METHODIST GIRLS' SCHOOL

Founded in 1887

SEMESTRAL ASSESSMENT 1 2015
PRIMARY 6
SCIENCE

BOOKLET A2

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

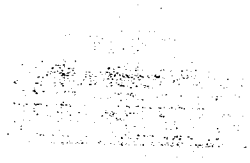
INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name:_____( )

Class: Primary 6._____

Date : 14 May 2015

This booklet consists of 14 printed pages including this page.



For each question from 16 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 on the Optical Answer Sheet (OAS). [30 marks]

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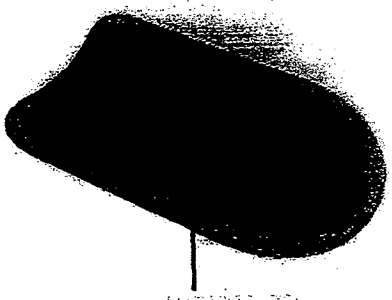
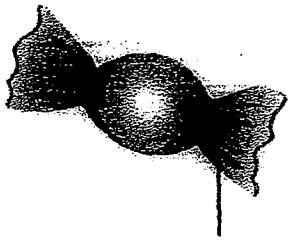
16. The diagram below shows a clock, a swimming board and a candy wrapper made of different types of plastic.

clock cover



swimming board



candy wrapper

What is the main property of each type of plastic that makes it suitable for making the three objects?

	clock cover	**swimming board**	**candy wrapper**
(1)	transparent	flexible	strong
(2)	durable	hard	transparent
(3)	able to float	waterproof	flexible
(4)	transparent	able to float	flexible

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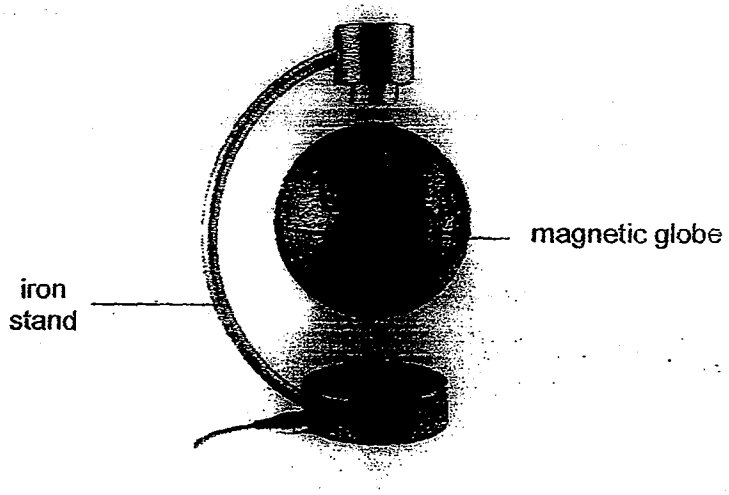
17. The diagram below shows a magnetic globe which is suspended in the air.



Which one of the following statements best explains why the globe can remain suspended as shown?

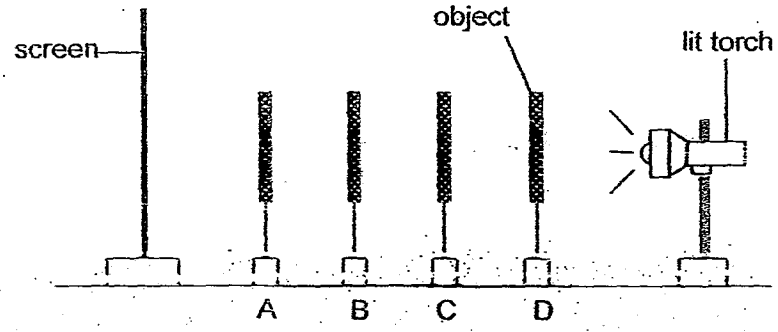
(1) There is no gravitational force acting on the globe.

(2) The magnets in the globe attracted the iron parts of the stand.

(3) There is magnetic repulsion between the iron stand and the magnetic globe.

(4) There is no frictional force between the magnetic globe and the iron stand.

18. Study the experimental set-up below.



At which position should the rectangular object be placed, such that the length of the shadow formed on the screen is the longest?

(1) A

(2) B

(3) C

(4) D

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19. The table below shows the states of three substances W, X and Y at different temperatures.

Substance	State of substance		
	20°C	70° C	120°C
W	solid	solid	solid
X	liquid	gas	gas
Y	solid	liquid	gas

Which one of the following statements is correct?

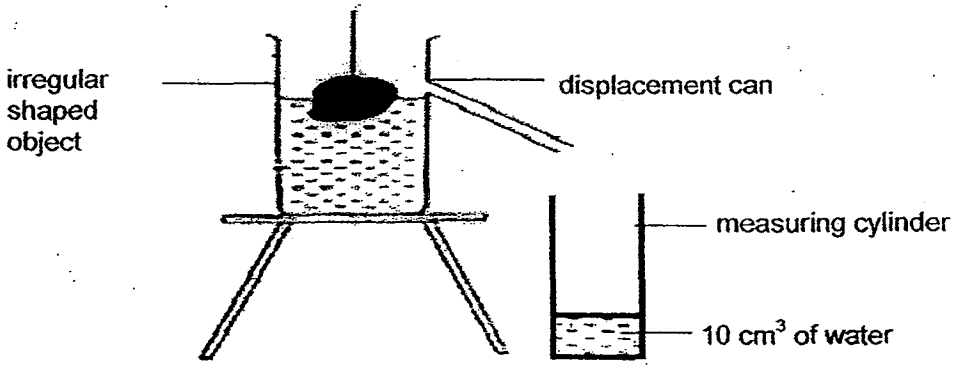
(1) Substance W has the highest melting point.

(2) The freezing point for Substance Y is 45°C.

(3) The boiling point for Substance Y is between 20°C to 70°C.

(4) A change in state for Substance X occurred between 70°C to 120°C.

20. Danny conducted the following experiment by placing an irregular shaped object into a displacement can. It was partially submerged in water and 10cm^3 of water was displaced in the measuring cylinder.



Based on the above experiment, which one of the following statements is correct?

(1) The object has an indefinite mass.

(2) The volume of the object is 10cm^3.

(3) The object has an indefinite volume.

(4) The volume of the object is more than 10cm^3.

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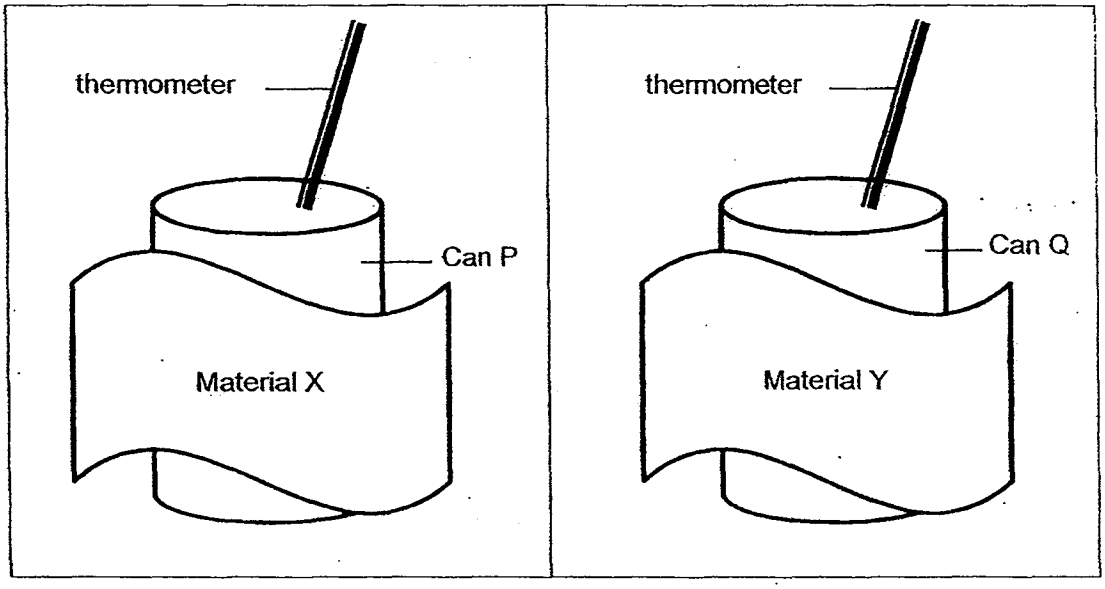
21. Mrs Siva filled two identical aluminum cans, P and Q, with 100cm^3 of water at 85°C. She then wrapped a strip of Material X around Can P and a different strip of Material Y around Can Q. Both materials have the same thickness. The cans are placed in the room for 20 minutes.



Mrs Siva then tabulated the results as shown below.

Time (min)	Temperature of water in the can (°C)	
	Can P	Can Q
0	85	85
5	80	79
10	77	75
15	74	71
20	72	68

Based on the results, which of the following statements is/are correct?

A: The rate of heat gain in both cans is not constant.

B: Material X is a better conductor of heat than Material Y.

C: Material Y is a better conductor of heat than Material X.

D: The drop in temperature for Can Q is more than Can P.

(1) C only

(2) A and C only

(3) B and D only

(4) C and D only

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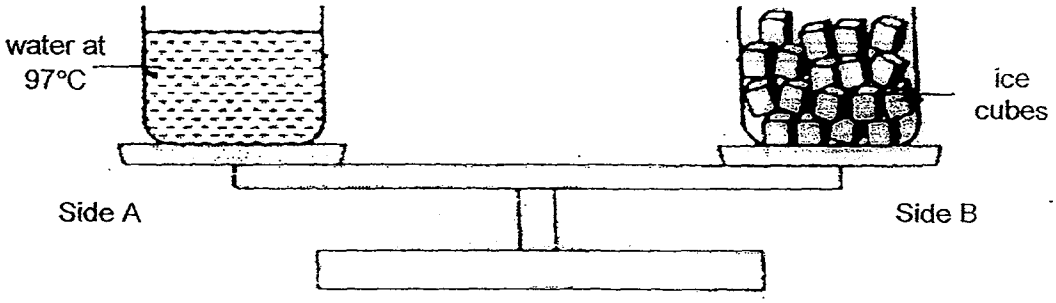
22. Janice prepared the following set up as shown. The two beakers used in the experiment are identical. At the beginning of the experiment, both sides are balanced. The set-up was then placed in the room for 30 minutes.



Which one of the observations would Janice make?

(1) The balance on side A will tilt downwards as there is more heat in the beaker.

(2) The balance on side A will tilt downwards as some of the water in the beaker evaporated.

(3) The balance on side B will tilt downwards as warm water vapour condensed on the outer surface of the beaker.

(4) The balance will not move and remain balanced as the amount of mass on each side remains the same.

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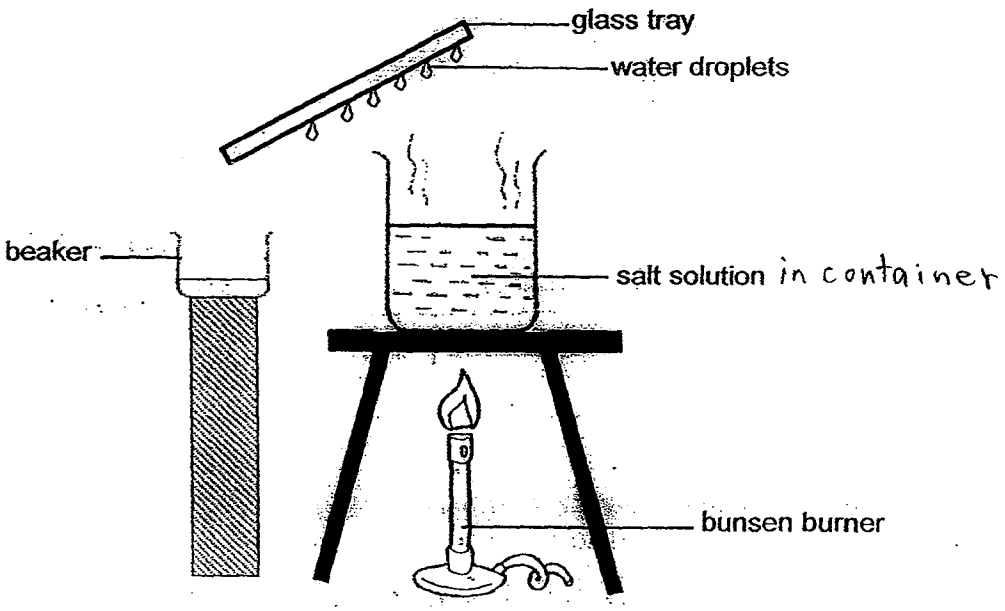
23. Study the following set-up.



The salt solution was left to boil for 20 minutes, after which the bunsen burner was switched off. Some water droplets formed on the glass tray and slid down into the beaker. Four pupils then made some statements based on the experiment.

Ali :	The water collected on the glass tray is salty.
Brandon:	Only condensation is taking place during this process.
Cindy:	The rate of condensation will be faster after 20 minutes.
Darren:	The salt solution in the ~~beaker~~ container will get saltier after 20 minutes

Whose statement/s is/are correct?

(1) Ali only

(2) Darren only

(3) Cindy and Darren only

(4) Brandon, Cindy and Darren only

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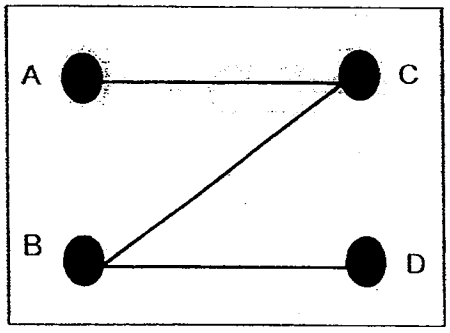
24. The diagram below shows a circuit card with 4 buttons, A, B, C and D.



A circuit tester is connected to two buttons at a time. The results are recorded below.

Paper clip tested	Bulb of circuit tester
A and B	unlit
A and C	lit
B and C	unlit
B and D	unlit
C and D	unlit

Which of the following buttons are definitely made of an electrical insulator?

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

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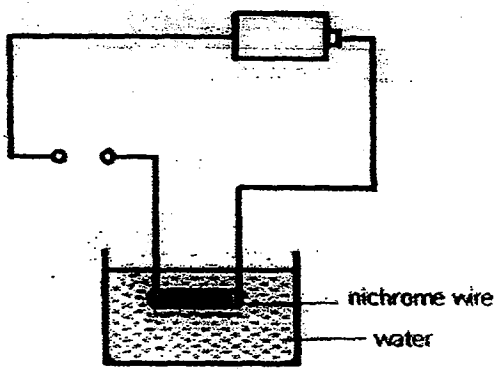
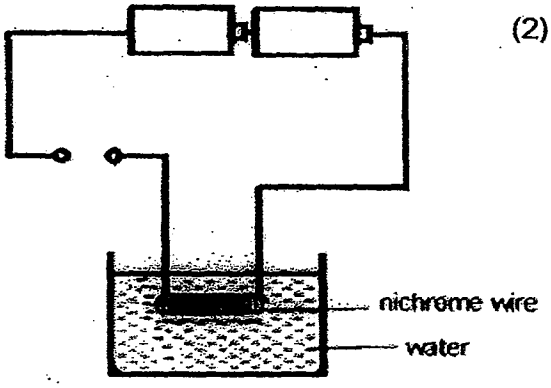
25. Devi set up the experiment as shown below. After some time, she observed that the water in the beaker starts to boil.

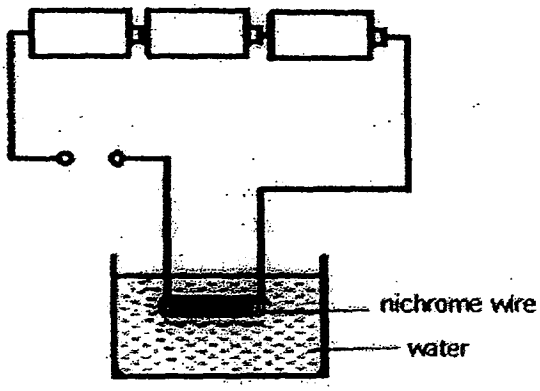


If Devi wanted the water to boil in ~~a shorter~~ the shortest period of time, which one of the following circuits should she choose?

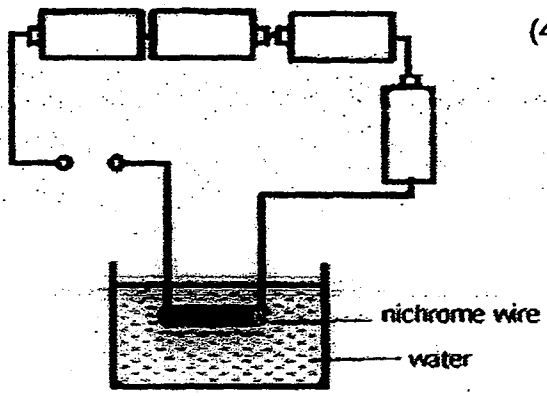
(1)



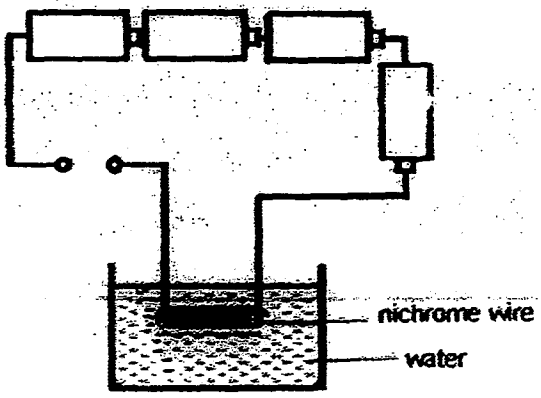
(2)



(3)



(4)



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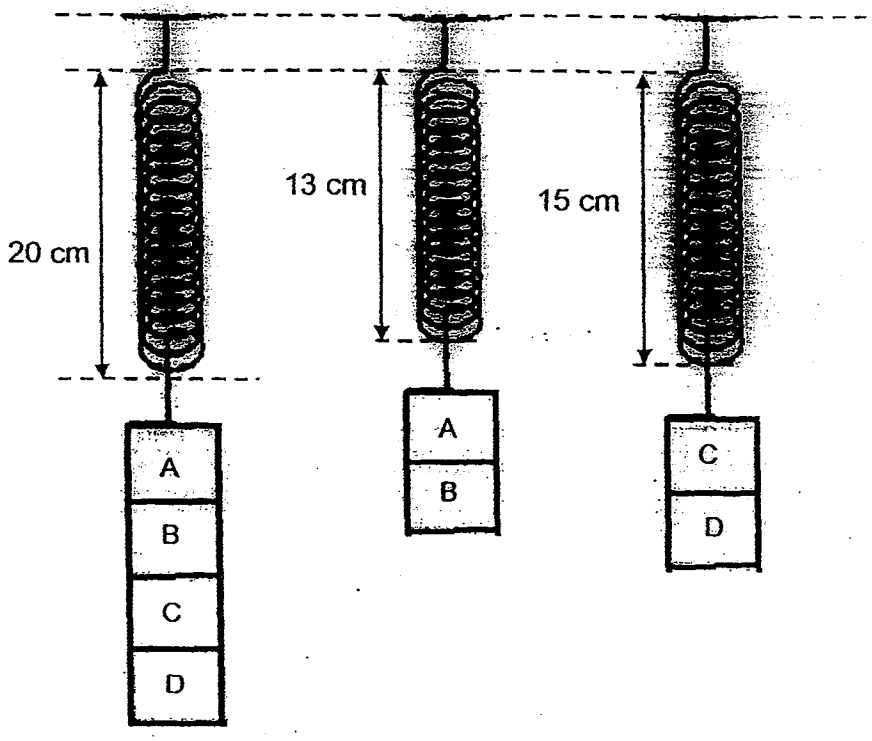
26. The diagram below shows the same spring with different amount of weights A, B, C and D hanging from it.



Based on the results shown in the diagram, what is the original length of the spring?

(1) 7 cm

(2) 8 cm

(3) 9 cm

(4) 10 cm

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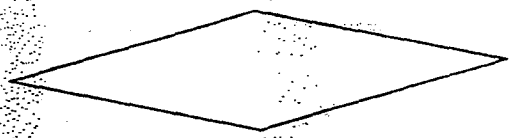
27. Jamie carried out an investigation with two identical sheets of paper, A and B. Paper A was crushed into a ball while Paper B was not crushed as shown.

Paper A



Paper B

In an enclosed room with the same room conditions, Jamie dropped Paper A and B from the same height. She observed that Paper A reached the ground faster than Paper B.

Which of the following is/are the possible explanation(s) for Jamie's observation?

W: There is no gravitational force acting on Paper A.

X: More gravitational force is acting on Paper B than Paper A.

Y: There is less friction between Paper A and the air compared to Paper B.

Z: There is less friction between Paper B and the air compared to Paper A.

(1) Y only

(2) X and Z only

(3) W and Y only

(4) W and Z only

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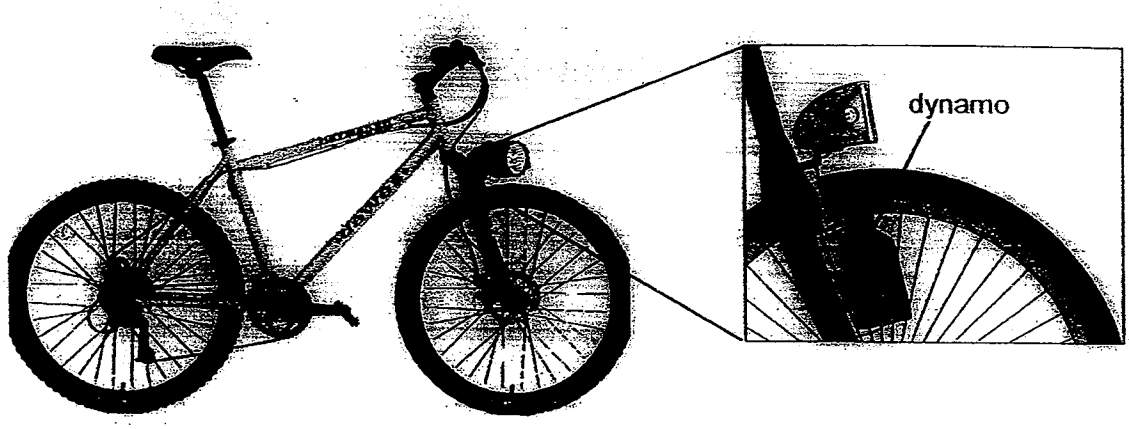
28. The following diagram shows a bicycle which was fixed with a dynamo. A dynamo is a device which converts energy and works like an electrical generator. As a cyclist pedals the bicycle, the lamp in front will light up.



Starting from the energy needed by the cyclist to pedal, which of the following shows the energy conversion correctly?

(1) potential energy → kinetic energy → heat energy→ light energy

(2) kinetic energy → light energy → electrical energy → heat energy

(3) potential energy → kinetic energy → electrical energy → light energy

(4) kinetic energy → Potential energy → heat energy → light energy

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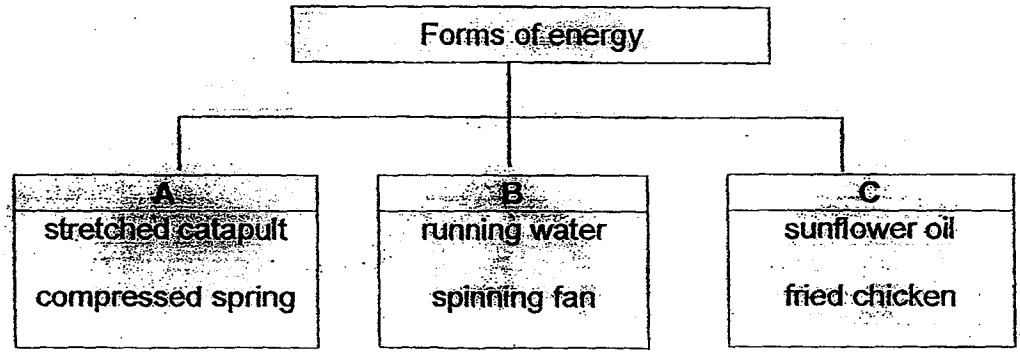
29. Study the following classification chart.



Which one of the following correctly represents the headings A, B and C in the chart above?

	A	B	C
(1)	chemical potential energy	kinetic energy	heat energy
(2)	elastic spring energy	heat energy	heat energy
(3)	elastic potential energy	kinetic energy	chemical potential energy
(4)	elastic potential energy	heat energy	chemical potential energy

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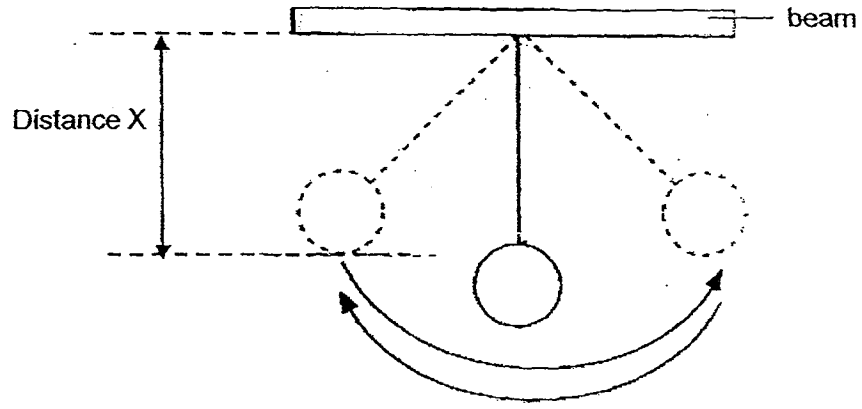
30. Hui Ling carried out an experiment as shown below to investigate the amount of energy a pendulum bob has as it swung.



She changed some variables in each of the set-up as shown in the table below and observed the movement of the pendulum bob in each of the set-up. Distance X was measured from the beam to the height at which the pendulum bob was released.

Set-up	Mass of pendulum bob (g)	Distance X (cm)
A	20	8
B	20	6
C	40	4
D	40	3

In which one of the following set-ups would the pendulum bob have the greatest amount of energy?

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

End of Booklet A2

METHODIST GIRLS' SCHOOL

Founded in 1887

SEMESTRAL ASSESSMENT 1 2015
PRIMARY 6
SCIENCE

BOOKLET B1

Total Time for Booklets A and 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.

Name: _____ ( )

Class: Primary 6._____

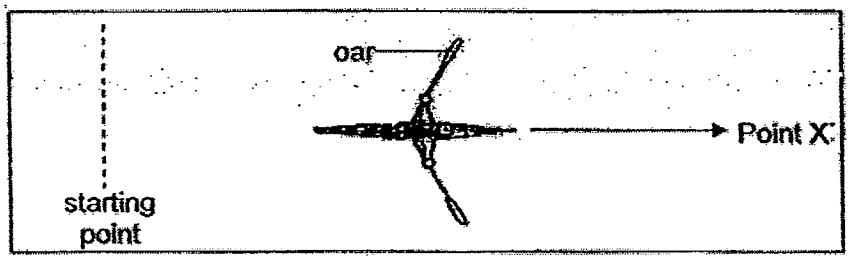
Date : 14 May 2015

This booklet consists of 10 printed pages including this page.

For questions 31 to 37, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[20 marks]

31. Samy placed a battery operated toy row-boat in a tray filled with water. He recorded the time taken for the toy row-boat to reach Point X, from the starting point.



He then replaced the oars with a pair of longer oars.
He repeated the experiment and recorded the data as shown below.

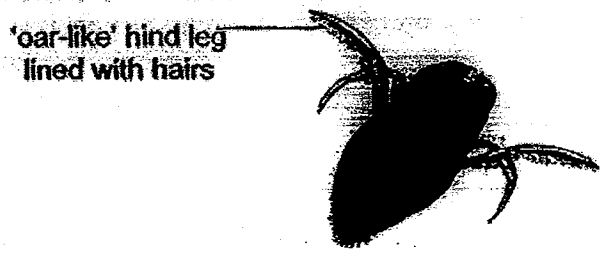
Length of oar (cm)	Time taken to reach point X (s)
10	18
22	31
34	43

(a) What was Samy trying to find out? [1]

(b) What is the relationship between the length of the oar and the speed of the toy row-boat? [1]

2

The picture below shows a water boatman.

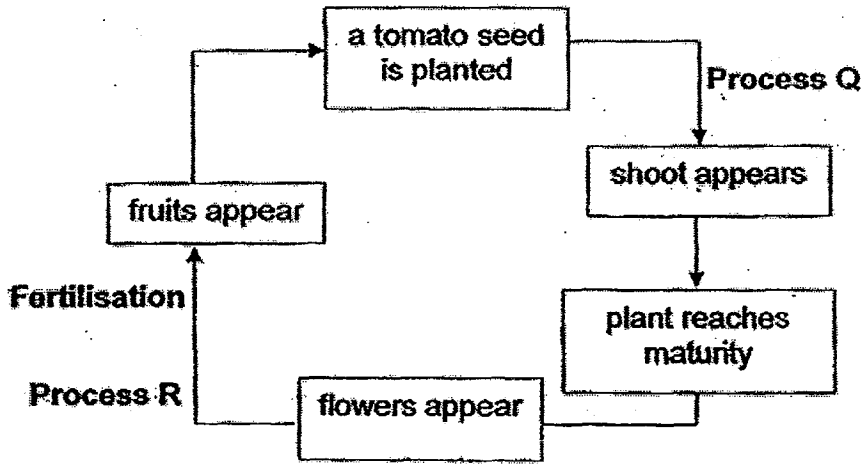


(c) What structure do the water boatman and the toy row-boat have in common? How does this structure help the water boatman adapt itself to its habitat? [1]

_____

_____

32. Study the diagram shown below.



(a) Identify the two processes, in the diagram above. [1]

(i) Process Q: _____

(ii) Process R: _____

2

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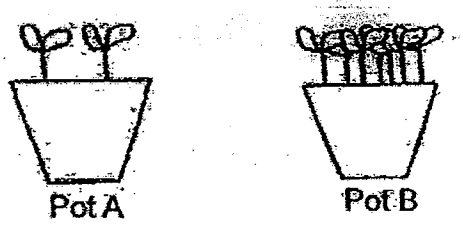
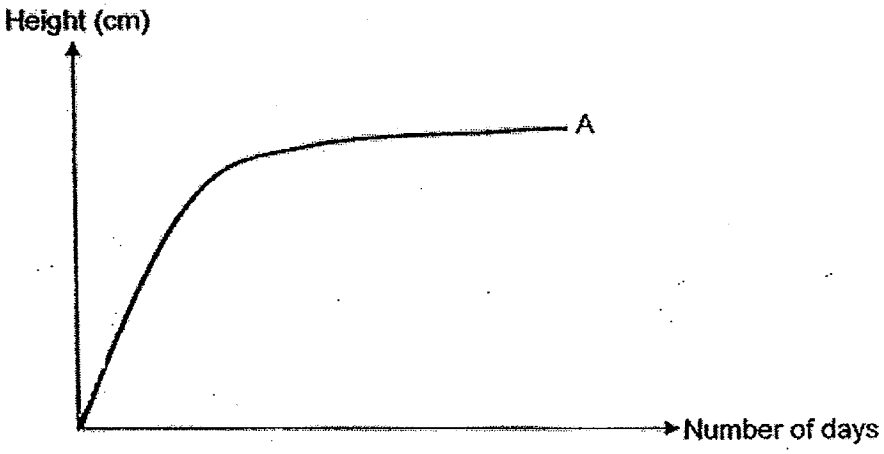
Some seedlings were planted in two identical pots, A and B. Both pots had the same amount of soil in them and the seedlings, were given the same amount of water daily and placed in the garden as shown below.



The average height of the plants in Pot A and Pot B were recorded once every two days.

The graph below shows the average height of the plants in Pot A.



(b) On the graph above,
(i) **draw a line** to represent the average height of the plants in Pot B,
(ii) **label** the line "B". [1]

(c) Give a reason for your drawing in (b). [1]

_____

_____

2

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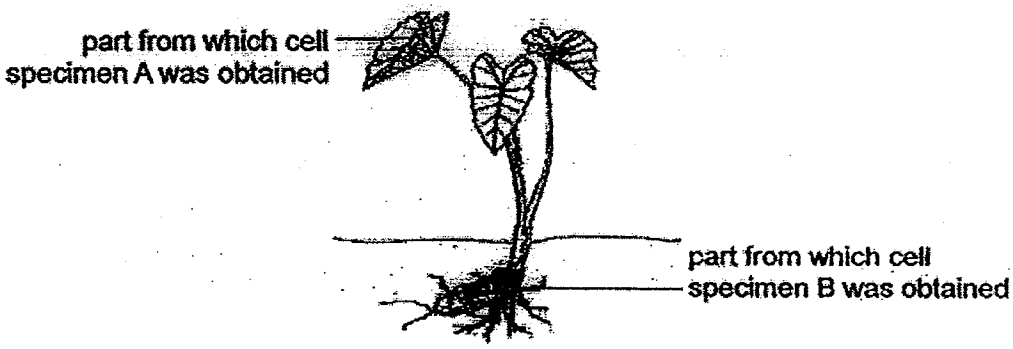
33. Janet was instructed by her teacher to prepare two cell specimens from a yam plant. The diagram below shows the parts of the yam plant where specimens A and B were obtained from.



Janet prepared both cell specimens A and B on two separate slides.

(a) In the spaces below, **draw and label** the parts of cell specimen A that Janet would be able to observe under a microscope. [2]

Specimen A

(b) Name a certain part of the cell that can only be found in cell specimen A but not in cell specimen B. What is the function of this part? [1]

_____

_____

3

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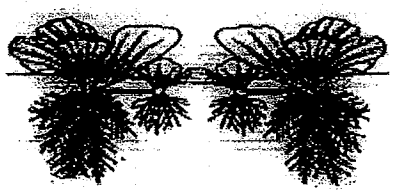
34. The picture below shows some water lettuce.



(a) How does the ability to float on water benefit the water lettuce? [1]

_____

_____

(b) Describe the effects on the submerged plants and aquatic animals if the water lettuce reproduce rapidly and covers the whole pond. [2]

Effect on submerged plants: _____

_____

_____

Effect on aquatic animals: _____

_____

_____

3

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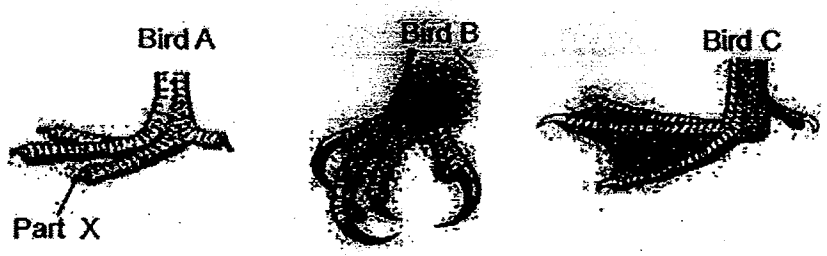
35. The diagram below shows the feet of three different birds A, B and C.



(a) Based on the picture above, how does Bird A use Part X of its foot to obtain food? [1]

(b) Which of the birds, A, B or C is likely to be a ~~predator~~ carnivore? Give a reason for your answer. [1]

Bird: _____

Reason: _____

(c) What is the likely habitat of Bird C? Give a reason for your answer. [1]

3

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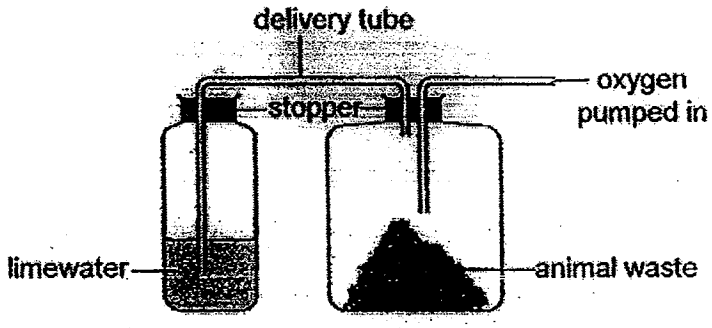
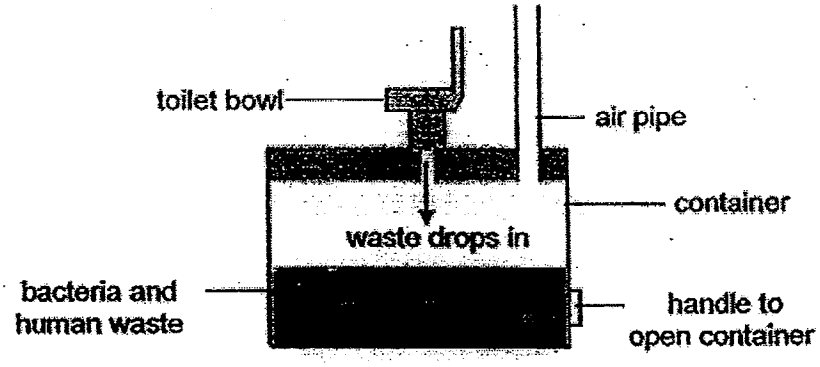
36. Susie prepared the set up as shown in the diagram below.



She introduced some bacteria into the set up and left the animal waste to interact with the bacteria for a month.

(a) What happened to the limewater after a month? Explain your answer clearly. [1]

The diagram below shows an anaerobic toilet.

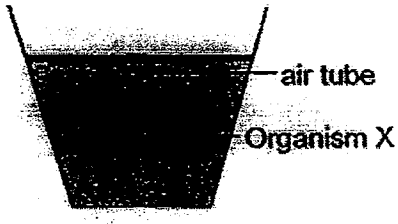


It is a toilet that does not use water for flushing. Instead, human waste from the toilet bowl drops into a container with bacteria.

(b) After some time, the bacteria turned the waste into a soil-like substance. Name the soil-like substance and suggest what it can be used for? [1]

2

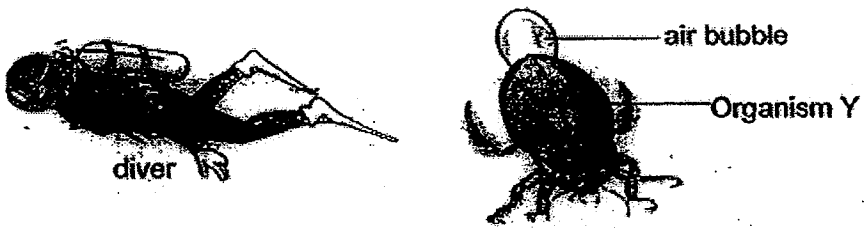
37. The picture below shows an Organism X.



Organism X is an aquatic animal that breathes through its air tube.

(a) Why is Organism X usually found near the surface of the water? [1]

The picture below shows a diver and an Organism ~~X~~ Y.



(b) How is the breathing method of the diver similar to Organism Y? [1]

2

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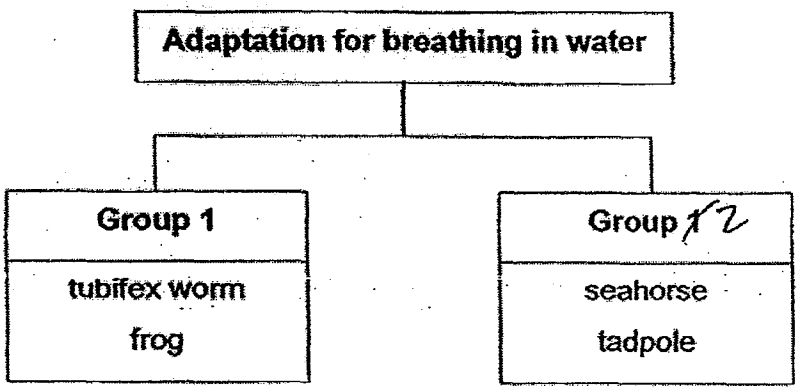
Look at the classification table shown below.



(c) Give suitable headings for Group 1 and Group 2. [1]

(i) Group 1: _____

(ii) Group 2: _____

1

End of Booklet B1

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Founded in 1887

SEMESTRAL ASSESSMENT 2015
PRIMARY 6
SCIENCE

BOOKLET B2

Total Time for Booklets A and 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.

Name: _____ ( )

Class: Primary 6._____

Date : 14 May 2015

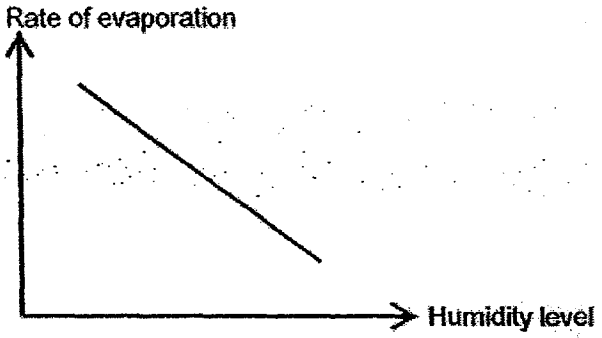
Booklet A1 & A2	60
Booklet B1	20
Booklet B2	20
Total	100
Parent's Signature	

This booklet consists of 11 printed pages including this page.

For questions 38 to 44, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question

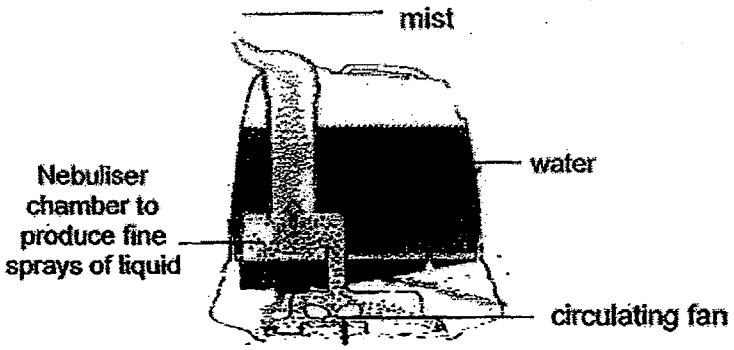
[20 marks]

38. The graph below shows the relationship between the humidity level and the rate of evaporation.



(a) Based on the graph, what is the relationship between the humidity level and the rate of evaporation of water? [1]

(b) The following device shows a humidifier which releases mist in the air.



Auntie Lucy finds that it takes a long time for the water on the floor to dry after mopping the floor. Her son advised her to switch off the humidifier when she mops the living room. Do you agree with him? Explain your answer clearly. [2]

3

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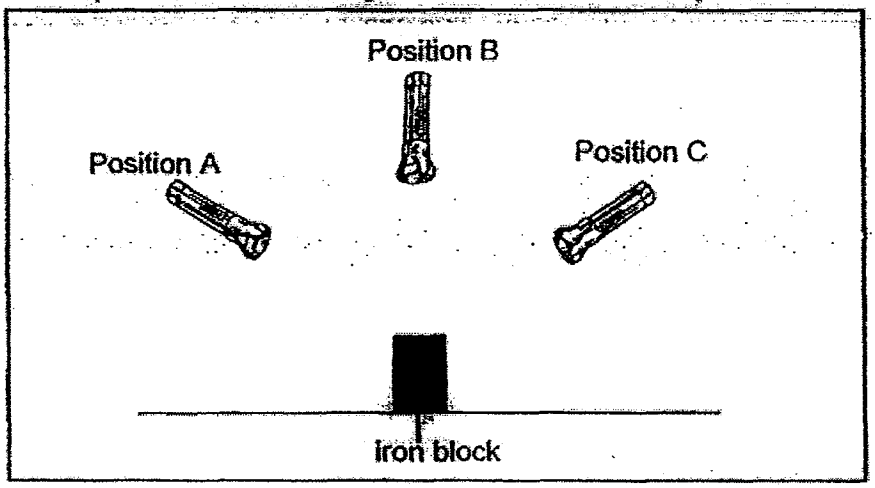
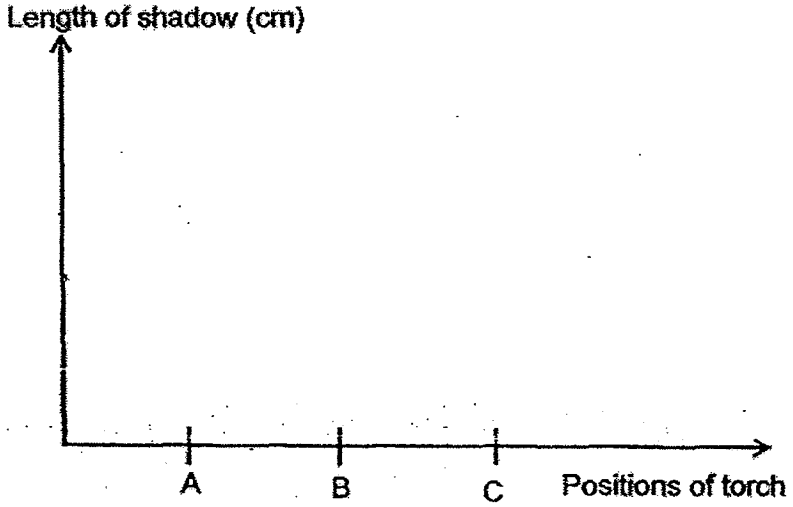
39. Mr Lim conducted the following experiment in a dark room as shown in the diagram below. He placed the torch at 3 different positions but of equal distance from the iron block.

Mr Lim then measured the length of the shadows cast by the iron block.



(a) Why is it necessary for Mr Lim to conduct the experiment in the dark room? [1]

(b) Draw a **line graph** in the space below, showing how the length of the shadow changes according to the different positions of the torch. [1]



(c) What property of light is demonstrated in the above experiment? [1]

3

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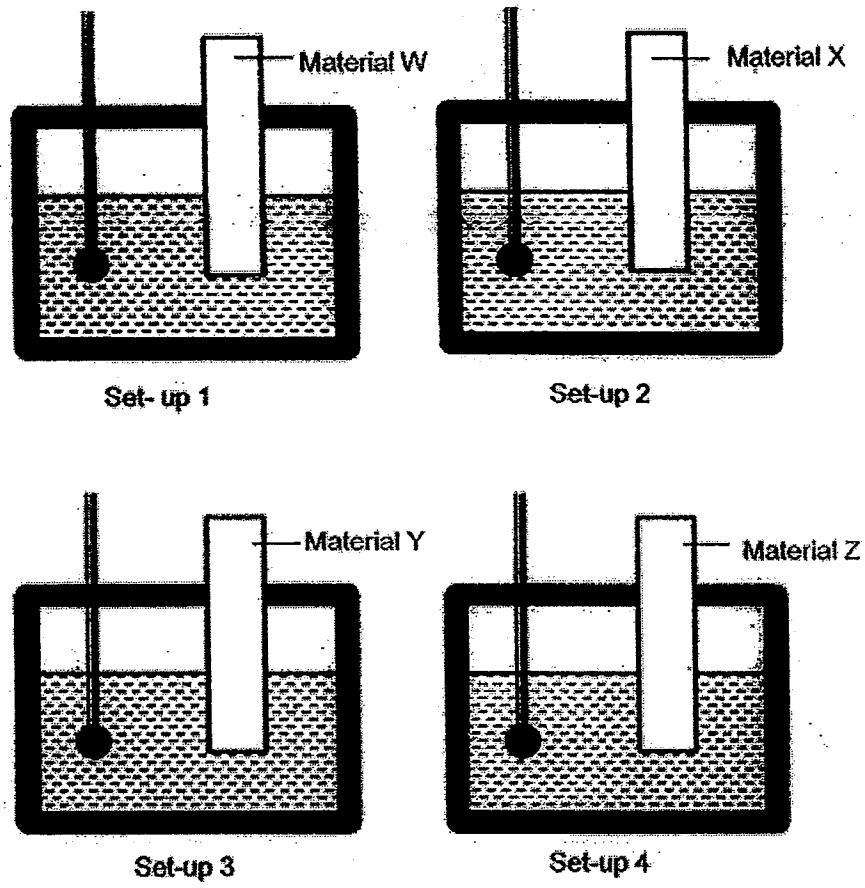
40. Danny wanted to test the heat conductivity of 4 identical rods, made of different materials, W, X Y and Z. He poured water at 3°C into a styrofoam box and inserted a thermometer and a rod. The box was then covered with a lid as shown in the diagram.



Set- up 1 Set-up 2

Set-up 3 Set-up 4

Danny then repeated the experiment and recorded the temperature of the water after 40 minutes.

Set-up	Material	Temperature of water at the start (°C)	Temperature of water after 40 minutes (°C)
1	W	3	20
2	X	3	12
3	Y	3	6
4	Z	3	10

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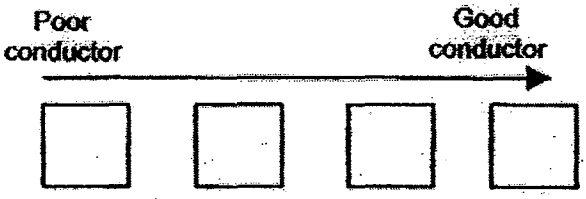
(a) Using the information given in the table, rank the heat conductivity of the materials W, X, Y and Z by filling in the boxes as shown. [1]



(b) Why did the temperature of water in each set-up increase after 40 minutes? [1]

_____

_____

_____

2

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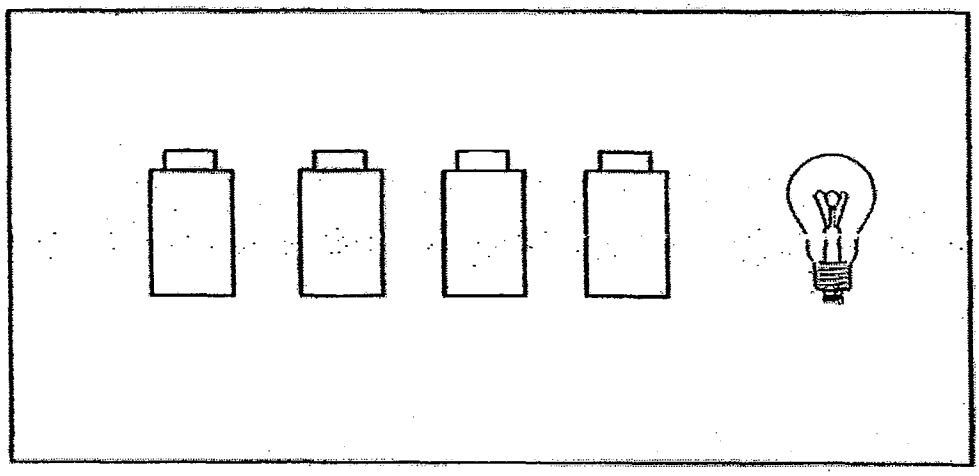
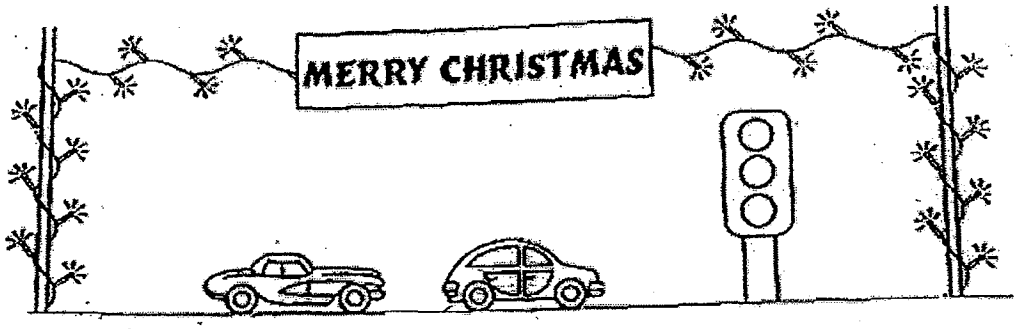
41. The diagram below shows four identical batteries and one bulb.

(a) Draw wires to connect the bulb and the batteries such that the bulb will light up the brightest. [1]



(b) During the Christmas season, some stretches of roads in Singapore will be decorated with lighting.



(i) Are the Christmas lights along the roads arranged in series or parallel? Explain your answer. [2]

_____

_____

_____

3

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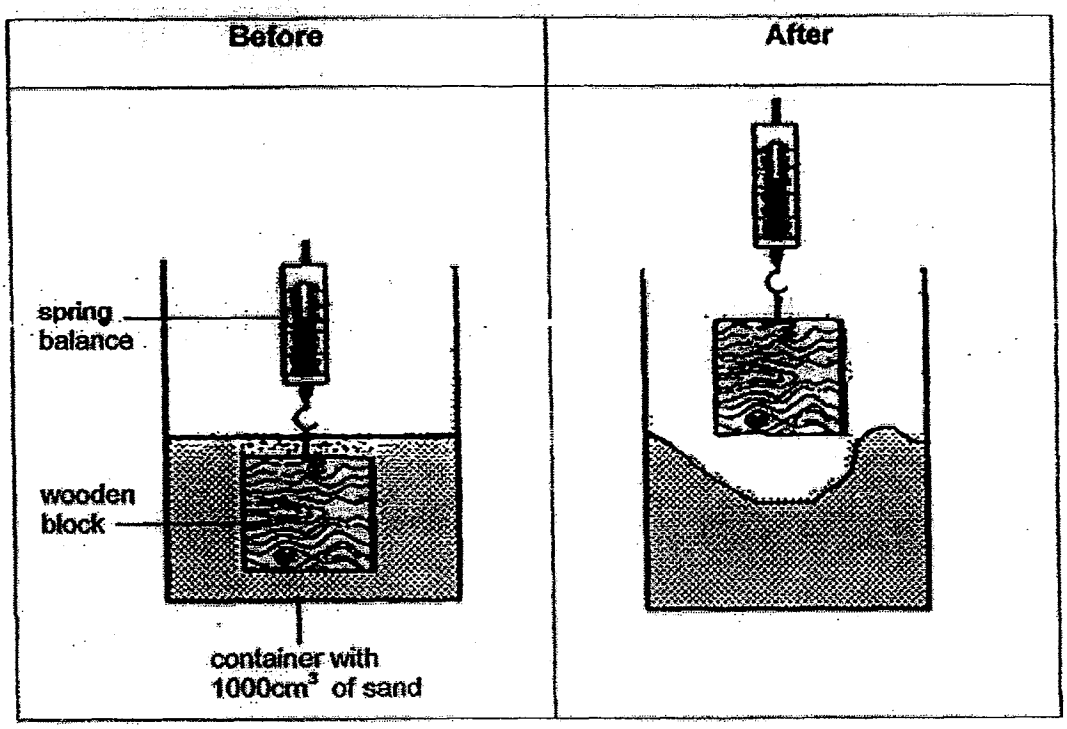
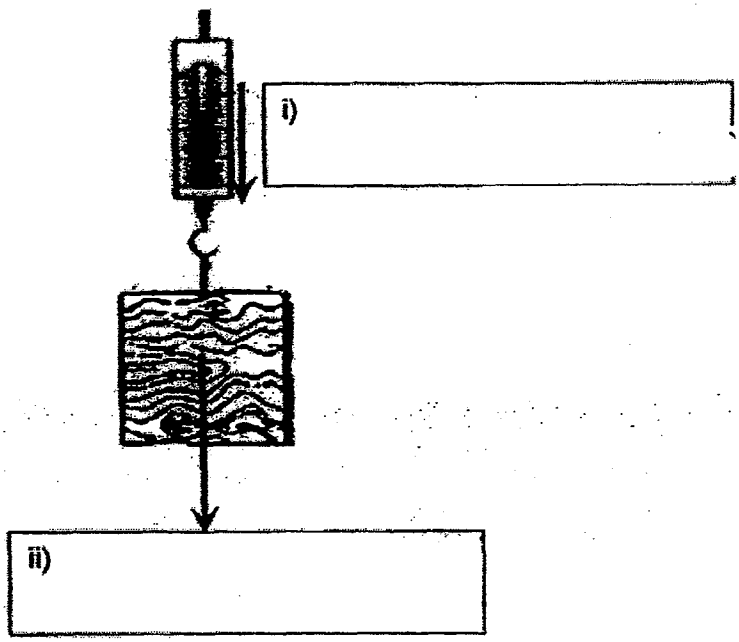
42. Hashim set up the experiment as shown below to measure the amount of force needed to lift a wooden block out of a container of 1000 cm^3 of sand.



(a) Fill in the following boxes to show the types of forces acting in the set up. [1]



1

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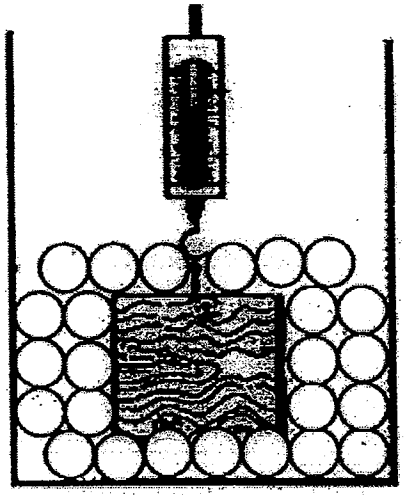
(b) Hashim then removed half of the sand from the container and repeated the experiment again. He found that it was easier to pull the wooden block out of the container of sand and the spring balance showed a smaller reading. Explain clearly why. [1]

The experiment was repeated by replacing the sand with table tennis balls as shown in the diagram below.



(c) How would the results of the experiment change? [1]

2

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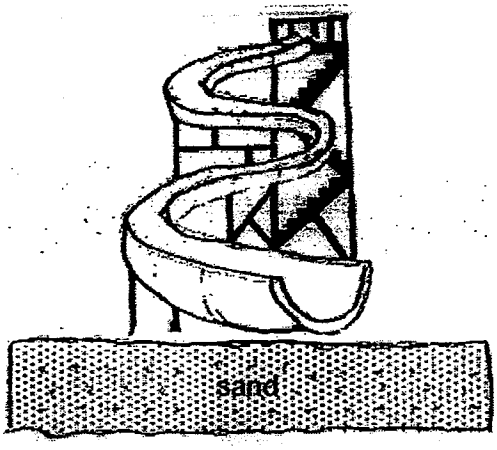
43. Xiao Wei wanted to compare the time taken to slide down two identical slides found in a playground and the swimming pool respectively.

swimming pool slide

water

playground slide



She then recorded the time taken for her to slide down from the top to bottom of each slide in the table below.

Type of slide	Time taken to reach the bottom of the slide (s)		
	1st reading	2nd reading	Average
Swimming pool slide	4.2	4.3	4.1
Playground slide	4.5	4.6	4.5

(a) Fill in the blanks to show the energy conversions when Xiao Wei slid down from the top to the bottom of each slides. [1]

_____ energy → _____ energy + _____ energy
(top of the slide) (on the slide)

(b) Why did Xiao Wei reach the bottom of the swimming pool slide faster? Explain your answer. [1]

_____

_____

(c) What is the purpose of taking more than one reading for each slide? [1]

_____

_____

3

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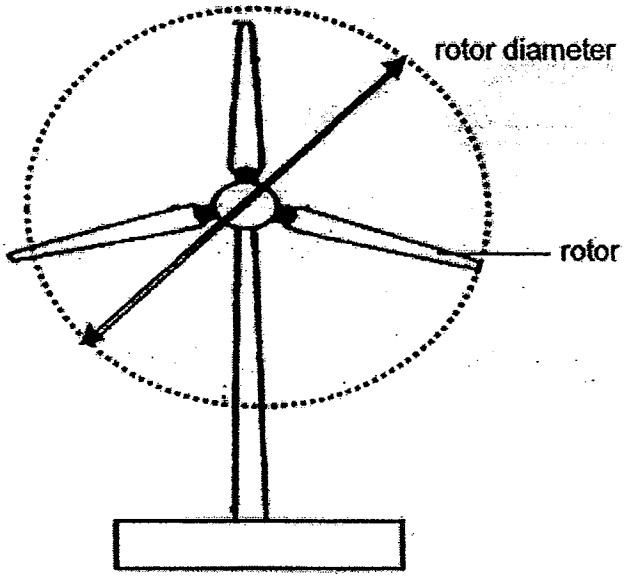
44. The following diagram shows a wind turbine.



Wind turbine A

In order to find out the efficiency of the wind turbines, a company calculated the amount of electricity generated by wind turbines of different diameters under the same weather conditions.

Diameter of wind turbine (m)	Amount of electricity generated (kW)
40	500
45	600
50	700
55	800
60	900
65	1000

(a) State the forms of energy change that takes place in a wind turbine. [1]

_____ energy → _____ energy → _____ energy
(moving air) (rotor blades) (generator)

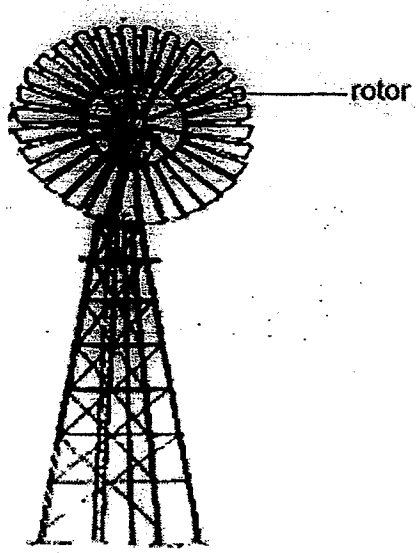
(b) Based on the table, what is the relationship between the diameter of the rotor and the amount of electricity produced? [1]

_____

_____

2

(c) The diagram below shows wind turbine B which has a different design from A. Its diameter is the same as wind turbine A.



Wind turbine B

(i) Compare the design of wind turbine A and wind turbine B. Suggest a reason why wind turbine B generates a smaller amount of electricity than wind turbine A despite having the same diameter. [1]

1

End of Booklet B2

Answer Ke

EXAM PAPER 2015

SCHOOL : MGS

SUBJECT : P6 SCIENCE

TERM : SA1

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

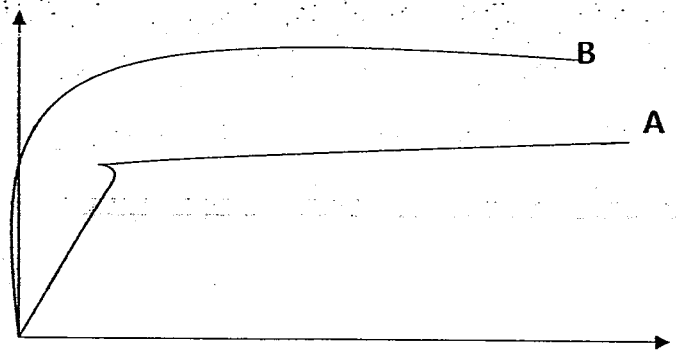
31)a)He was trying to find out whether the length of oar affects the time taken to reach point X.

b)The longer the length of the oar, the slower the speed of the toy row boat.

c)They both have oar legs that help them paddle through the water.

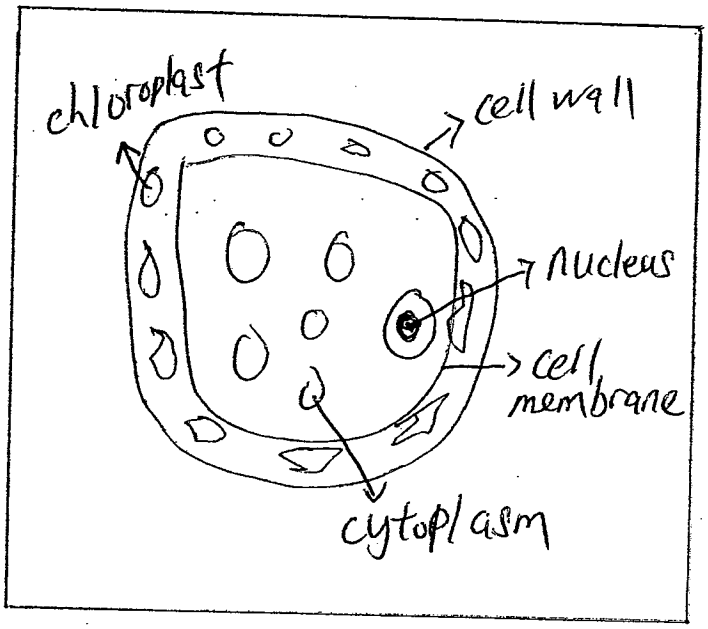
32)a)i)germination ii)pollination

b)i)ii)



32)c)The plants in pot B have to compete for sunlight. Therefore, the plants in pot B will grow taller to reach for sunlight.

33)a)



b)Chloroplast. The plant traps light energy/absorbs/obtain sunlight for photosynthesis.

34a)The ability float on water allows the water to get as much sunlight as possible to carry out photosynthesis.

b)The aquatic animals will not be able to get oxygen if the submerged plants do not get enough light to carry out photosynthesis. Hence, they will die and reduce in number.

35)a)It is used to scratch the ground for its prey.

b)Bird: B

Reason: Bird B has sharp claws which is used to grab its prey.

c)Pond. It has webbed feet which helps the bird to paddle through the water.

36)a)The limewater will turn chalky. The bacteria will carry out respiration which gives out carbon dioxide which makes the limewater chalky.

b)Fertiliser. It can be used for fertilising the soil to server as nutrients for the plants.

37)a)So that the air tube from organism X can stick out from the water to obtain oxygen from the above.

b)The diver gets his oxygen from the oxygen tank white organism Y gets its oxygen form the air bubble. They both carry the oxygen with them when in water.

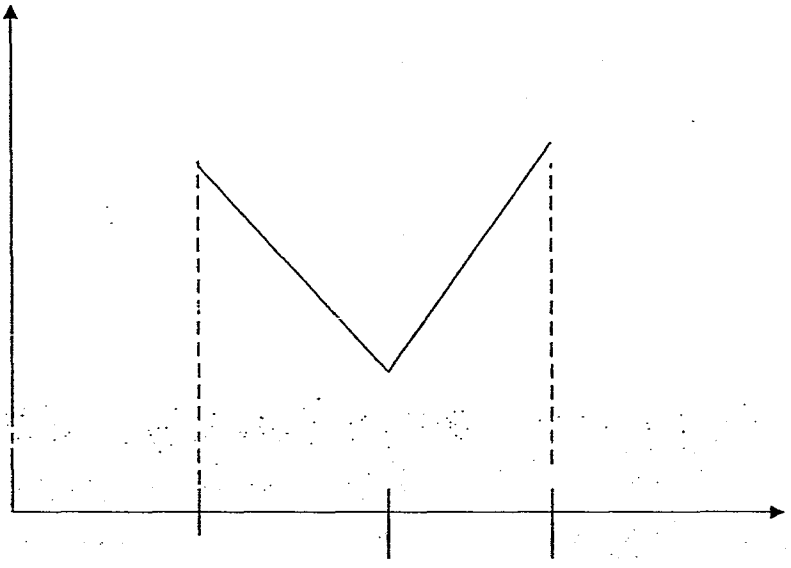
c)i)Breathes through skin. ii)Breathes through the gills.

38)a)The higher the humidity level, the lower the rate of evaporation of water.

b)Yes. When the humidifier is switched off, no mist is released. The humidity level of the living room decreases and increases the evaporation rate of water on the floor.

39)a)So that the light and the shadow would be more visible.

b)

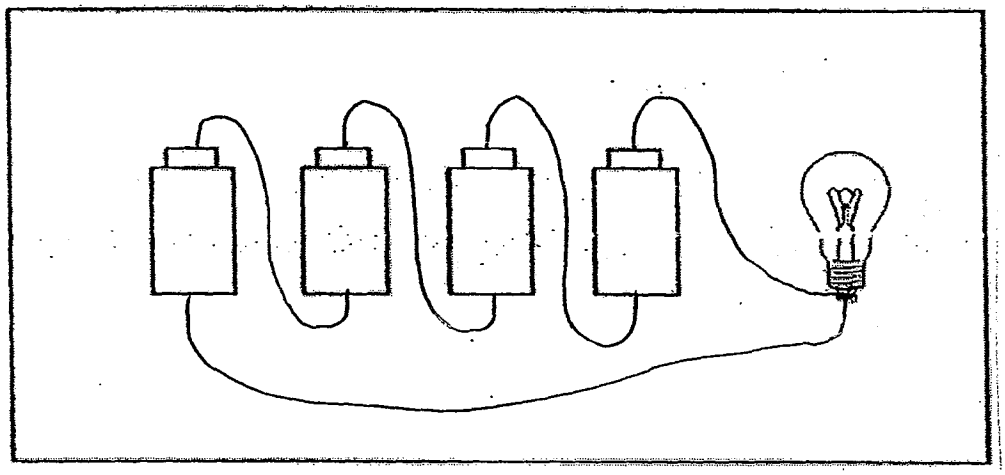


c)When light shines on an opaque object, it creates a shadow.

40)a)Y , Z , X , W

b)The rod conducts heat from the surrounding air and conducts to the water in the box.

41)a)



b)i)Parallel. The Christmas lights on the road needs to be long lasting and bulbs arranged in parallel are longer lasting as even if one bulb blows, the rest of the bulbs will still light up. Therefore Christmas lights on the roads are arranged in parallel.

42)a)i)Elastic-spring force ii)Gravitational force

b)There is less frictional force between the wooden block and sand.

Due to reduced surface of contact, it is easier to pull the block out, lesser amount of force is needed to pull the block out.

c)Less force will be needed to pull the wooden block out.

43)a)Gravitational potential energy→Kinetic energy + Heat energy

b)There will be some water that acts as a lubricant on the swimming pool slide that will reduce friction. Therefore, she will be able to slide down faster.

c)It is to check if the results are reliable.

44)a)Kinetic energy→Kinetic energy→Electrical energy

b)The longer the diameter of the rotor, the more electricity is produced.

c)i)There is more frictional force on the blades as there is a larger surface area so the blades will spins lower and less kinetic energy is converted into electrical energy.