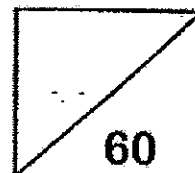




**Rosyth School**  
**Continual Assessment 1 2015**  
**STANDARD SCIENCE**  
**Primary 6**



Name: \_\_\_\_\_

Total  
Marks:

Class: Pr 6 \_\_\_\_\_ Register No. \_\_\_\_\_

Duration: 1 h 45 min

Date: 2 March 2015

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

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## Booklet A

### Instructions to Pupils:

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

\* This booklet consists of 20 pages.

.....

**Part I (60 Marks)**

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

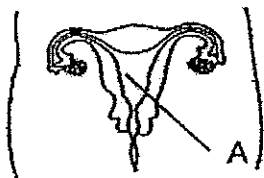
1. The table below shows the processes that occur in sexual reproduction of flowering plants.

Germination	Fertilisation	Pollination	Seed dispersal
P	Q	R	S

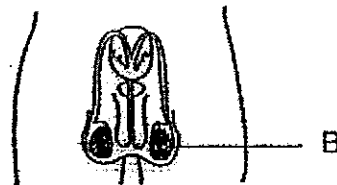
Which one of the following is the correct sequence for sexual reproduction of a flowering plant?

- (1) P → Q → R → S  
 (2) P → S → Q → R  
 (3) S → P → R → Q  
 (4) S → P → Q → R

2. The diagrams below show the human reproductive systems X and Y.



System X

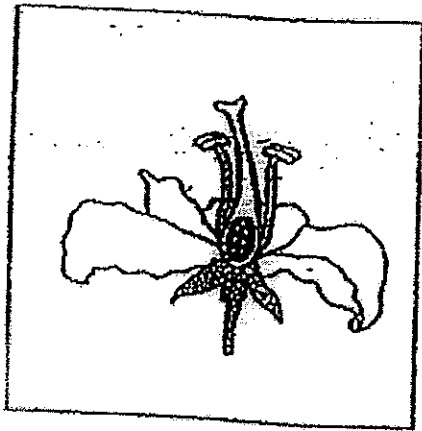


System Y

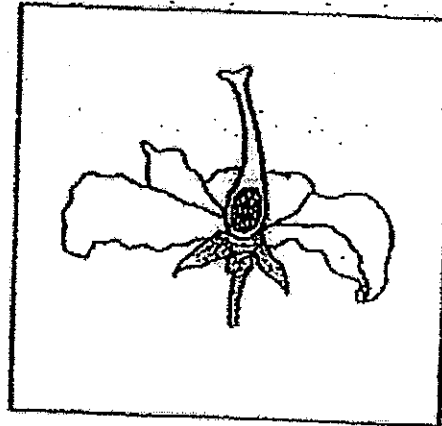
Which of the following statements about the systems is correct?

- (1) Fertilisation occurs in part A.  
 (2) Part B produces sex cells monthly.  
 (3) Fertilisation occurs inside the body of System Y.  
 (4) The sex cells produced by System X are different in structure from those produced by system Y.

3. The diagrams below show the cross-sections of two different flowers. Sue had removed the filaments of flower B.



Flower A



Flower B

Which of the following statement(s) is/are true?

- A: Both flowers can develop into fruits.
- B: Only Flower B will develop into a fruit.
- C: Pollination can only take place in Flower B.
- D: Pollination can take place in both Flower A and Flower B.

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

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

4. The diagram below shows a change of a leaf on a plant after a period of time.



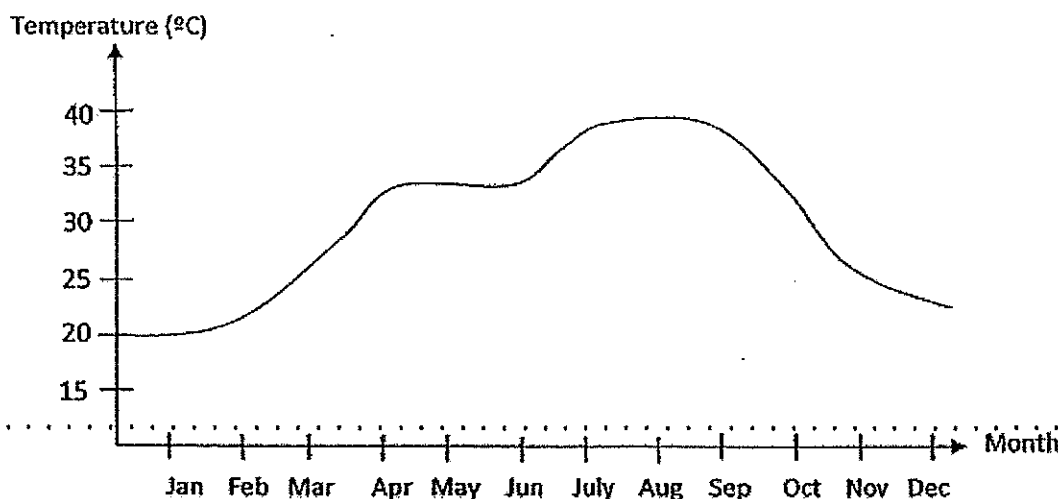
The change on the leaf was caused by a butterfly in one of its stages in its life cycle.

Which stage was the butterfly in at this point in time?

- (1) egg
- (3) pupa

- (2) larva
- (4) adult

5. The graph below shows the temperature change in a forest from January to December.



Insect F lives in the forest. It needs a temperature between 30 °C and 34 °C for at least a month to develop from an egg into an adult.

Which of the following months are suitable for the insect to breed?

- (1) February to April
- (3) July to September

- (2) April to June
- (4) October to December

6. Figure 1 shows a leaf on a plant used in a photosynthesis experiment. At the start of the experiment, there was no starch on the leaf.

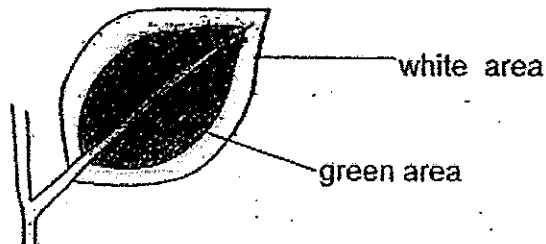


Figure 1

Next, the leaf was partly covered by black paper, as shown in Figure 2.

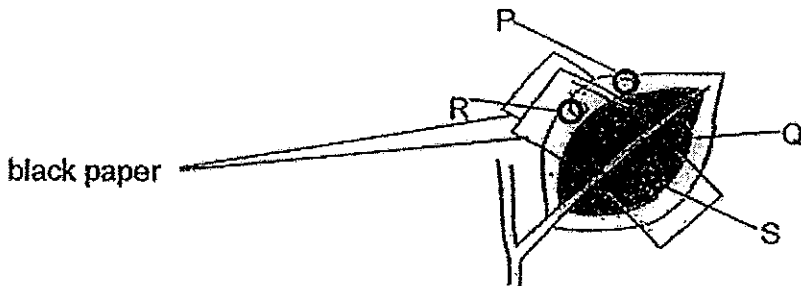
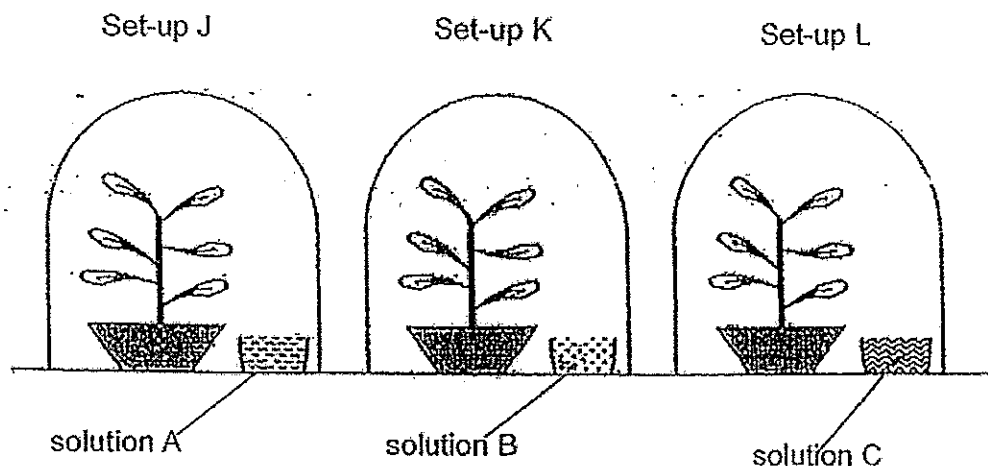


Figure 2

The plant was then put in the sun. After a few hours, the leaf was plucked off and the black paper was removed. The leaf was tested for starch. In which area(s) labelled P, Q, R, and S is starch most likely found?

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

7. Ben conducted an experiment on photosynthesis. He left 3 similar pots of plants in a dark room for 4 days. The plants were watered daily. He then put the pots of plants in the 3 set-ups J, K and L as shown below. Each set-up contained a solution with different functions.



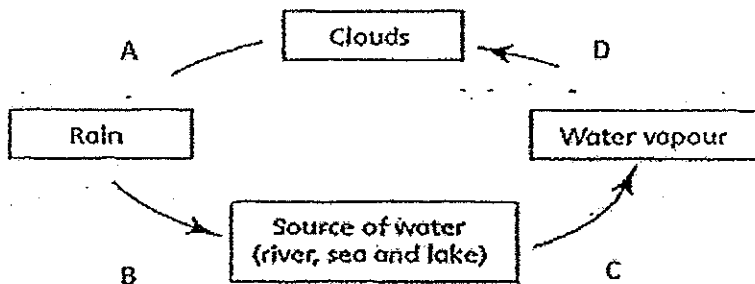
Ben then put the set-ups outdoors for 2 days. He conducted a starch test on the leaf from each set-up and the results were shown in the table below.

Leaf from set-up J	Iodine turned dark blue
Leaf from set-up K	Iodine turned dark blue
Leaf from set-up L	Iodine turned dark blue

Which one of the following was most likely to be the functions of solutions A, B and C?

	Solution A	Solution B	Solution C
(1)	absorbs oxygen	produces carbon dioxide	absorbs carbon dioxide
(2)	absorbs water vapour	absorbs oxygen	produces carbon dioxide
(3)	absorbs carbon dioxide	absorbs water vapour	absorbs oxygen
(4)	produces carbon dioxide	absorbs water vapour	absorbs carbon dioxide

8. Study the water cycle below.



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

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

9. Amy conducted an experiment in the science room and recorded the results as shown in the table below.

Container	Exposed surface area	Speed of Fan	Temperature of water (°C)	Time taken for water to evaporate (min)
A	80	2	42	75
B	80	2	67	53
C	80	2	83	25

What was the aim of her experiment?

- (1) To find out if the presence of wind affects rate of evaporation.
- (2) To find out if temperature of water affects the rate of evaporation.
- (3) To find out if the time taken for evaporation affects temperature of water.
- (4) To find out if the amount of exposed surface area affects the rate of evaporation.

10. When Bei Bei sprayed some water on her hand, she felt a cool sensation at the spot where it was sprayed.

Which of the following statement(s) is/are true about the changes involved after water was sprayed on her hand?

- A: The skin loses heat.
- B: The skin gains heat.
- C: The water loses heat.
- D: The water gains heat.

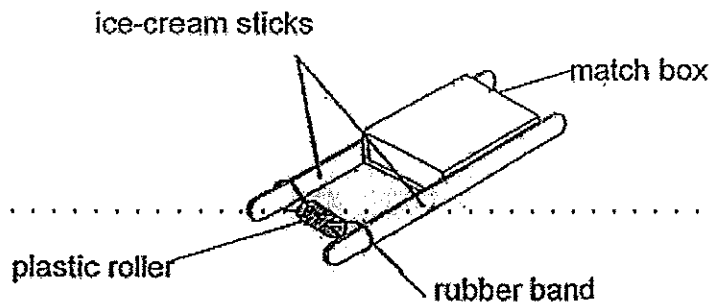
- (1) A only
- (2) A and D only
- (3) B and C only
- (4) B and D only

11. Which of the following statements about energy are true?

- A: Energy is needed to exert a force.
- B: All sources of energy are renewable.
- C: Energy is needed to enable us to do work.

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

12. Ravi made a toy as shown below. When he turned the plastic roller, the toy would move forward on the floor.

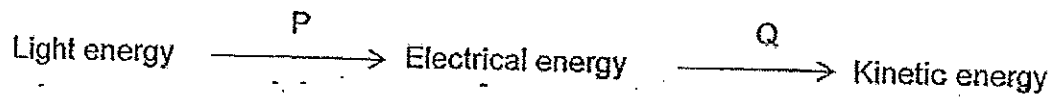


What should Ravi do if he wanted the toy to travel a further distance?

- (1) Use a shorter ice-cream stick.
- (2) Use a thicker ice-cream stick.
- (3) Increase the size of the match box.
- (4) Increase the number of turns on the plastic roller.

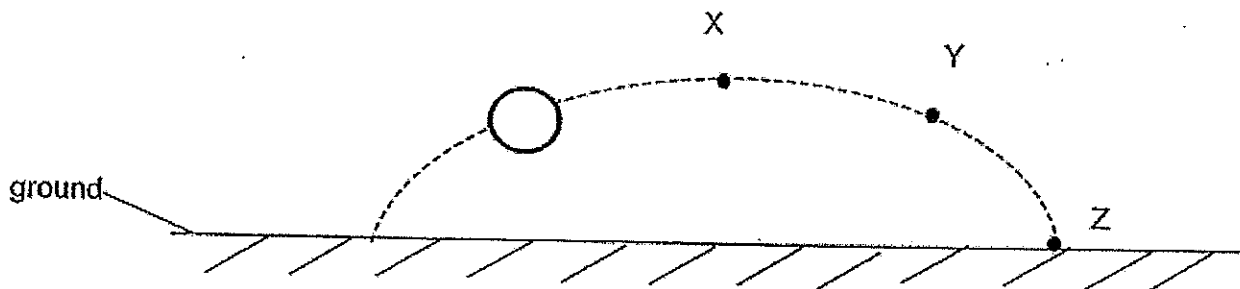


13. The diagram below shows different energy conversions.



Which one of the following devices shows both energy conversions P and Q when in use?

- |                                  |                             |
|----------------------------------|-----------------------------|
| (1) a battery-powered torchlight | (2) a wound-up toy robot    |
| (3) a battery-powered toy car    | (4) a solar-powered toy car |
14. Study the pathway of a ball as shown below.

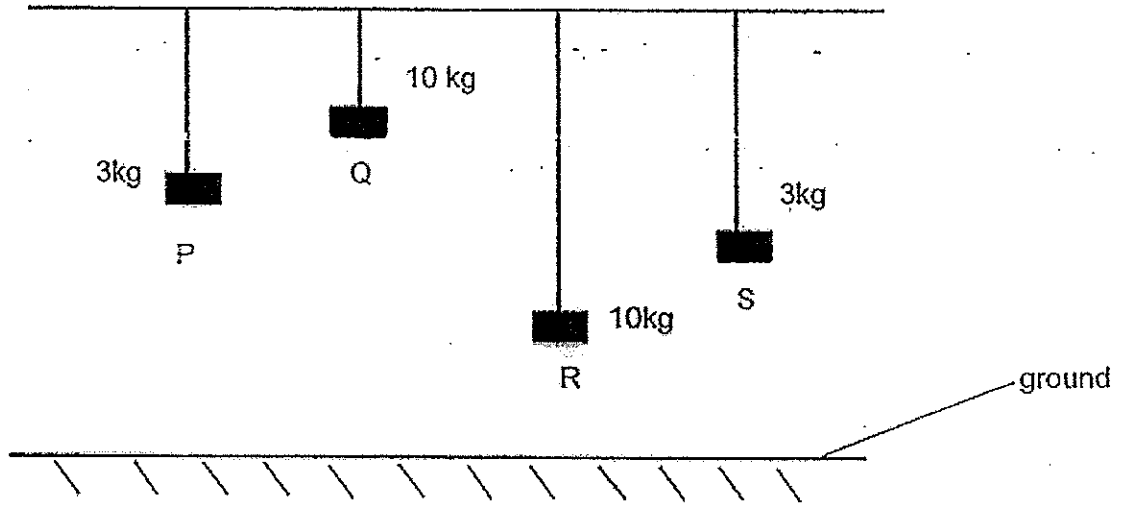


Which of the following statements about the ball are true?

- (A) The kinetic energy is the lowest at Point X.
- (B) The kinetic energy is the highest at Point Z.
- (C) The potential energy is the highest at Point X.
- (D) The ball has both potential and kinetic energy at point Y.

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

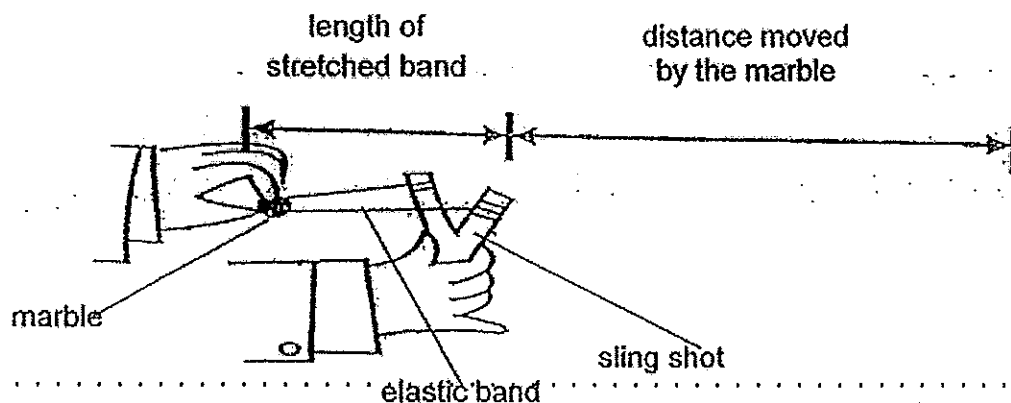
15. Four objects, P, Q, R and S are hung on a pole above the ground. Strings of different lengths have been used to suspend these objects. The masses of these objects are shown below



Which object possess the most potential energy?

- |       |       |
|-------|-------|
| (1) P | (2) Q |
| (3) R | (4) S |

16. Kumar was playing with a slingshot when he discovered that there is a relationship between the length of the elastic band that was stretched and the distance moved by the marble.



Length of stretched rubber band(cm)	Distance moved by the marble(cm)
15	25
10	18
19	30
8	14

Which one of the following would most probably describe the relationship between the length of the elastic band that was stretched and the distance moved by the marble?

- (1) The distance moved by the marble is not affected by the length of the stretched rubber band.
- (2) The shorter the length of the stretched rubber band, the greater the distance moved by the marble.
- (3) The distance moved by the marble is always half the length of the stretched rubber band.
- (4) The shorter the length of the stretched rubber band, the lesser the distance moved by the marble.

17. What is the disadvantage of using a wind turbine?

- (1) Wind is non-renewable.
- (2) It reduces the earth's natural resources.
- (3) It cannot produce electrical energy at night.
- (4) It does not produce the same amount of electrical energy all the time.

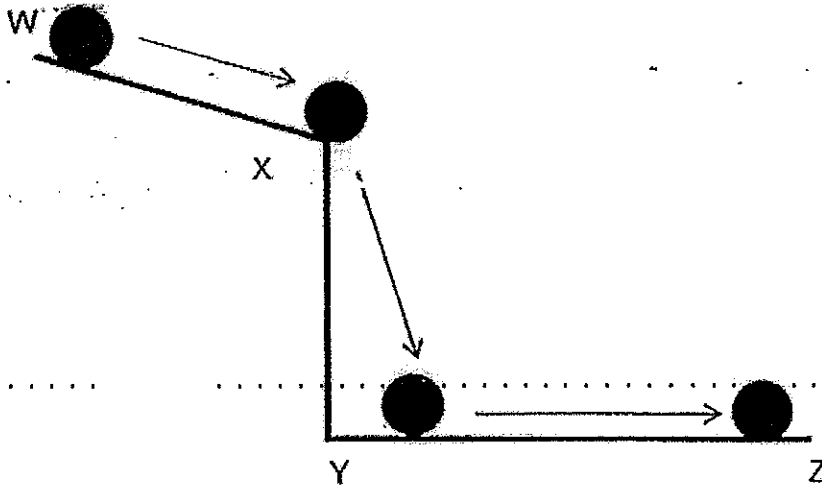
18. Which one of the following shows the correct energy conversion when a television is switched on?

- (1) electrical energy  $\longrightarrow$  sound energy + light energy + heat energy
- (2) electrical energy  $\longrightarrow$  sound energy + heat energy + kinetic energy
- (3) potential energy  $\longrightarrow$  kinetic energy + heat energy + light energy
- (4) potential energy  $\longrightarrow$  kinetic energy + heat energy + sound energy

19. Which one of the following is a source of energy for a wound-up toy car?

- (1) spring
- (2) compressed spring
- (3) toy car
- (4) key

20. A ball at W was pushed downwards towards X. It rolls off X and lands on Y and continued rolling until it stopped at Z.



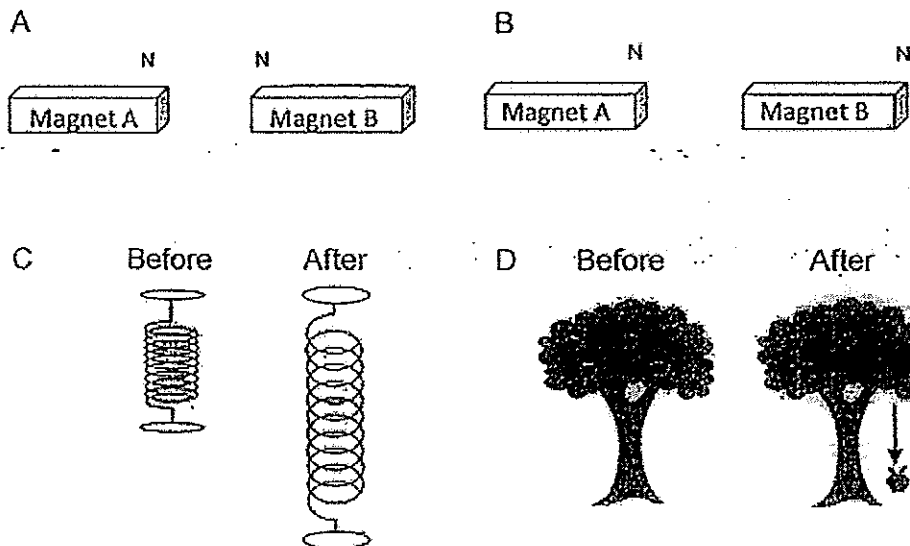
Which of the following statements are true based on the above situation?

- A: The ball has the most kinetic energy at Y.
- B: The ball has the most potential energy at W.
- C: Kinetic energy of the ball increases from Y to Z.
- D: Potential energy of the ball decreases from X to Y.

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

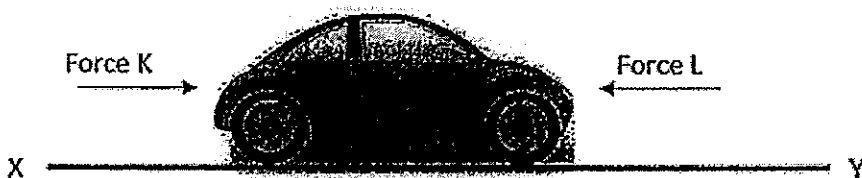
- (2) B and D only
- (4) B, C and D only

21. Which of the following is/are the result(s) of a pulling force?



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

22. The diagram below shows a toy car on a flat surface. The direction of the toy car's movement depends on the amount of forces, K and L.



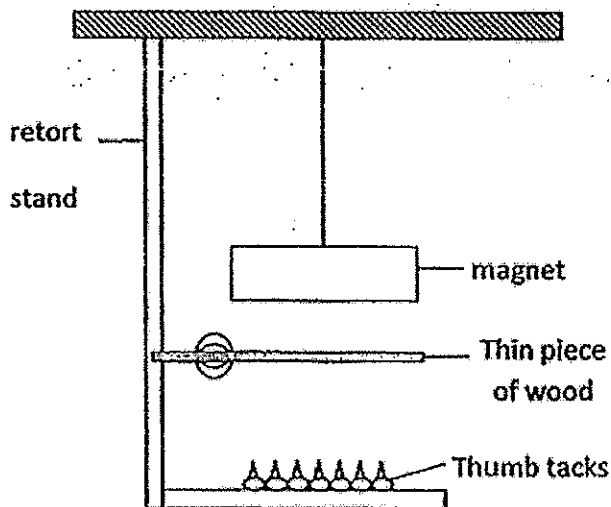
Which of the following are the correct reasons for the car's possible movements?

	Movement	Explanation
A	The car moves towards X	Force K is greater than Force L
B	The car moves towards Y	Force L is smaller than Force K
C	The car does not move	Force L is equal to Force K

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

Please refer below for questions 23 and 24.

Peter carried out an experiment using the set-up as shown below. He placed the magnet above a thin piece of wood. He then observed some thumbtacks attaching themselves on the underside of the wood.



23. Which one of the following is/are the most likely explanation(s) for his observation?

A: Magnetic force can act at a distance.

B: The frictional force between the piece of wood and thumbtacks prevents the thumbtacks from dropping.

C: The magnetic force of attraction is able to pass through the piece of wood.

D: The magnetic force of attraction is strong enough to overcome the force of gravity acting on the thumbtacks.

(1) C only

(3) A, C and D only

(2) A and C only

(4) A, B, C and D

24. Peter carried out another experiment using the set-up on page 14. He increased the thickness of the wood each time and counted the number of thumbtacks attached to the wood. He then recorded the results in a table as shown below.

Thickness of wood/cm	Distance of magnet and the wood/cm	Number of thumbtacks attached
1	5	4
2	5	3
3	5	2
4	5	0

Which one of the following is/are possible conclusion(s) for his experiment?

- A: The thicker the wood, the less the magnetic force of attraction can pass through
- B: The thicker the wood, the fewer thumbtacks are attached to the wood
- C: The thicker the wood, the distance of magnet and the wood remain the same.

(1) A only

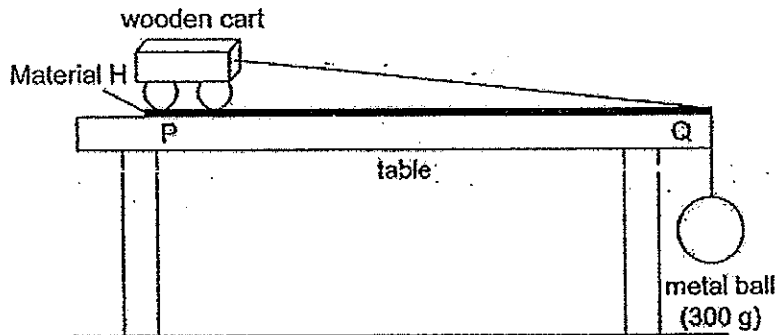
(3) B and C only

(2) A and B only

(4) A, B and C



25. Study the experiment shown below carefully.



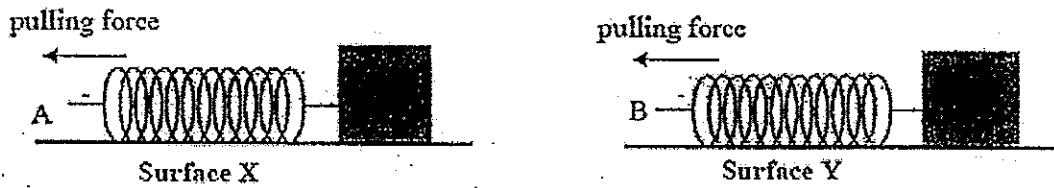
A metal ball was attached to a wooden cart as shown above. The time the wooden cart took to reach Q from P was recorded. The experiment was repeated using different materials, H, I, J and K respectively on which the wooden cart moved across. The results were recorded as shown below.

Material	Time taken to reach point Q/s
H	15
I	18
J	32
K	24

Which one of the following is the best material for a ramp which can make it easier for people to push heavy boxes up to their vehicles?

- (1) Material H
- (2) Material I
- (3) Material J
- (4) Material K

26. Two identical wooden blocks are placed on surfaces X and Y as shown in the diagram below.



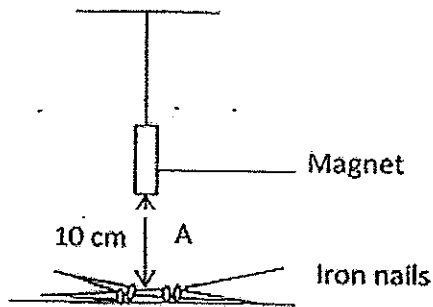
A pulling force is applied on two identical springs, A and B, attached to two identical blocks. When the wooden blocks were pulled along the surfaces, Spring A stretched twice as much as Spring B.

Which of the following statements about the above experiment are true?

- A: Surface X is rougher than Surface Y.
- B: Surface X is smoother than Surface Y.
- C: The pulling force on Surface X is greater than the pulling force on Surface Y.
- D: The frictional force on Surface Y is greater than on Surface X.

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

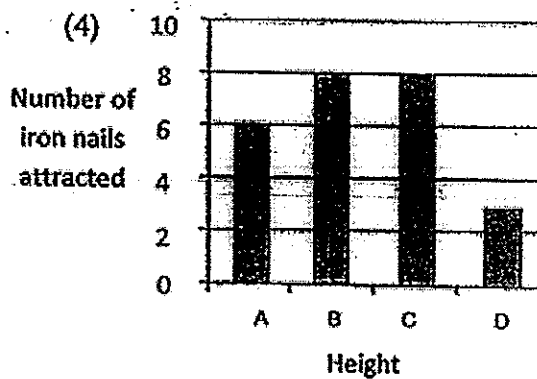
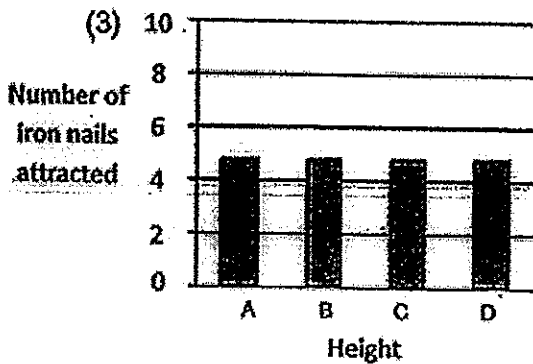
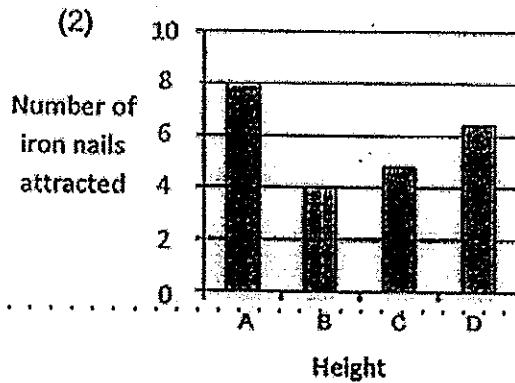
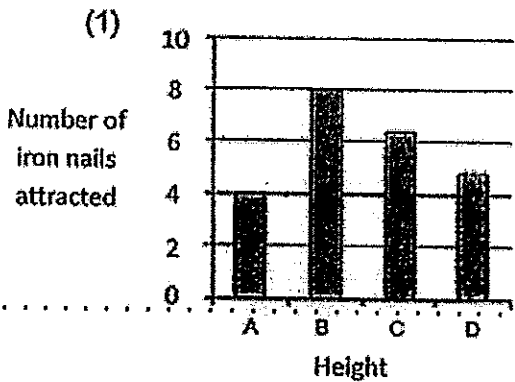
27. An experiment was conducted using the set-up as shown below.



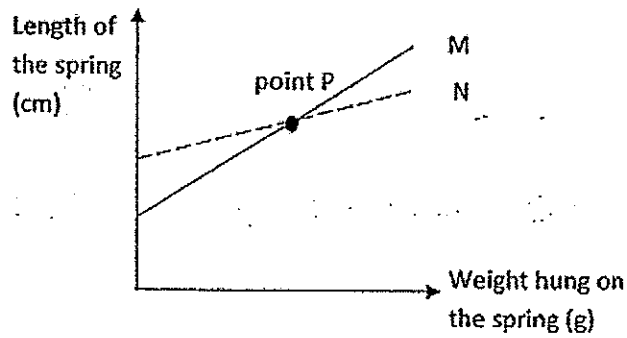
The experiment was repeated by placing the same magnet at different heights, A, B, C and D and the distance of each magnet from the iron nails is shown in the table below.

Height	Distance of magnet from the iron nails (cm)
A	10
B	20
C	16
D	12

Based on the table above, which one of the graphs below is most likely correct?



28. The graph below shows how the length of two springs M and N changed when different weights were hung on.

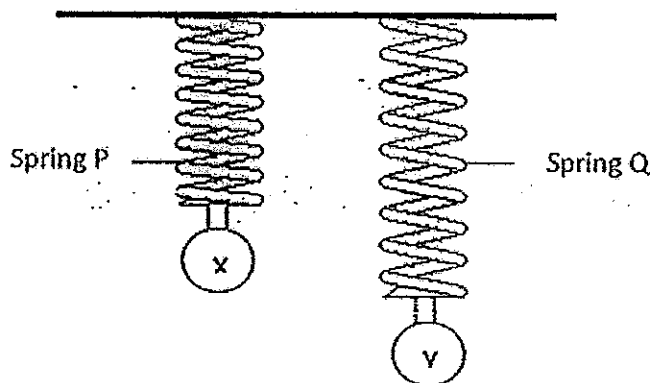


Based on the graph above, which of the statements are correct?

- A: The original length of the springs is the same.
- B: The extension of both springs is the same for the same weight hung.
- C: The original length of spring M is less than the original length of spring N.
- D: The elastic spring force on spring M is greater than that on spring N when the same weight is hung after point P.

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

29. Two identical objects, X and Y, are hung onto two different springs, P and Q, which have the same original length.



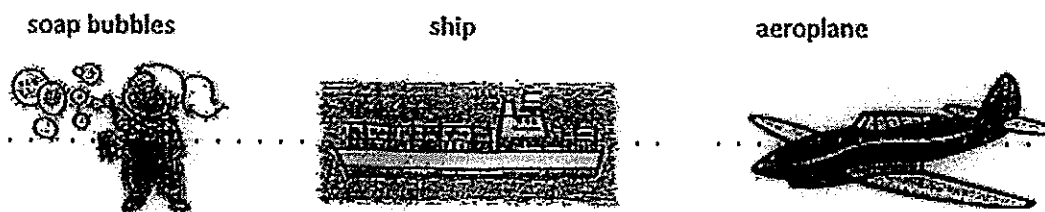
After some observations, Lynn wrote down four statements in her notebook.

- A: Spring Q is overstretched.
- B: Spring P is less stretchable than Q.
- C: Object X has less mass than Object Y.
- D: Spring Q has a longer extension than Spring P.

Which of the above statements made by Lynn is/are correct?

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

30. The diagram below shows three objects.



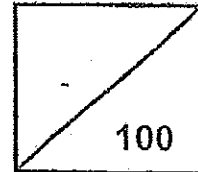
On which object(s) is/are the force of gravity acting on?

- (1) ship only
- (2) ship and aeroplane only
- (3) soap bubbles and aeroplane only
- (4) soap bubbles, ship and aeroplane

End of Booklet A



Rosyth School  
Continual Assessment 1 2015  
STANDARD SCIENCE  
Primary 6



Name: \_\_\_\_\_

Total  
Marks:

Class: Pr 6 \_\_\_\_\_

Register No. \_\_\_\_\_

Duration: 1 h 45 min

Date: 2 March 2015

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

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## Booklet B

### Instructions to Pupils:

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

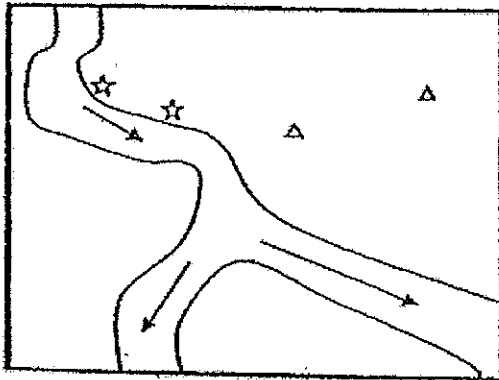
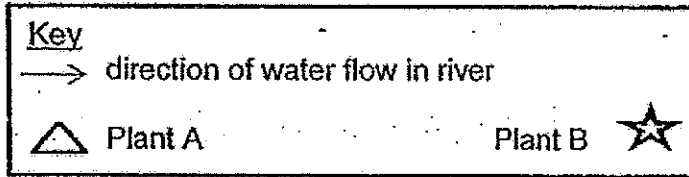
	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

\* This booklet consists of 15 pages.

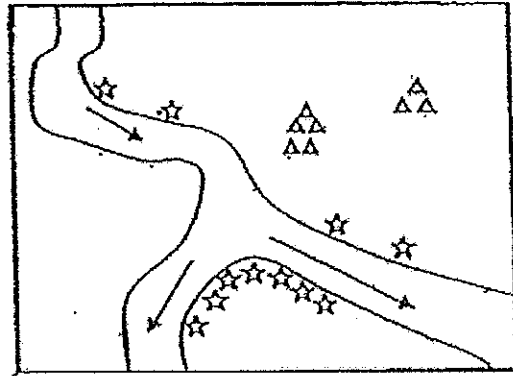
**Part II (40 Marks)**

For questions 31 to 44, write your answers in the space provided.

31. The diagrams below show the growth of plants A and B over three years.



Year 2010



Year 2013

(a) Based on the diagrams, identify the methods of dispersal of plants A and B. (2m)

Plant A: \_\_\_\_\_

Plant B: \_\_\_\_\_

(b) State one characteristic of the fruits of plants A and B each based on the dispersal methods above. (2m)

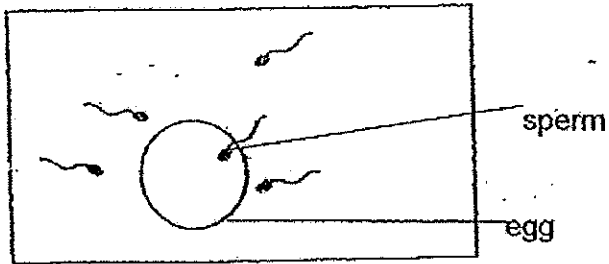
Fruits of plant A: \_\_\_\_\_

\_\_\_\_\_

Fruits of plant B: \_\_\_\_\_

\_\_\_\_\_

32. Study the diagram below carefully.



(a) What process in human reproduction is shown in the diagram above? (1m)

---

(b) State the function of the sperm. (1m)

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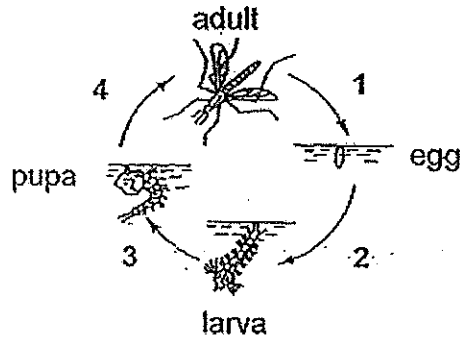
(c) Explain how the sperm is able to carry out its function. (1m)

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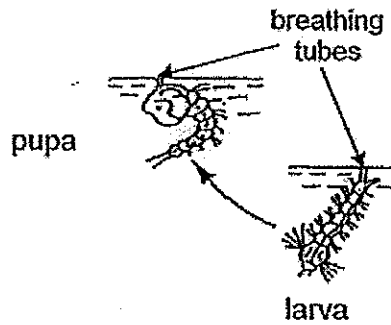
33. The diagram below shows the life cycle of a mosquito.



(a) In the diagram above, at which number would fertilisation occur? (1m)

---

(b) The larva and the pupa breathe through breathing tubes as shown in the diagram below.

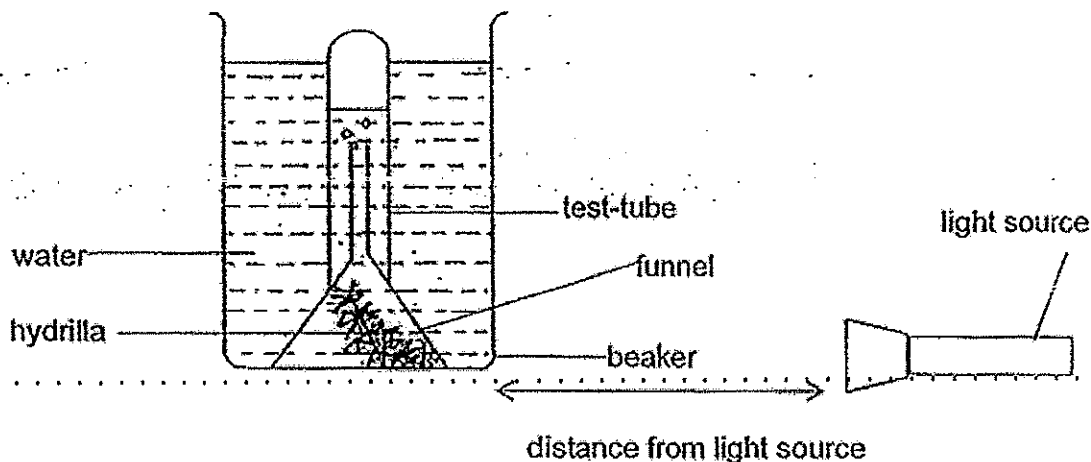


Explain how the spraying of oil on the water surface will help to kill them. (1m)

---

---

34. Mei Ling wanted to find out how the intensity of light affects the rate of photosynthesis of hydrilla plants. She used the set-up as shown below and placed a bright light source a distance away.



After 20 minutes, she counted the number of bubbles produced by the hydrilla. She repeated the procedure four more times by increasing the distance between the light source and the beaker each time. She recorded her observations in the table each time as shown below.

Distance of light source from beaker (cm)	Number of bubbles produced per minute
10	18
20	16
30	13
40	11

- (a) Identify the gas produced in the funnel. (1m)

---

- (b) What can Mei Ling conclude from the results of her experiment? (1m)

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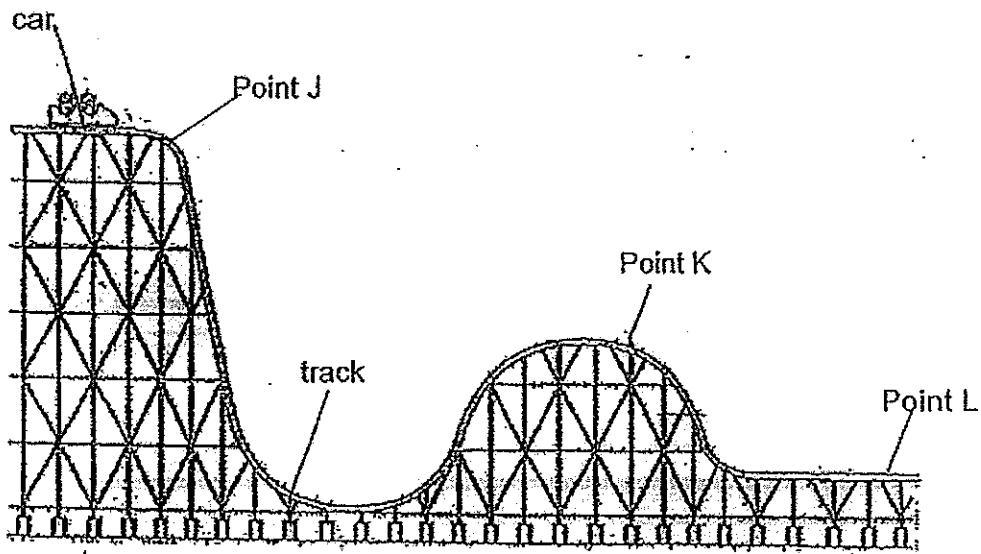
- (c) Mei Ling repeated the same experiment but this time with some tubifex worms placed in the funnel with the hydrilla. She observed that the number of bubbles produced by the hydrilla per minute increased. Give the main reason for this. (1m)

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35. The diagram below shows a roller coaster at a theme park. Joshua and his friend were in a car at the top of the track at point J. At the start of the ride, their car was pulled along the track before it was released at point J. The car then started to travel along the track before it finally slowed down to a stop at point L.



- (a) At which point is the potential energy the greatest? Explain your answer. (1m)

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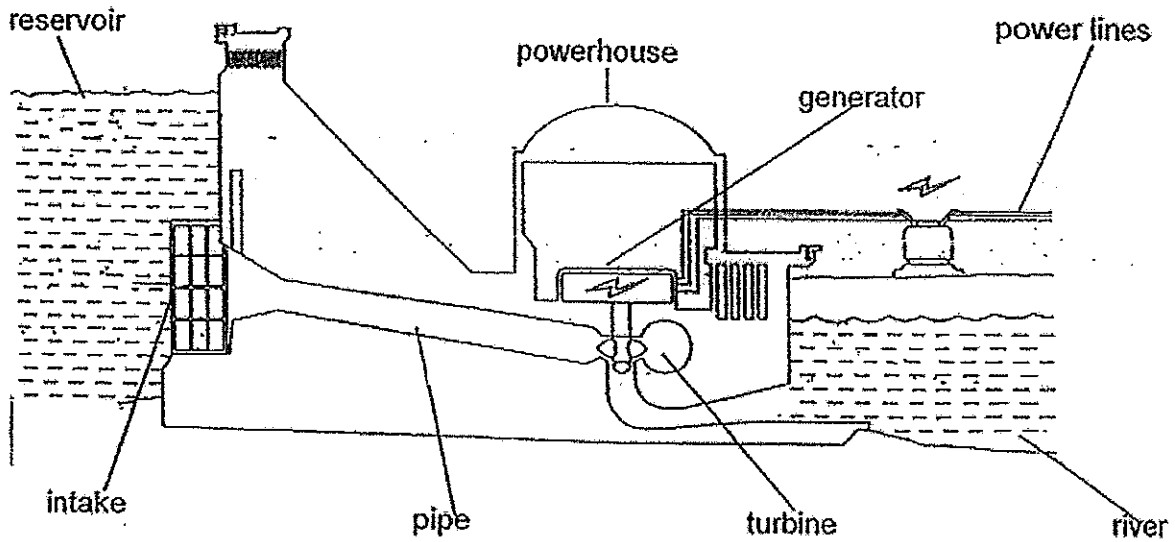
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- (b) Why was the car able to slow down and come to a stop at the end of the ride without the application of brakes? (1m)

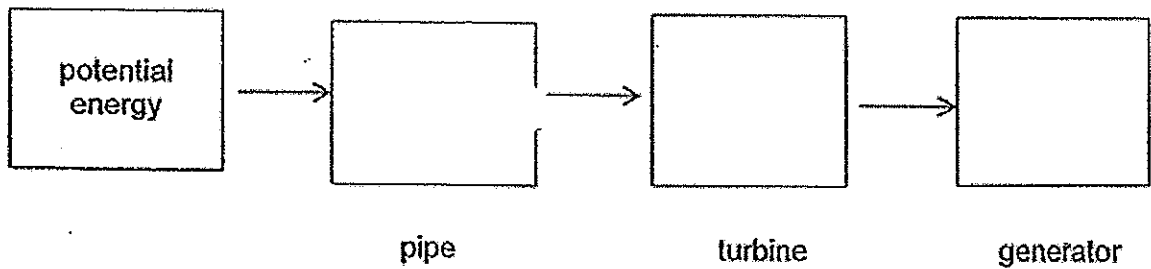
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36. The diagram below shows a hydroelectric power station.



(a) State the energy conversion that takes place when electrical energy is generated in a hydroelectric power station. (1m)

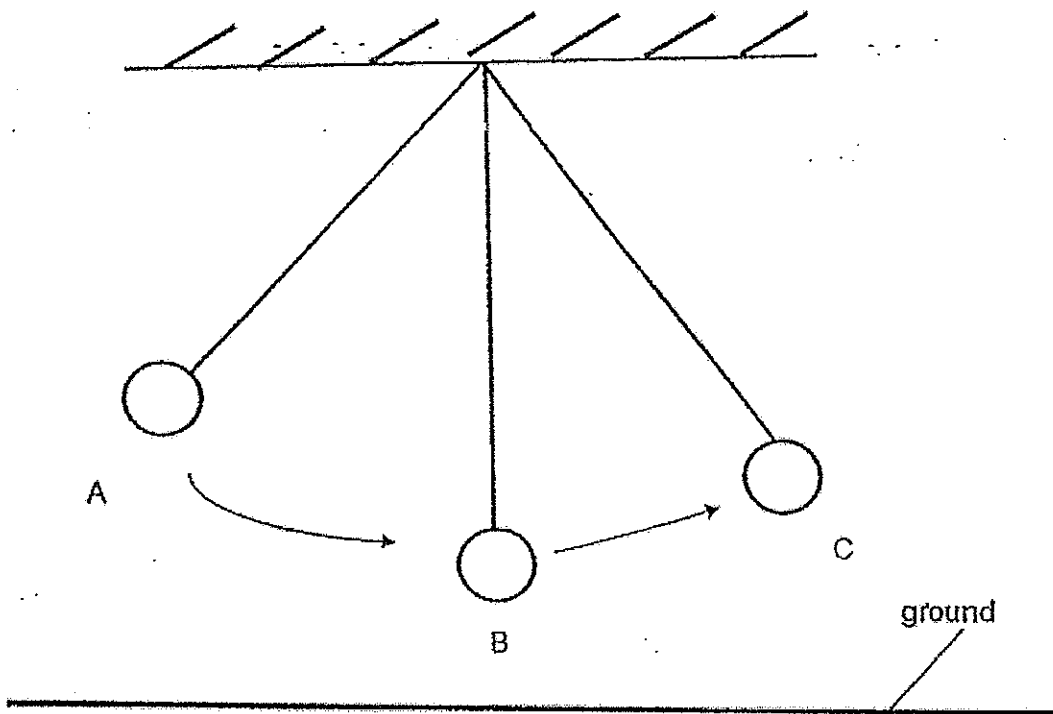


(b) What is the reason for building the reservoir at a higher level than the turbine? (1m)

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37. Ah Seng released a pendulum bob from position A and its movement is shown in the diagram below.



- (a) At which position (A, B or C) does the pendulum bob have the greatest amount of kinetic energy? (1m)

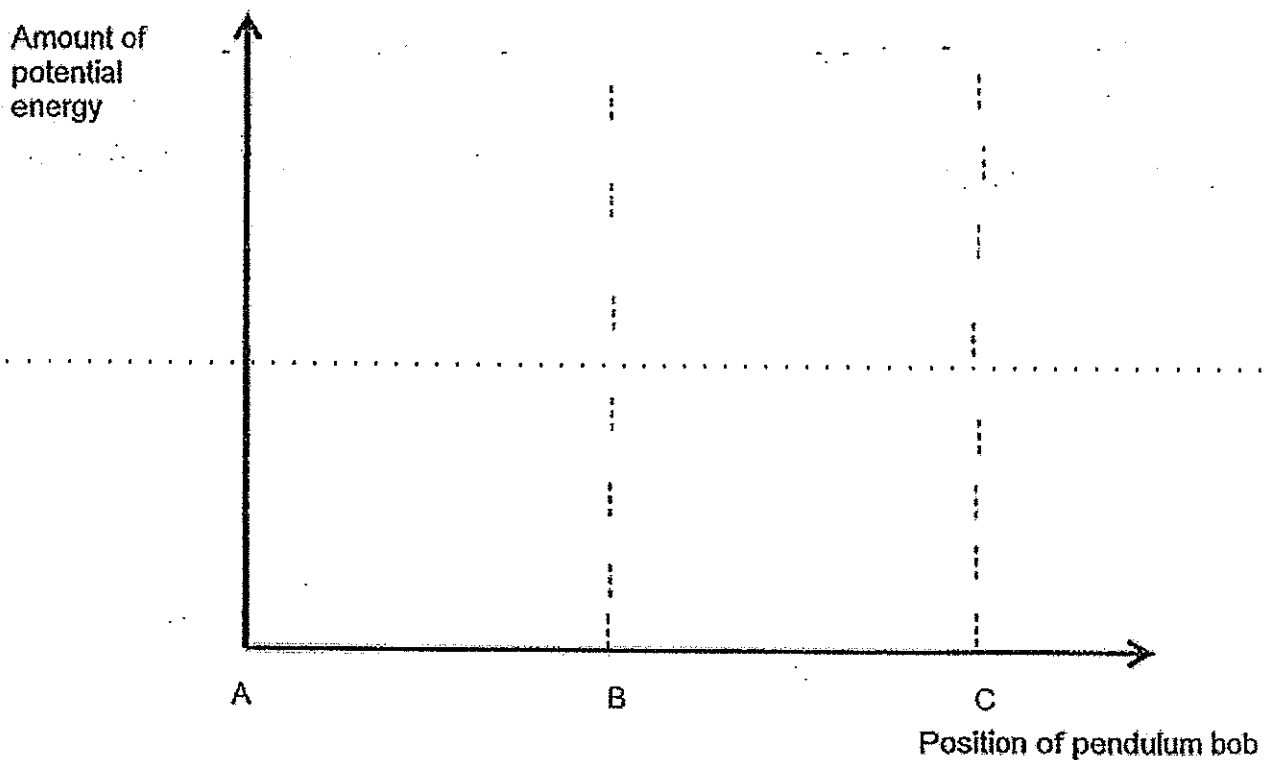
\_\_\_\_\_

- (b) After a while, the pendulum bob was observed to swing to position C at a height lower than its height release at position A. Give a reason for this. (1m)

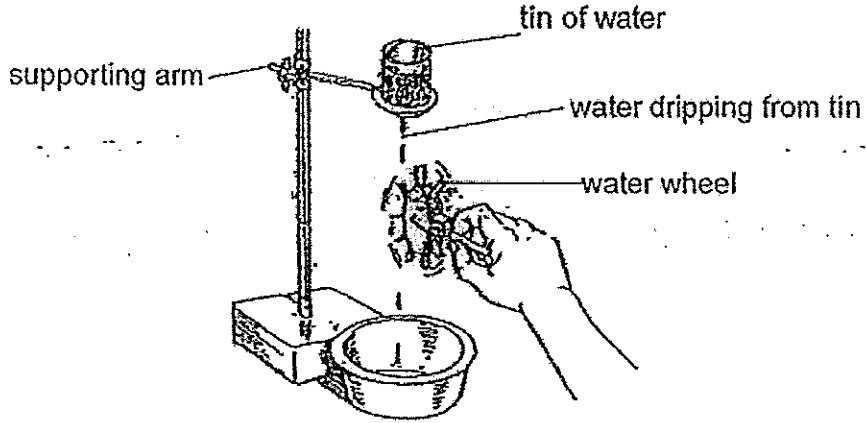
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Question 37 is continued on page 8

(c) Draw a line graph to show the change in potential energy as the pendulum bob moves from position A to position C. (1m)



38. Si Xin set up an experiment as shown below.



(a) Si Xin observed that the water wheel turned when water dripped from the tin. Explain how this happened. (1m)

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Using the same set-up, Si Xin poured different amounts of water into the tin and recorded her observations in the table below.

Amount of water(ml)	<i>number</i> Speed of turns per second
50	8
100	8
200	8

(b) Why did the number of turns remain the same even though the amount of water was changed? (1m)

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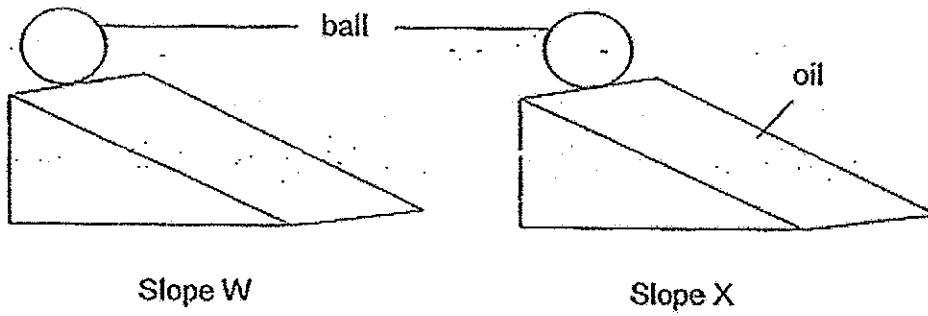
(c) Suggest two ways to make the water wheel turn faster. (2m)

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39. Jim prepared two similar slopes of the same size and material, W and X, as shown in the diagram below. He wanted to find out if oil will reduce friction.



- (a) Which slope is the control set-up? (1m)

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- (b) Why is there a need to have a control set up? (1m)

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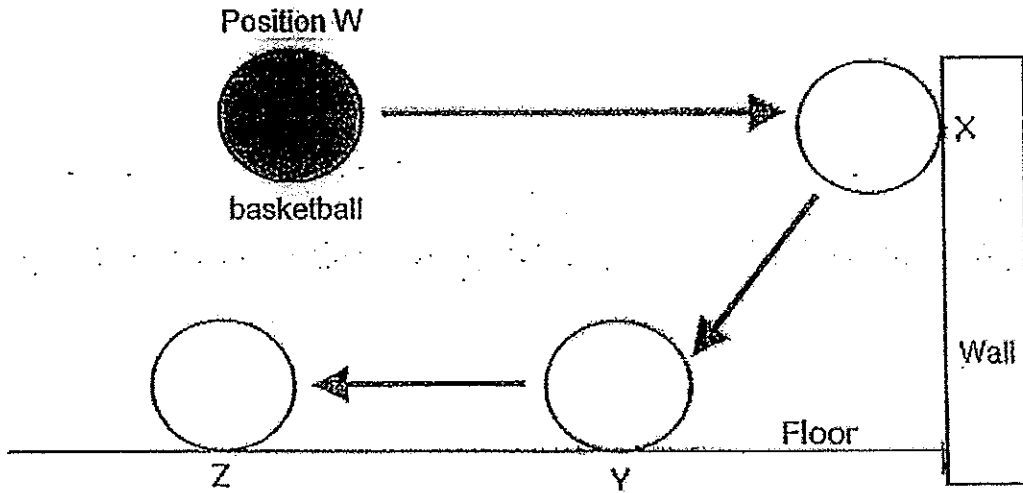
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- (c) What observation would Jim make in the above experiment? (1m)

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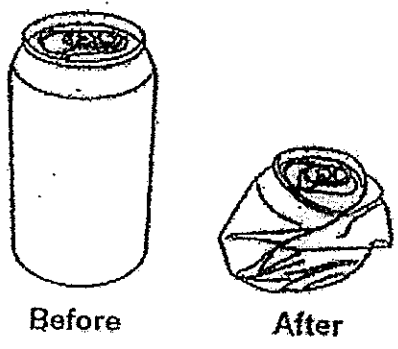
40. Study the diagram below.



When Ethan threw a basketball from position W against the wall, it hit the wall at position X and bounced off and landed on the floor at position Y. It then rolled along the floor and finally stopped at position Z.

- (a) What was the force acting on the basketball as it moved from position X to Y? (1m)
- 
- (b) Mark an 'A' on the floor in the above diagram to show where the ball might land if Ethan had thrown the ball with a greater force from position W. (1m)

41. The diagram below shows an empty aluminium can before and after it was crushed.



..... (a) .. What force is exerted on the can to cause the change? ..  
Put a tick in the correct box. (1m)

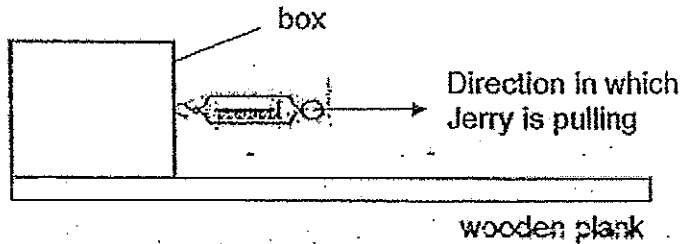
<input type="checkbox"/>	Pull	<input type="checkbox"/>	Push
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(b) Name the effect of the force due to the force exerted on the can. (1m)

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42. The diagram below shows a box resting on a wooden plank.



(a) Jerry pulled the box to the right. He finds it difficult to do so because there is a force opposing the motion of the box. Draw and label an arrow in the picture above to show the opposing force and name the force. (1m)

He wanted to investigate if the material of the box affects the amount of force needed to move it.

(b) What are two variables that should remain the same for the investigation? (2m)

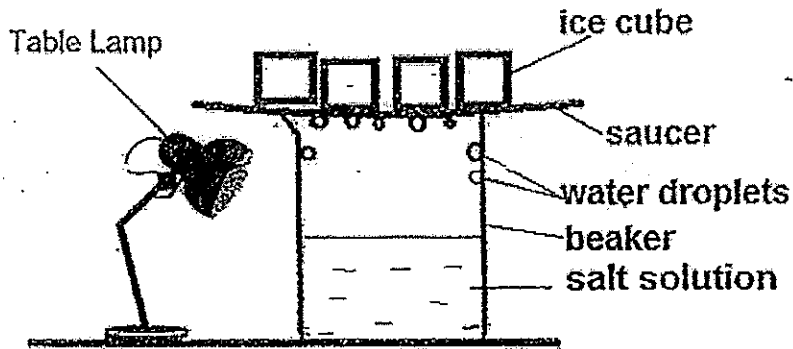
(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(c) Jerry then applied some lubricant on the wooden plank and pulled the box again. He realised that it was now easier to pull the box. Why is that so? (1m)

\_\_\_\_\_  
\_\_\_\_\_

43. The diagram below shows a set-up to represent the water cycle.



(a) In the set-up above, what do the following parts represent in the water cycle? (2m)

(i) Salt solution : \_\_\_\_\_

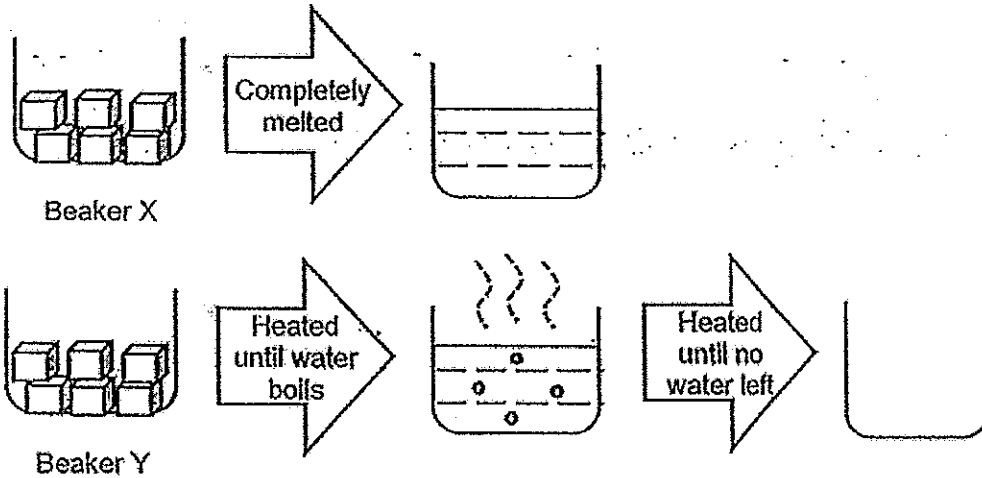
(ii) Table Lamp : \_\_\_\_\_

(b) The salt solution was heated over fire for ten minutes. After a while, more water droplets could be observed inside the beaker. Why is this so? (1m)

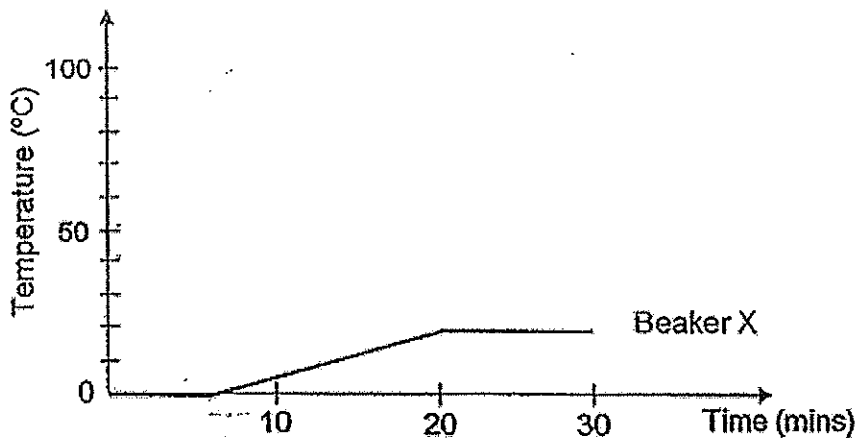
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44. Siti wanted to investigate how the amount of heat gained would affect the state of water. She prepared two beakers, X and Y. She placed an equal number of ice cubes in each beaker. She left the ice cubes in Beaker X to melt at room temperature and Beaker Y on a stove until it boiled after 20 minutes. She continued to heat the water until there was no more water left at the 30<sup>th</sup> minute.



The graph below shows the temperature of the contents in Beaker X over time.



- (a) In the graph above, draw the line to show the temperature change of the water in Beaker Y over 30 minutes. (1m)
- (b) Based on the graph for Beaker X, what was the room temperature? Give a reason for your answer. (2m)

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End of Paper

**EXAM PAPER 2015**

**SCHOOL : ROSYTH**

**SUBJECT : P6 SCIENCE**

**TERM : CA1**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	4	4	2	2	2	2	4	2	2
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	4	4	4	2	4	4	1	2	3
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
3	3	3	2	1	1	2	4	4	4

31)a)Plane A: explosive action      Plant B: by water

b)A: pod-like      B: fibrous husk

32)a)fertilization.

b)It is the male sex cell which contains genetic information and it has to fertilise with the egg cell.

c)It uses its fall to propel itself forward to meet the egg cell.

38)a) Water falling from height has potential energy and is converted to kinetic energy causing the wheel to turn.

b) The hole in the tin remained the same and it did not affect the number of turns per second.

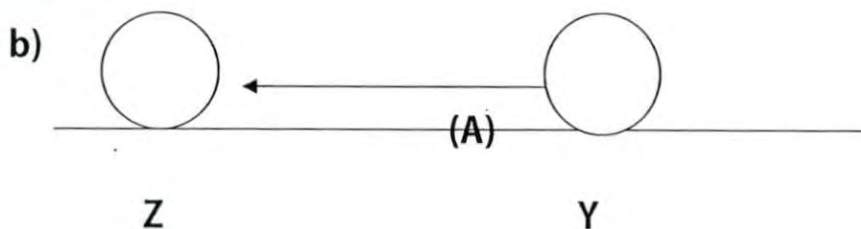
c) Increase the distance between the tin of water and the water wheel. Increase the size of the hole.

39)a) Slope W.

b) To ensure/prove that the presence of oil is the only changed variable that will affect time taken for the ball to reach the ground.

c) The ball rolling down slope X would reach the end faster than the ball rolling down slope W.

40)a) Gravity.



41)a) Push

b) It will cause a change in shape and size.

42)a) Frictional force

b) i) Mass of the box

ii) Material of the plank

c) Lubricant reduces friction between the wooden plank and the box.