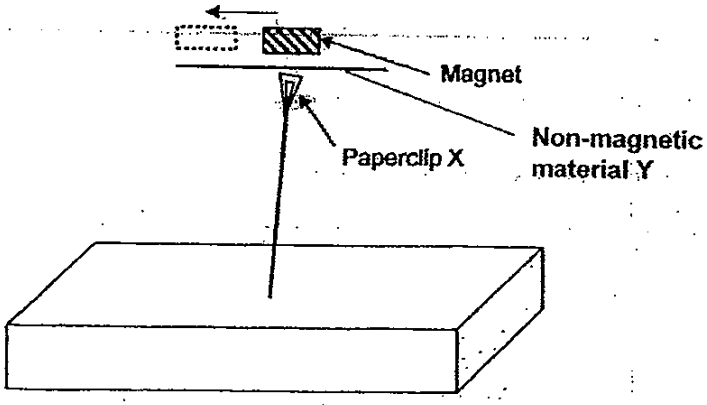
c) Why must experiments be carried out a few times? *(1m)*

38. Meili tied a paper clip to a string and attached it to a wooden block as shown below. She then held a magnet above the paper clip and observed that paper clip 'floats' just below the magnet.



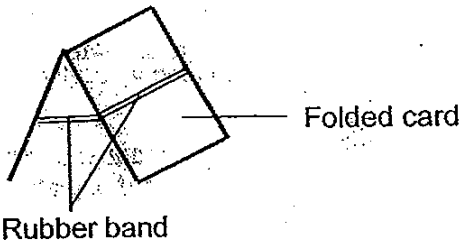
a) Explain why paper clip X is able to 'float' in the air. *(2m)*

Meili then placed a thin piece of material Y between the magnet and the paper clip.

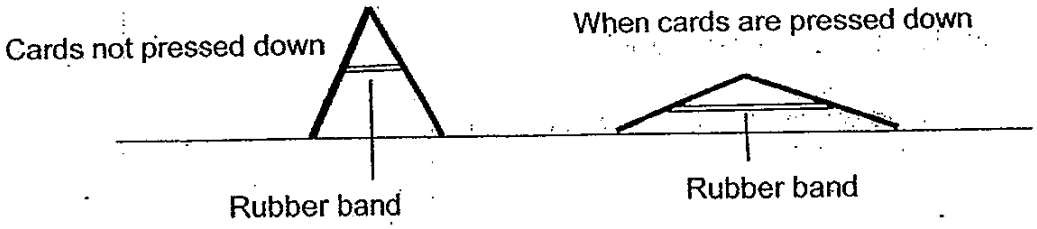


b) What would happen to the paper clip when Meili moved the magnet slightly as shown above? Give a reason for your answer. *(2m)*

39. A jumping toy is made of a folded card and a rubber band tied to both ends of the card.



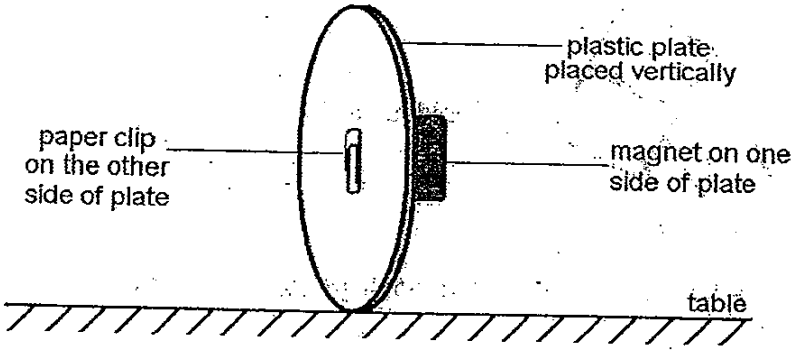
When the card is pressed down and then released, it 'jumps' off the ground.



a) Explain how the toy is able to 'jump' when it is let go after being pressed down. *(2m)*

b) Suggest one way to make the toy 'jump' higher. *(1m)*

40. Sean held up a plastic plate vertically and placed a magnet on one side of the plate and a paper clip on the other side of the plate as shown below. He found that the paper clip did not drop off. He continued to add a plastic plate. For each plastic plate added, he observed whether the paper clip dropped off.



He then tabulated his results as shown below.

No. of plastic plates stacked together	Did the paper clip drop?
1	No
2	No
3	No
4	No
5	Yes
6	Yes

a) State the test variable in this experiment. *(1m)*

_____

_____

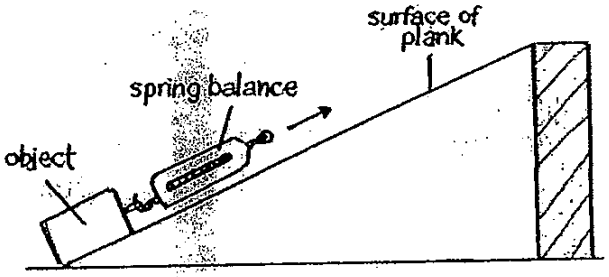
b) State how the results would be different if Sean had used a stronger magnet? Give a reason for your answer. *(2m)*

_____

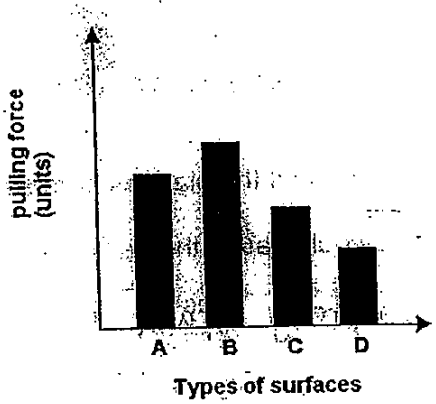
_____

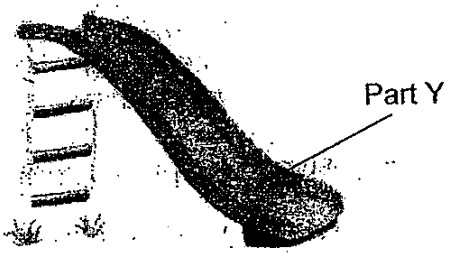
_____

41. The experiment below was carried out to investigate the effect of pulling forces of an object on four different surfaces, A, B, C and D.



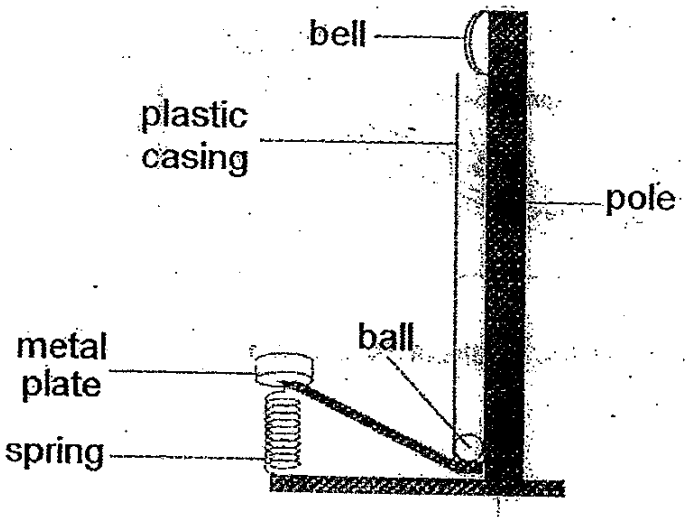
The graph below shows the results of the experiment.





Based on the results, suggest the ~~material~~ type of surface (A, B, C or D) which will be most suitable for making Part Y of a slide. Explain your answer. *(2m)*

42. Mel saw the following activity during his visit to the Science Fair. In this activity, the player needs to hit the metal plate to make the ball hit the bell which is placed on top of the pole.



a) Mel knew that he needed to hit the plate as hard as he could in order to make the ball hit the bell. *(2m)*
Explain how his action would cause the ball to move up and hit the bell.

_____

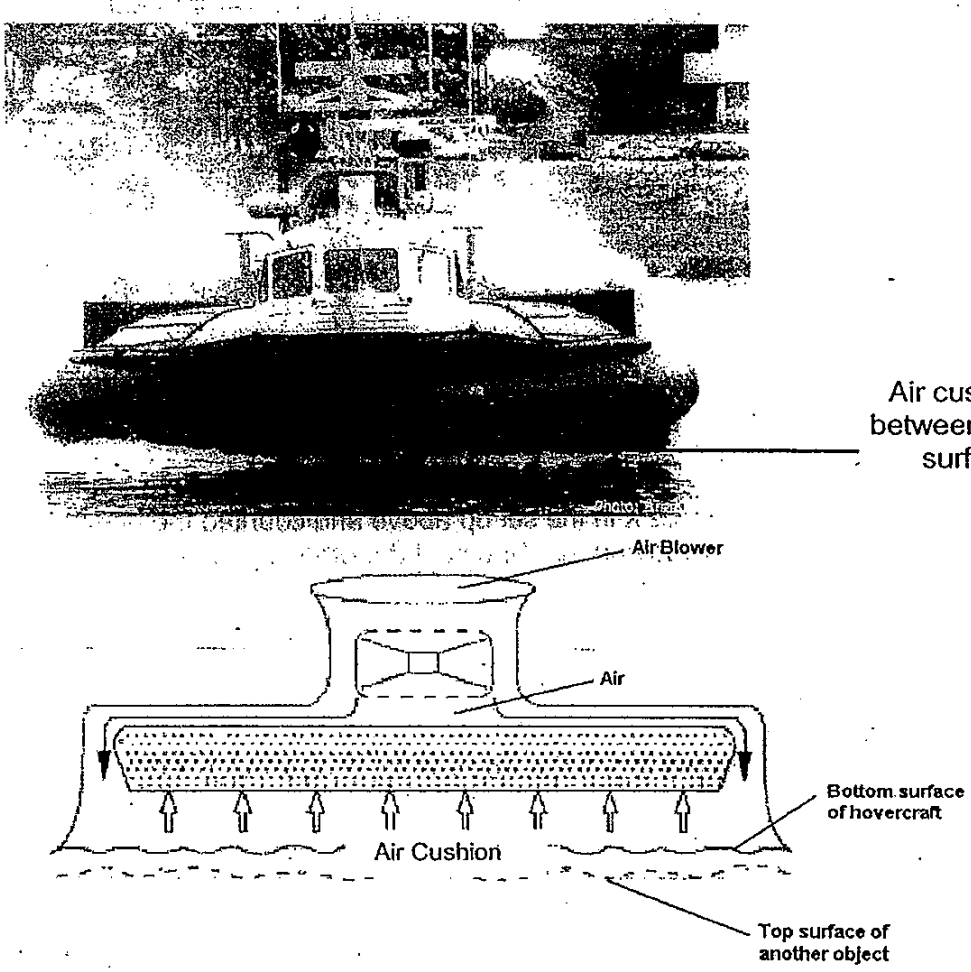
_____

b) Mel tried to adjust the position of the bell by placing it higher up on the pole. He then found out that no matter how hard he hit the plate, the ball would never reach up to the bell. Why is that so? *(1m)*

_____

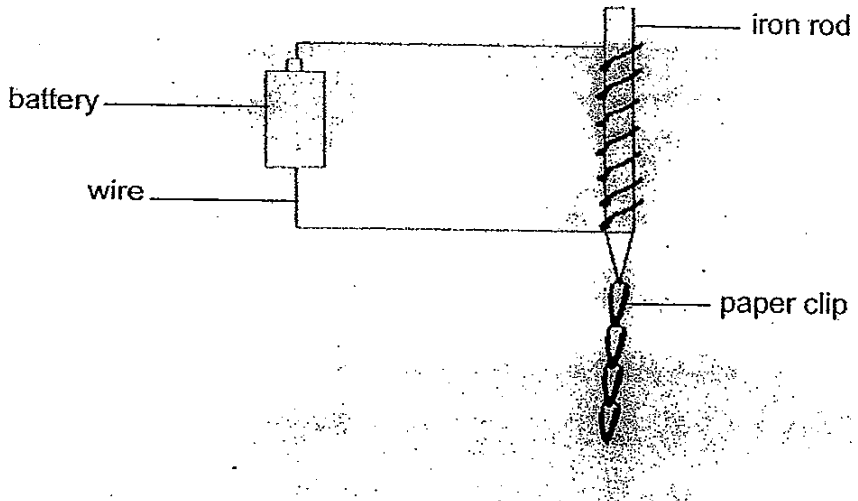
_____

43. The pictures below show what a hovercraft looks like. As the surfaces are separated by an air cushion, it enables the hovercraft to travel over rough land, swamp or sea.

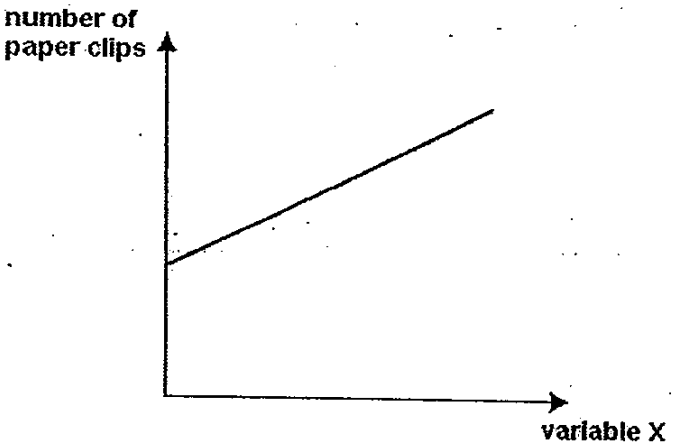


Describe how the air cushion in between the surfaces helps the hovercraft to travel over rough land, swamp or sea. *(2m)*

44. Lisa conducted an experiment using the following items only.



Lisa then changed variable X in the set up above and counted the number of paper clips attracted by the iron rod. She kept the other variables constant. Her results are shown below.



a) What is variable X in the above set-up ? *(1m)*

_____

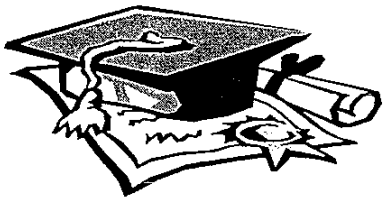
b) Explain why the number of number of paper clips increased when variable X increased. *(1m)*

_____

_____

End of Booklet B

Setters: Mdm Zuraidah & Mrs Cecilia Ng

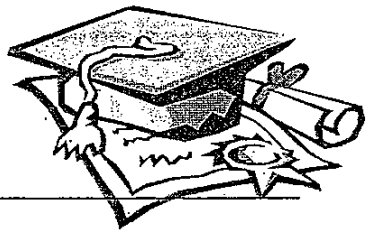


ANSWER SHEET

EXAM PAPER 2010

SCHOOL : HENRY PARK PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA1



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

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

31)a)The milk has a higher temperature than the ice, and so the milk loses heat to the ice.
b)Steal is a better conductor of heat than plastic.

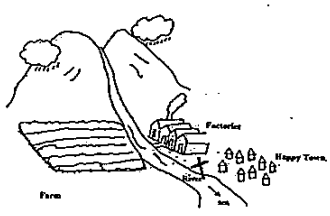
32)a)Iodine drops on leaf from plant A did not dark blue.
b)Plants need carbon dioxide to photosynthesis, so when there is no carbon dioxide, the plant can't carry out life processes even if there is light.

33)a)Population D.
b)D is blocked by floating plants and does not receive enough sunlight to photosynthesise.

34)a)21℃.
b)P as changes in its population size due to changes in surrounding temperature is the least.
c)The population size of all 3 organisms would decrease.

35)i)Xylem tubes transport water and phloem tubes transport food.
ii)Water moves from the mouth to other parts of the body.

36)a)



36)b)The water treatment plant is needed to remove pollutants from factories and farm.

c)Wait for rain to come and collect it buckets so that you can wash your car or water plants with it.

37)a)Yes, the angle of inclination should be changes but the size of the ball should be kept the same.

b)The ramp which the angle of inclination is the most would make the ball go further.

c)To make sure the result are reliable.

38)a)The paper clip is made out of metal and it is attracted to the magnet.

b)The paper clip would also move together with the magnet as Material Y is a non-magnetic material and magnetic force is able to pass through it.

39)a)The elastic potential energy.

b)Place more rubber bands.

40)a)The distance between the magnet and the paper clip.

b)When the paper clip drops, the number of plastic plates stacked will be greater than before. The magnetic force is stronger so it can act at a greater distance.

41)D. Pulling force on surface D is lowest as frictional force is the lowest.

42)a)As he hits the metal plate, Elastic potential energy is stored in spring which converts to kinetic energy. As he hits the plate hard, the spring becomes compressed, the elastic spring force than the ball to move upwards towards the ball.

b)The spring has reached its maximum limit and there is not enough elastic potential energy to push the ball upwards.

43)The air cushion causes the hovercraft not to come into contact with the other surfaces, hence the frictional is greatly reduced.

44)a)No. of coils.

b)The electromagnet strength increased with the increased no. of turns around the iron rod.