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CHIJ ST. NICHOLAS GIRLS' SCHOOL



PRELIMINARY EXAMINATION

2009

P6 SCIENCE

27 August 2009

(BOOKLET A)

NAME : _____ ()

CLASS : Primary 6 _____

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

30 questions
60 marks

INSTRUCTIONS TO CANDIDATES

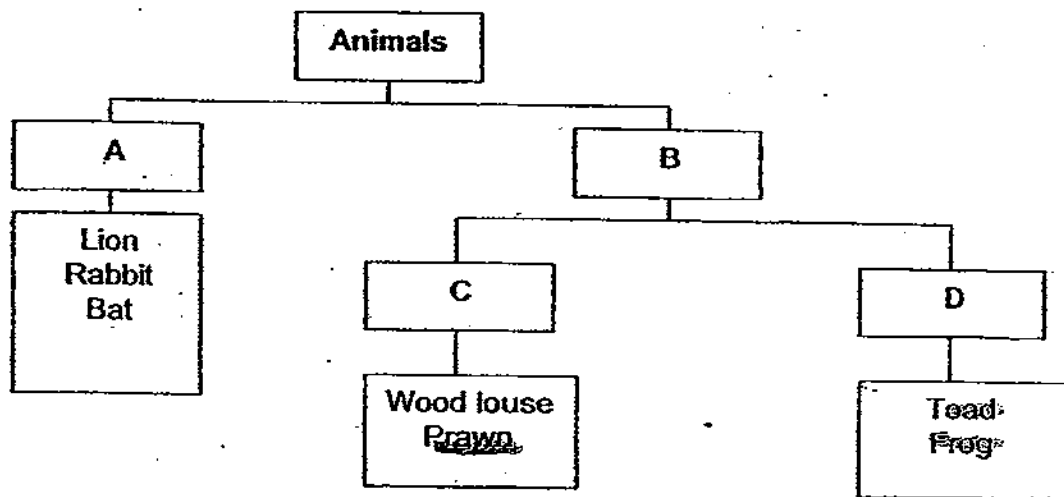
- Do not open this booklet until you are told to do so.
- Follow all instructions carefully.

Answer all questions.

Section A (30 x 2 = 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.

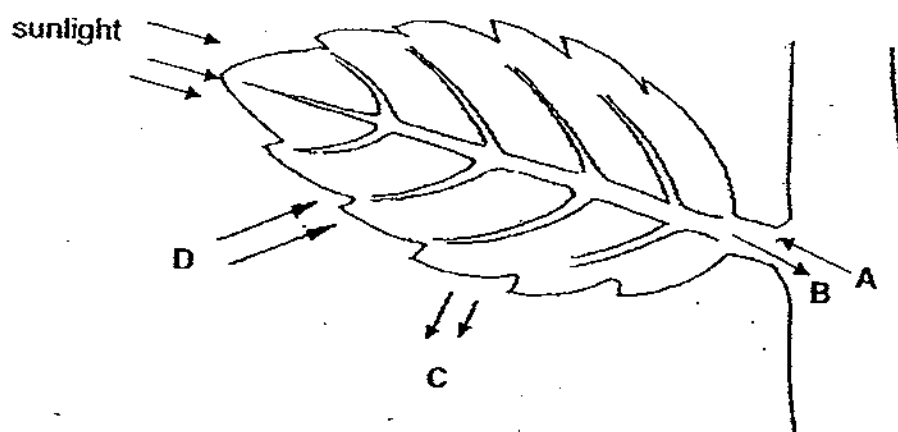
1. Some animals are grouped using the classification chart shown below.



Which one of the following lists shows the correct headings for B, C and D respectively?

	B	C	D
(1)	Have scales	Have fins	Have gills
(2)	Cold Blooded	Breathe through moist skin	Feed on insects
(3)	Do not have hair	Breathe through gills	Breathe through lungs and moist skin
(4)	Warm blooded	Have tails	Have webbed feet

2. The diagram below shows a life process carried out by a green leaf on a plant.



Which one of the following groups of matter correctly represents A, B, C, and D?

	A	B	C	D
(1)	Sugar	Water	Carbon dioxide	Oxygen
(2)	Water	Sugar	Oxygen	Carbon dioxide
(3)	Water	Carbon dioxide	Sugar	Oxygen
(4)	Sugar	Carbon dioxide	Water	Oxygen

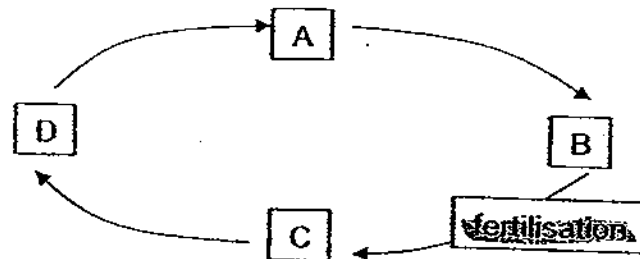
3. Five pupils observed some plant and animal cells under the microscope. They recorded their observations and conclusions in the table below.

Name of pupils	Observation on cell parts seen	Conclusion on type of cell
Alfian	Cytoplasm, nucleus, cell membrane	Animal
Marsha	Nucleus, cell wall, cell membrane, chloroplasts	Plant
Emily	Cell membrane, nucleus, chloroplasts	Animal
Borhan	Cell membrane, cell wall, nucleus	Animal
Nathan	Cell membrane, cell wall, nucleus, cytoplasm	Plant

Which of the pupils made the correct conclusion?

- (1) Alfian, Emily and Borhan
- (2) Alfian, Marsha and Nathan
- (3) Emily, Borhan and Nathan
- (4) Marsha, Emily and Borhan

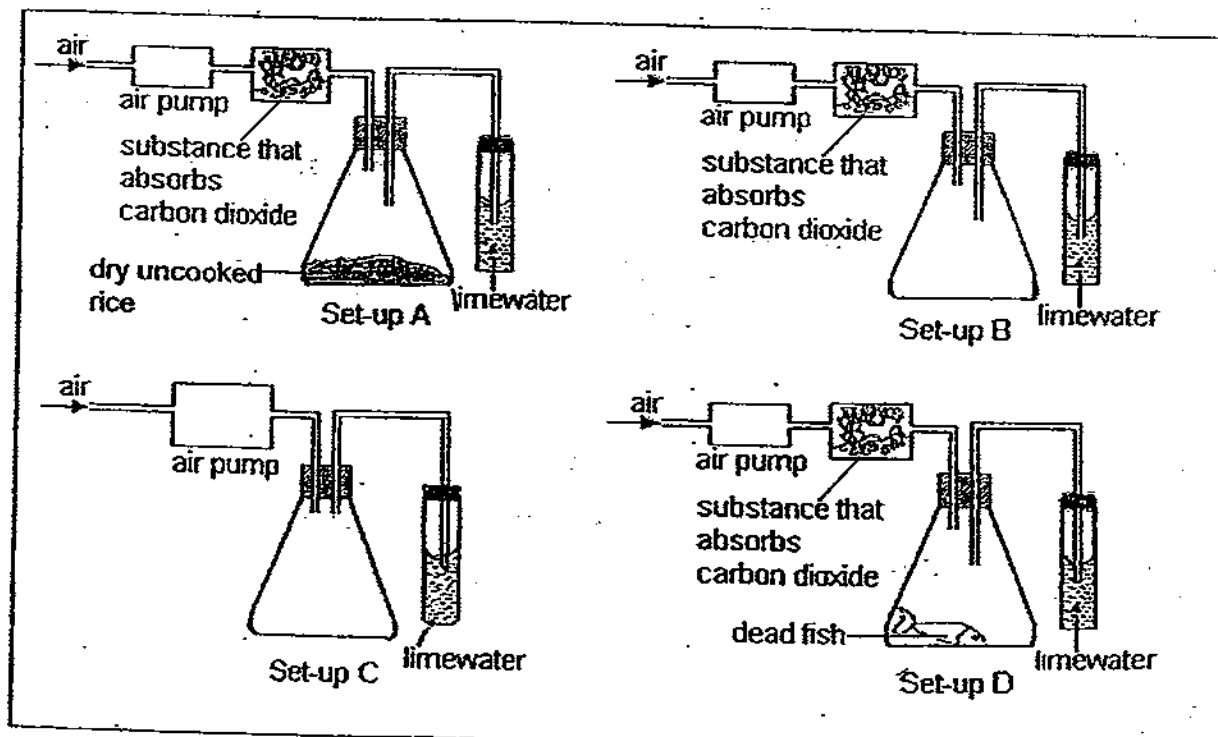
4. The diagram below shows the life cycle of a butterfly and the point at which fertilisation occurs.



Which one of the following lists correctly shows the different stages of its life cycle?

	A	B	C	D
(1)	Egg	Larva	Pupa	Adult
(2)	Larva	Pupa	Adult	Egg
(3)	Pupa	Adult	Egg	Larva
(4)	Adult	Egg	Larva	Pupa

5. Carl wanted to set up an experiment to show that ~~carbon dioxide~~ was given out when a ~~dead organism~~ was ~~decomposing~~. Which ~~2~~ setups shown below should he ~~use~~ in order to ~~conduct a fair test~~?



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

6. The Tasmanian tigers have become extinct due to various factors. Which of the following are most likely the factors that cause the extinction of these animals?

- A They were once widely hunted.
- B They were predators of many animals.
- C They were not able to adapt to climatic changes.
- D They were wiped out by an outbreak of epidemic.

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

7. The following statements are about global warming and its effects.

- ☒ A Temperature of Earth rises
- ☒ B Sea levels increase
- ☒ C Harmful greenhouse gases are released to the environment
- ☒ D Gases trap Sun's heat and prevent it from escaping into space
- ☒ E Polar ice caps melt
- ☒ F Increased burning of fossil fuels and deforestation

Which one of the following shows the correct sequence of events that takes place during global warming?

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

8. Which of the following products are produced with the help of micro-organisms?

- A Bread
- B Cheese
- C Yoghurt
- D Soya sauce

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

9. Kamariah learnt that oil spills from ships have harmful effects on aquatic life. She wanted to conduct an experiment to investigate how the amount of oil added to the water would affect the survival of fishes. She used three similar tanks, E, F and G, to set up her experiment. The variables of her set-ups are shown in the table below.

Set-up	Amount of oil added (ml)	Number of fishes	Amount of water used (L)
E	10	20	10
F	35	20	10
G	40	20	12

Which of the following statements are ~~true~~ about her experiment?

- A The experiment was unfair as the amount of oil used was different.
- B The experiment was unfair as the amount of water used was different.
- C Set-up E should be removed to ensure fair testing.
- D Set-up G should be removed to ensure fair testing.

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

10. The table below shows some aquatic plants being classified into ~~2~~ groups.

Group A	Group B	Group C
Cabomba	Duckweed	Water lily
Elodea	Water Hyacinth	Cattail
Hydrilla	Water Lettuce	Lotus

Which one of the followings lists shows the ~~correct~~ headings for the aquatic plants?

	Group A	Group B	Group C
(1)	Floating	Submerged	Partially submerged
(2)	Submerged	Partially submerged	Floating
(3)	Submerged	Floating	Partially submerged
(4)	Partially submerged	Floating	Submerged

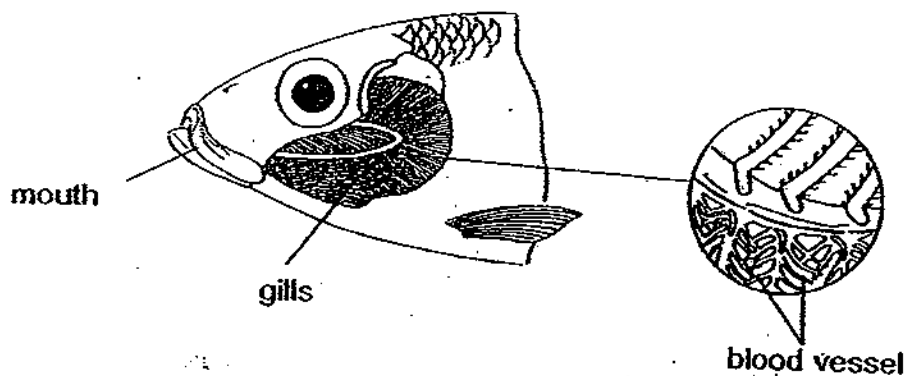
11. The table below shows some information about three different organisms.

Organism	Information
A	<ul style="list-style-type: none"> • Spends most of its time in the air. • Feeds on nocturnal animals.
B	<ul style="list-style-type: none"> • Lives in a desert. • Walks on sandy grounds.
C	<ul style="list-style-type: none"> • Weak stem • Pollinated by insects

Which one of the following descriptions shows the correct adaptations of the three organisms respectively?

	Organism A	Organism B	Organism C
(1)	<ul style="list-style-type: none"> • Streamlined body • Good night vision 	<ul style="list-style-type: none"> • Sweat very little • Padded hooves 	<ul style="list-style-type: none"> • Has clasping roots • Bright coloured flowers
(2)	<ul style="list-style-type: none"> • Streamlined body • Webbed feet 	<ul style="list-style-type: none"> • Nocturnal • Sharp talons 	<ul style="list-style-type: none"> • Has tendrils • Produce nectar
(3)	<ul style="list-style-type: none"> • Short wingspan • Long beaks 	<ul style="list-style-type: none"> • Urinate very little • Sharp claws 	<ul style="list-style-type: none"> • Has thorns • Feathery stigma
(4)	<ul style="list-style-type: none"> • Streamlined body • Curved beaks 	<ul style="list-style-type: none"> • Sweat very little • Webbed feet 	<ul style="list-style-type: none"> • Has twining stem • Anthers hanging outside petals

12. The diagram below shows the gills of the fish.



The statements below show the sequence of events when the fish gets its oxygen from the water surrounding it but they are not in correct order.

- ☒ A The water flows over its gills.
- ☒ B The fish takes in water through its mouth.
- ☒ C Water with carbon dioxide passes out of the gills.
- ☒ D Oxygen is then carried by the blood to different parts of the fish.
- ☒ E Carbon dioxide passes through the walls of the blood vessels into the water.
- ☒ F Oxygen from the water passes through the walls of the blood vessels into the blood.

Which one of the following lists shows the correct order when the fish respires?

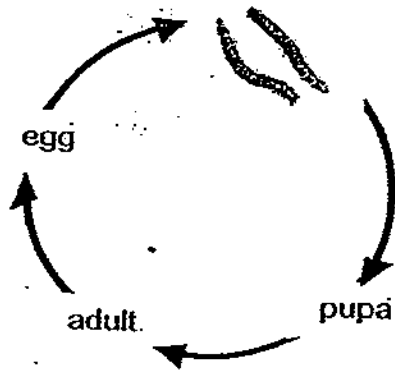
- (1) B → F → C → D → A → E
- (2) B → A → F → D → E → C
- (3) A → B → D → C → E → F
- (4) A → D → F → E → B → C

13. The diagram below shows two mealworms.

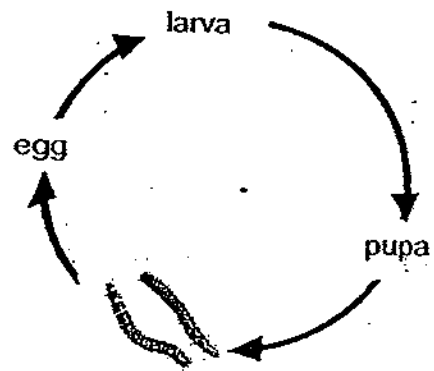


Which one of the life cycles below shows the correct stage of the mealworms above?

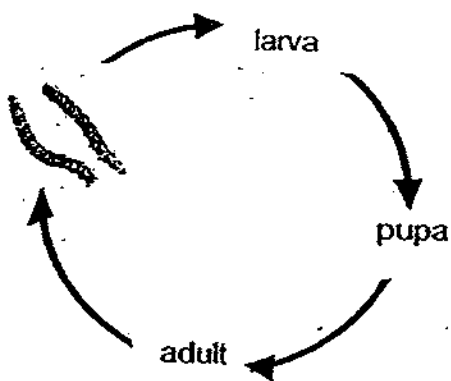
(1)



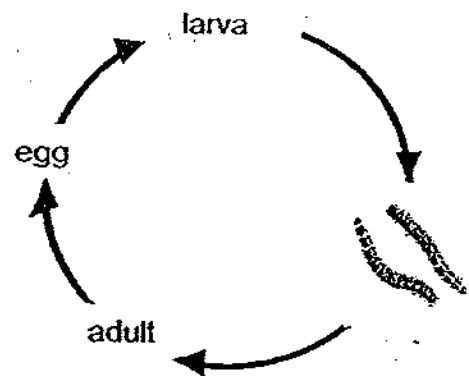
(2)



(3)



(4)



14. Jumilah put the four animals below into the same group according to their common characteristic.



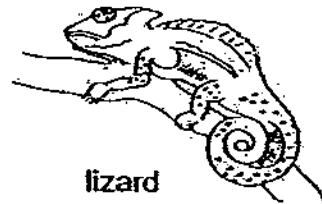
guppy



crocodile



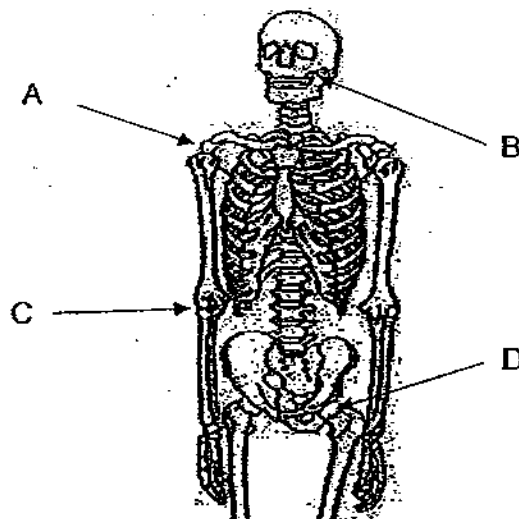
snake



lizard

What is the common characteristic she used to classify these animals?

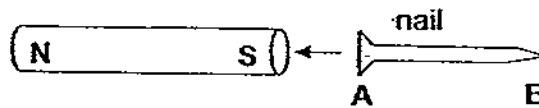
- (1) The way they move.
 - (2) The way they breathe.
 - (3) Their outer body covering.
 - (4) Their method of reproduction.
15. The diagram below shows the human skeletal system with joints A, B, C and D.



Which one of the following shows the correct classification of these joints?

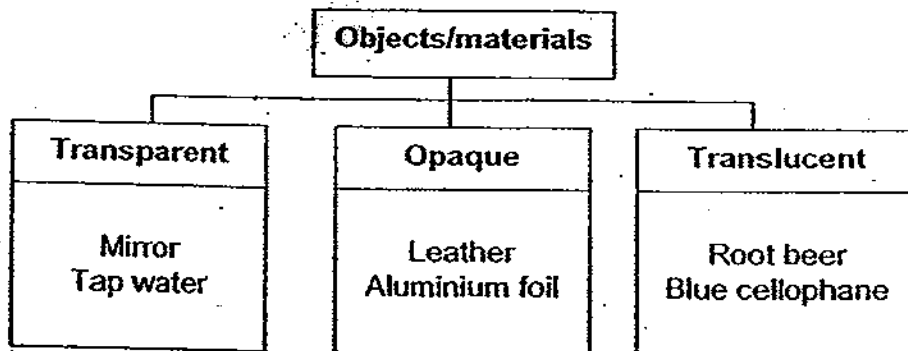
Types of movement		
	In all directions	In one direction
(1)	A, C	B, D
(2)	B, C	A, D
(3)	A, D	B, C
(4)	A, B, D	C

16. The diagram below shows a rod magnet and a nail. The S-pole of the magnet can attract end A of the nail.



Based on the observation above, which one of the following statements about the set-up can we be sure of?

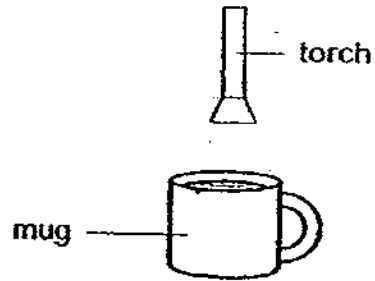
- (1) The nail is magnetised.
 - (2) The nail is made of iron.
 - (3) The N-pole of the magnet can repel end A of the nail.
 - (4) The N-pole of the magnet can attract end B of the nail.
17. Study the classification chart below carefully.



Which one of the following objects is wrongly classified?

- (1) Mirror
- (2) Root beer
- (3) Aluminium foil
- (4) Blue cellophane

18. Lucy shone her torch on a mug from the position as shown in the diagram below.



Which one of the following shadows would be formed?

(1)



(2)



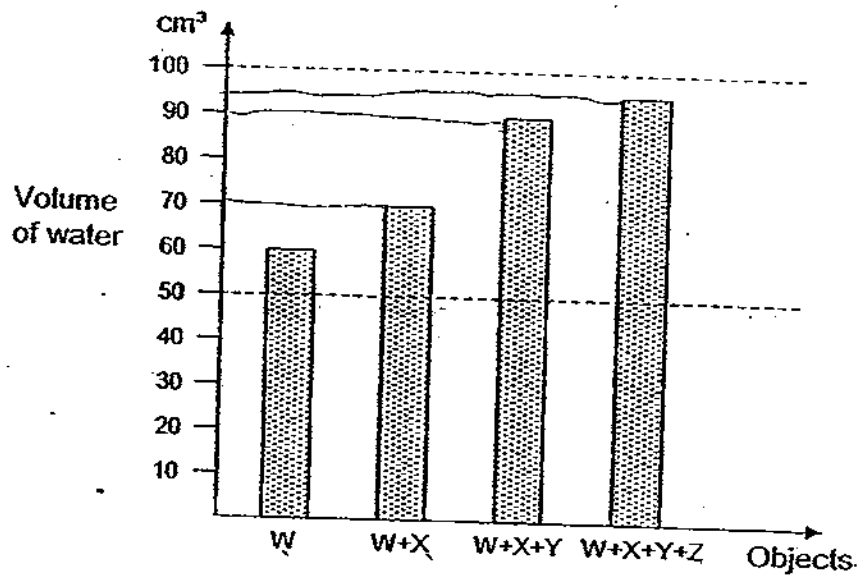
(3)



(4)



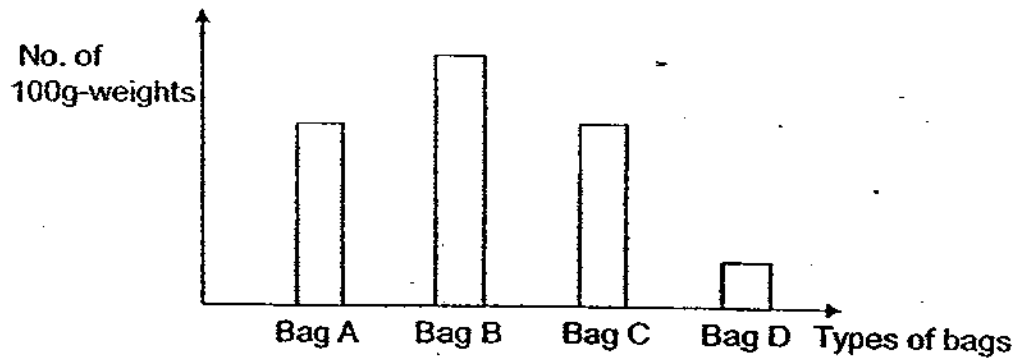
19. There are four solid objects, W, X, Y and Z. When object W is placed into a measuring cylinder containing 50 cm³ of water, the water level rises to 60 cm³. Then object X is placed into the cylinder followed by object Y, and finally object Z. The graph below shows the water level after each object has been placed into the cylinder.



Based on the results as shown in the graph above, which one of the following statements is true?

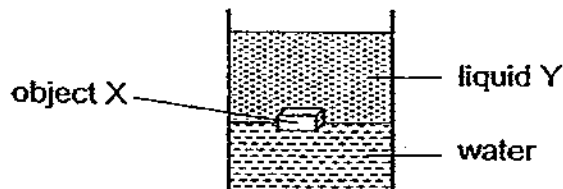
- (1) The volume of object W is 60 cm³.
- (2) Object Y has a larger volume than object Z.
- (3) Object W and object X have the same mass.
- (4) The amount of water in the cylinder increases after each object is placed into it.

20. The bar graph below shows the maximum number of 100g-weights that four bags of the same size but made of different materials could hold before breaking.

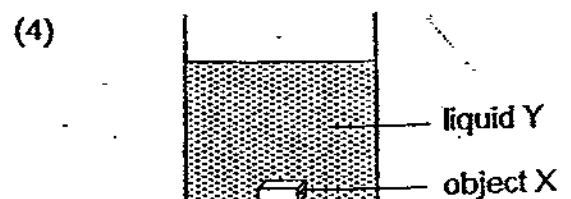
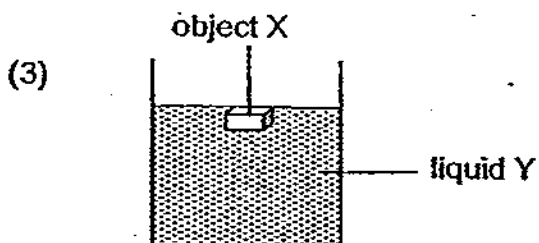
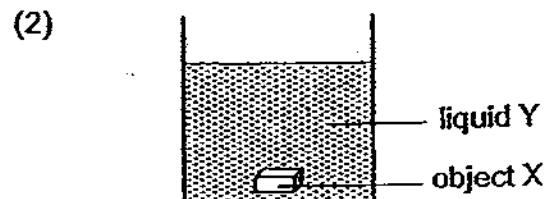
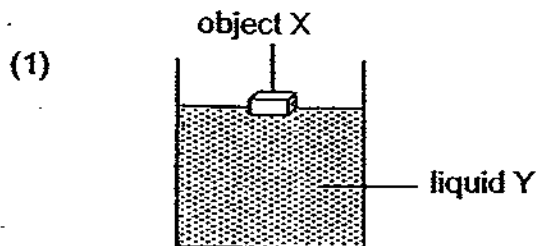


Which one of the following conclusions can be drawn from the result?

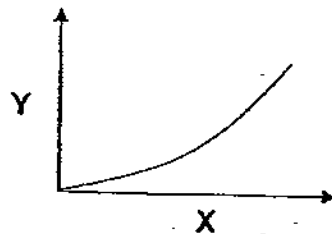
- (1) Bag D is made of paper.
 - (2) Bag B has the greatest strength.
 - (3) Bag D is more flexible than bag B.
 - (4) Bags A and C are made of the same material.
21. The diagram below shows the result when object X is dropped into a beaker containing some water and liquid Y.



Which one of the following diagrams shows the correct result when object X is dropped into a beaker containing liquid Y only?



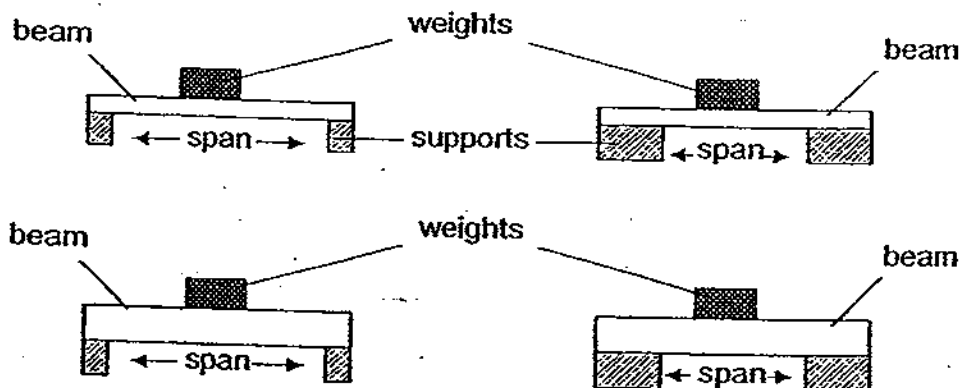
22. When John walks up a slide he gains potential energy and this energy is converted into kinetic energy as he slides down. The graph below shows the changes in energy as he walks up the slide.



Which one of the following lists shows the correct labels for X and Y respectively?

	X	Y
(1)	Potential energy	Height
(2)	Potential energy	Kinetic energy
(3)	Kinetic energy	Potential energy
(4)	Time	Kinetic energy

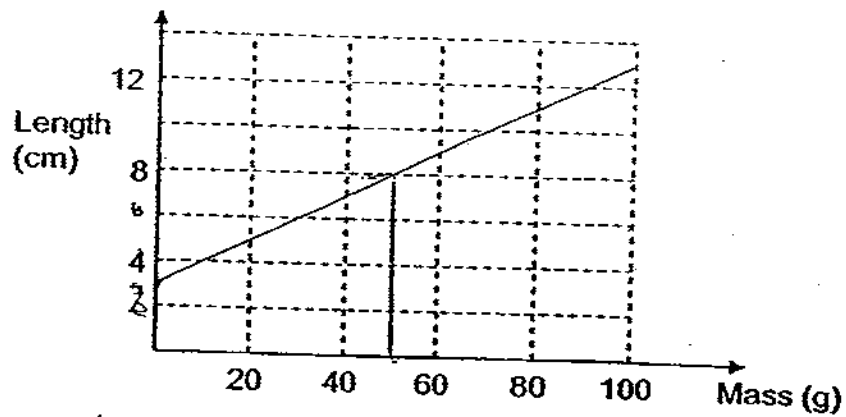
23. Salleh built the four model bridges shown and investigated how strong they were.



What variable(s) did he change to find out how it/they affected bridge strength?

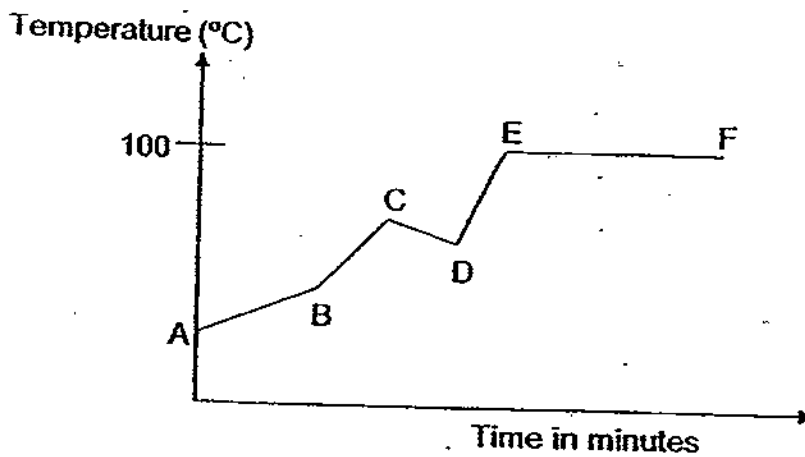
- (1) The thickness of the beam only.
- (2) The thickness and length of the beam.
- (3) The size of the weight and the width of the supports.
- (4) The thickness of the beam and the length of the span.

24. The graph below shows the changes in the length of a spring when various weights are attached to it.



From the graph, what will be the extension of the spring when a 50g-weight is attached to the spring?

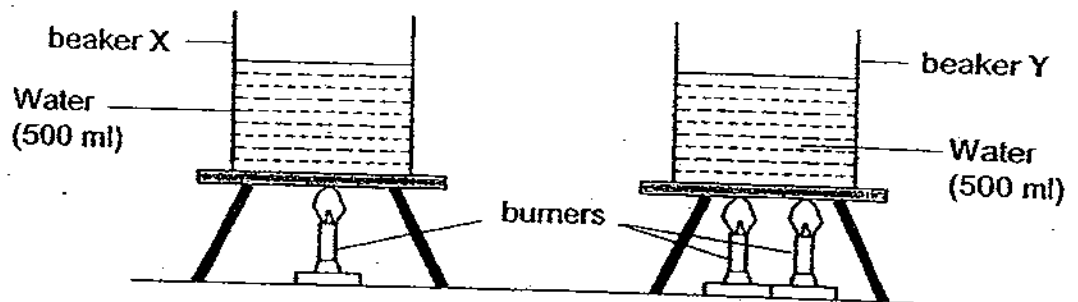
- (1) 3 cm
 - (2) 5 cm
 - (3) 8 cm
 - (4) 11 cm
25. The graph below shows the change in temperature of a beaker of water over a period of time. Which part of the graph indicates heat loss by the water?



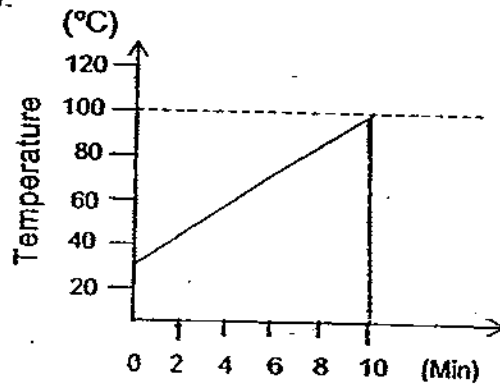
- (1) AB
- (2) BC
- (3) CD
- (4) EF

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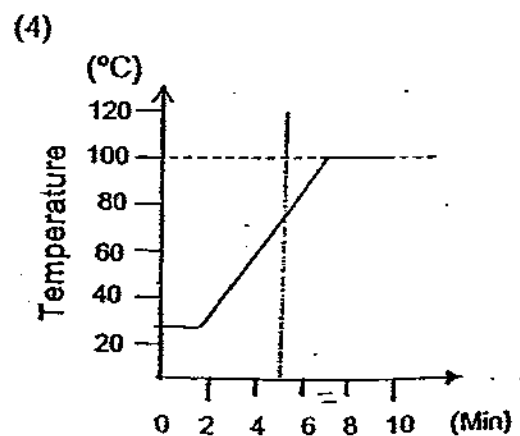
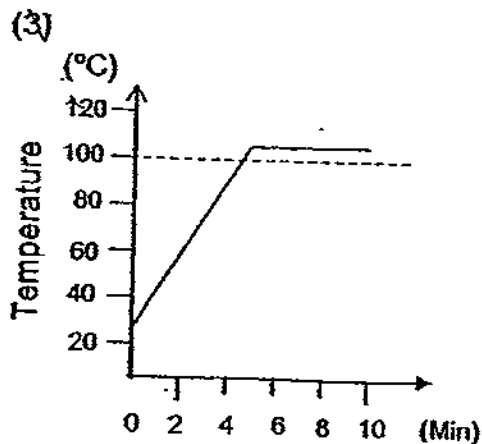
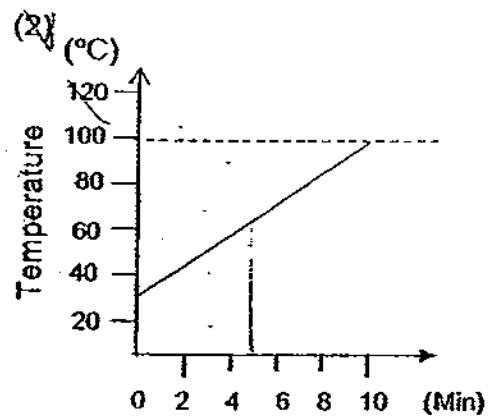
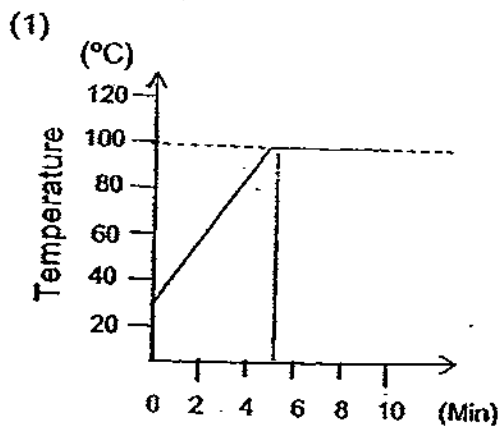
Two identical beakers containing 500 ml of tap water each are heated at the same time, one with one burner while the other with two as shown in the diagram below.



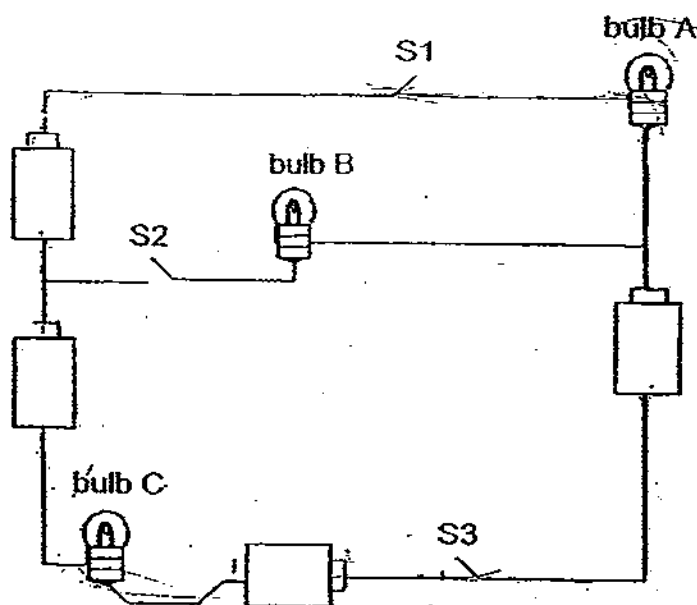
After 10 minutes, the temperature of the water in beaker X is shown in the graph below.



Which one of the graphs below shows the temperature of the water in beaker Y?



27. The batteries and bulbs in the circuit below are identical.



What will happen if S1 and S3 are closed?

- (1) Only bulb A will light up.
 - (2) None of the bulbs will light up.
 - (3) Only bulbs A and B will light up.
 - (4) Only bulbs A and C will light up.
28. Study the information given in the table below carefully.

Planet	Venus	Earth	Mars	Jupiter	Pluto
Distance from the Sun (million km)	108	150	228	778	5914
Diameter (km)	12100	12800	6800	143000	2300
Surface temperature (°C)	465	-89 to 58	-82 to 0	-150	-230
Time taken to make one revolution around the Sun	225 days	365 days	687 days	12 yr	248 yr
Time taken to make one rotation	243 days	24 h	24 h	10 h	6 days

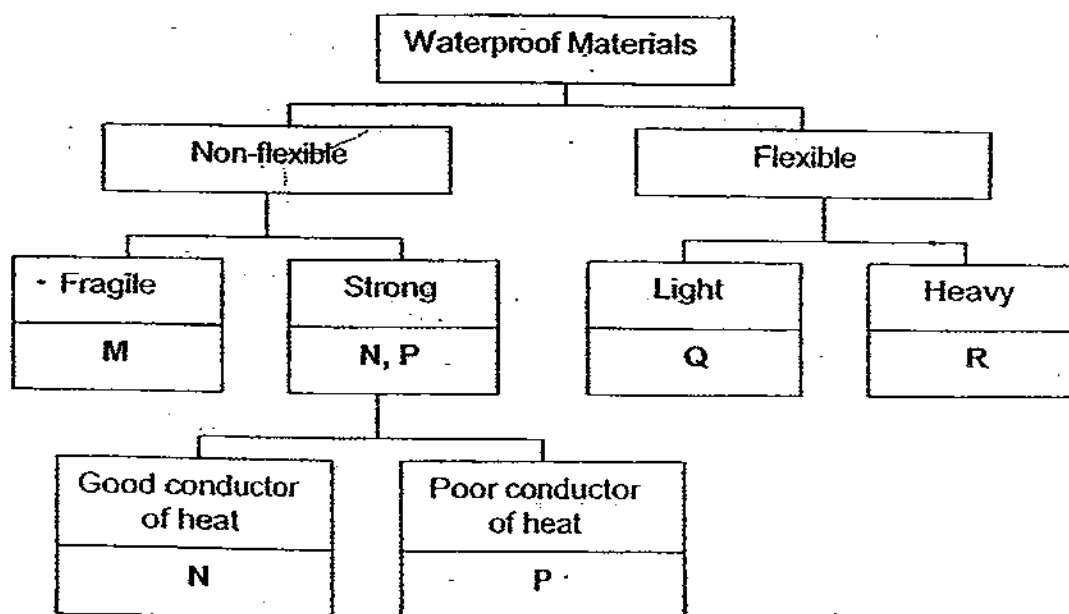
Based on the information given in the table, which one of the following statements is not correct?

- (1) Venus is smaller than Mars.
- (2) If water is present in Jupiter, it cannot exist in the liquid state.
- (3) The Earth and Mars receive about the same number of hours of daylight.
- (4) The further the planet is away from the Sun, the longer it takes to revolve around the Sun.

29. Which one of the following materials is non-metal and a good conductor of electricity?

- (1) Carbon
- (2) Copper
- (3) Styrofoam
- (4) Aluminium

30. Mr Tan wanted to select the best materials for making raincoats and helmets. Below is a chart that shows the properties of some materials, M, N, P, Q and R.



Based on the classification chart above, which one of the following shows the best choice for making the raincoats and helmets?

	Helmets	Raincoats
(1)	N	R
(2)	P	M
(3)	Q	P
(4)	P	Q

~~ End of Section A ~~

Index Number:

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CHIJ ST. NICHOLAS GIRLS' SCHOOL



PRELIMINARY EXAMINATION

2009

P6 SCIENCE

27 August 2009

(BOOKLET B)

NAME : _____ ()

CLASS : Primary 6 _____

Total time for booklets A & B: 1 hour 45 minutes

16 questions
40 marks

INSTRUCTIONS TO CANDIDATES

- Do not open this booklet until you are told to do so.
- Follow all instructions carefully.
- Answer all questions and write your answers on this booklet.

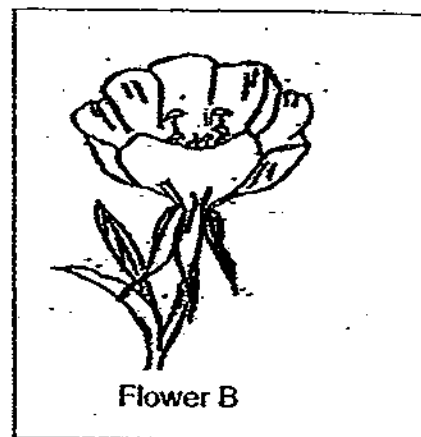
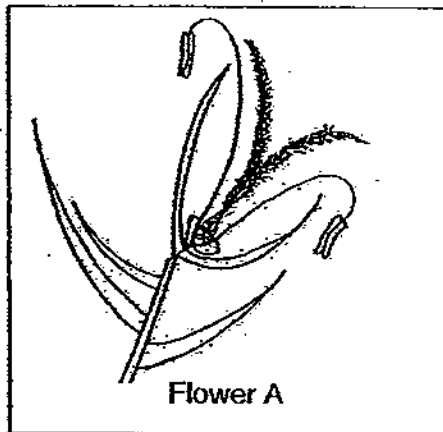
Booklet A	60
Booklet B	40
Total	100

Section B (40 marks)

For questions 31 - 46, write your answers in this booklet.

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

31. The diagram below shows two different types of flower, A and B.



(a) Based on the diagram, how are the pollen grains of flower A and B transferred to the stigma? [1]

(i) Flower A : _____

(ii) Flower B : _____

(b) What structure of flower A allows you to infer that its pollen grains are transferred to the stigma by the method mentioned in your answer? [1]

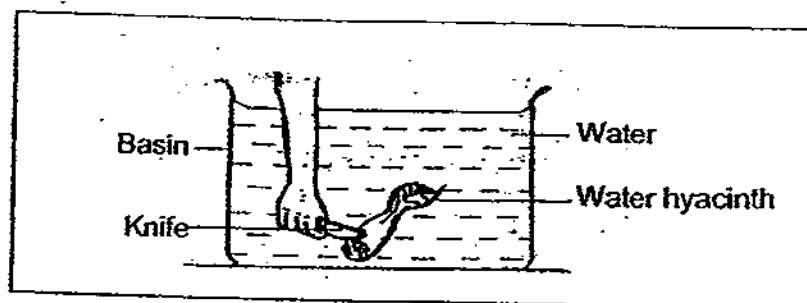
32. The diagram below shows a banana plant. The farmers usually reproduce the plant using other plant parts instead of seeds.



- (a) How do the farmers usually reproduce the banana plants? [1]

- (b) State one advantage of reproducing the banana plant this way. [1]

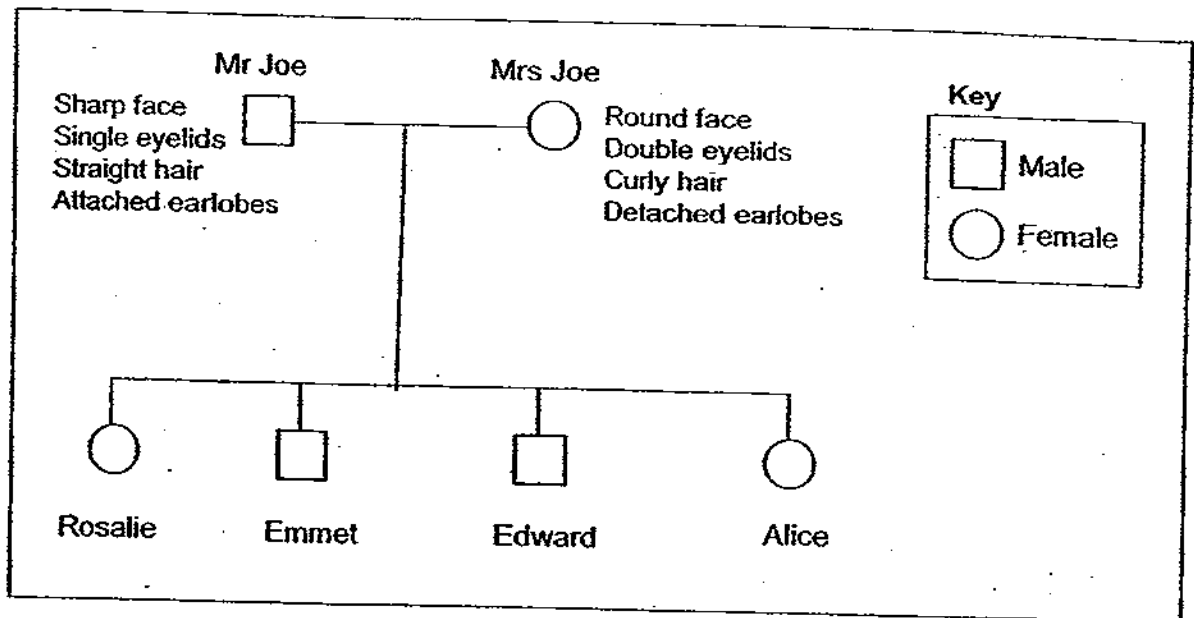
33. Raju was told that the leaf stalks of the water hyacinth enable it to float. He decided to investigate by cutting one leaf stalk of a water hyacinth plant in a basin of water as shown below.



- (a) What will he observe after cutting the leaf stalk of the water hyacinth in the water? [1]

- (b) Explain why he must cut the leaf stalk underwater. [1]

34. The chart below shows the family tree of Mr Joe.



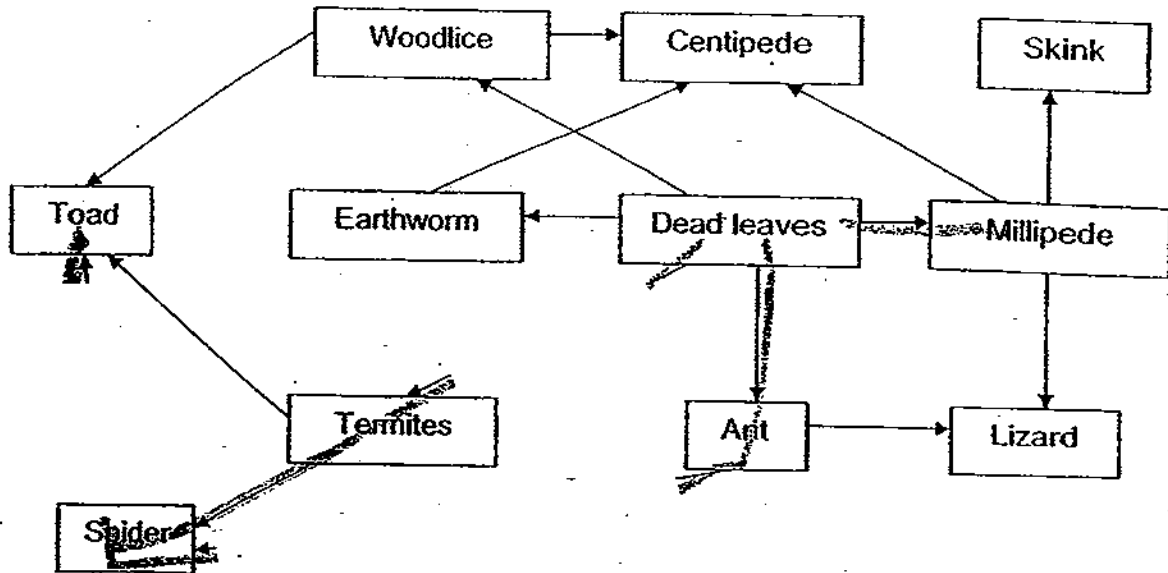
The table below shows the characteristics of his children.

	Face	Eyelids	Hair	Earlobes
Rosalie	Sharp	Double	Curly	Detached
Emmet	Sharp	Single	Straight	Detached
Edward	Round	Single	Straight	Attached
Alice	Sharp	Double	Straight	Attached

- (a) Based on the information above, what are the common characteristics Emmet and Alice have inherited from their father? [1]

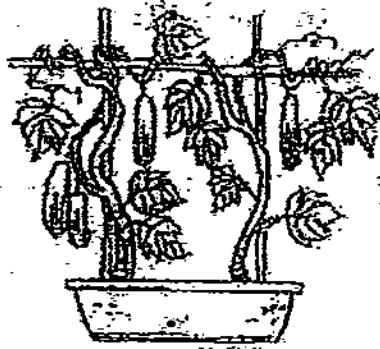
- (b) Based on the information given, who resembles their mother the most? [1]

35. The chart below shows the food web in a certain community.



- (a) From the food web above, write down two food chains that involve two meat eaters. [2]
- (i) _____
- (ii) _____
- (b) What would be the immediate effect when there was a sudden increase in the lizard population? [1]
- _____

36. The diagram below shows a cucumber plant and a money plant.



cucumber plant

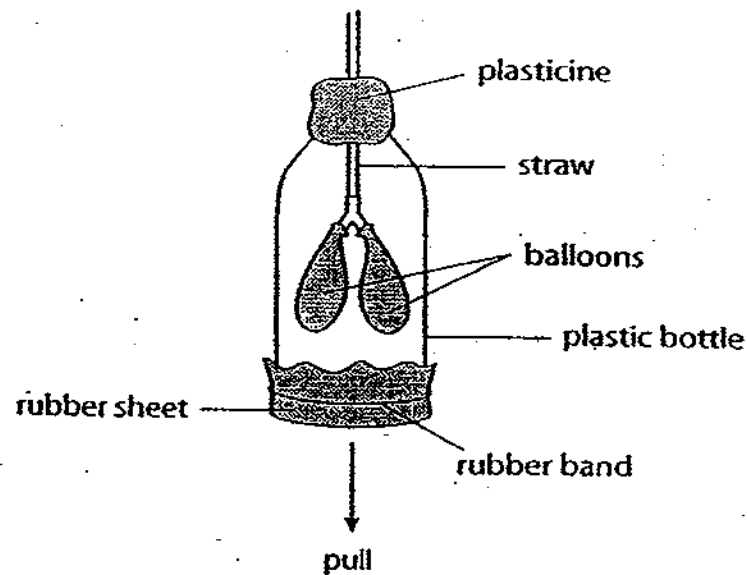


money plant

- (a) Based on the diagram above, what can we infer about the stems of these two plants? [1]

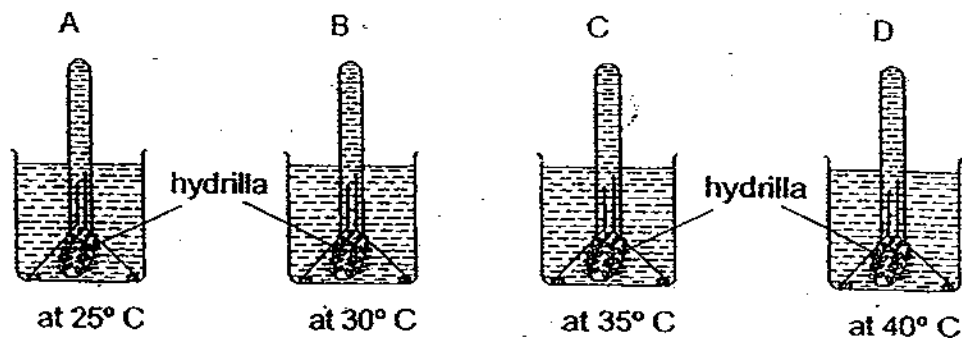
- (b) State one difference between the ways the two plants reach for more sunlight. [1]

37. Celine cut off the bottom of a plastic bottle and built a model of the human respiratory system as shown in the diagram below.



- (a) What would happen to the balloons when the rubber sheet is pulled downwards from the bottom of the bottle? [1]
- _____
- (b) Explain your answer in (a). [1]
- _____
- (c) Which organ of the respiratory system does the rubber sheet represent? [1]
- _____

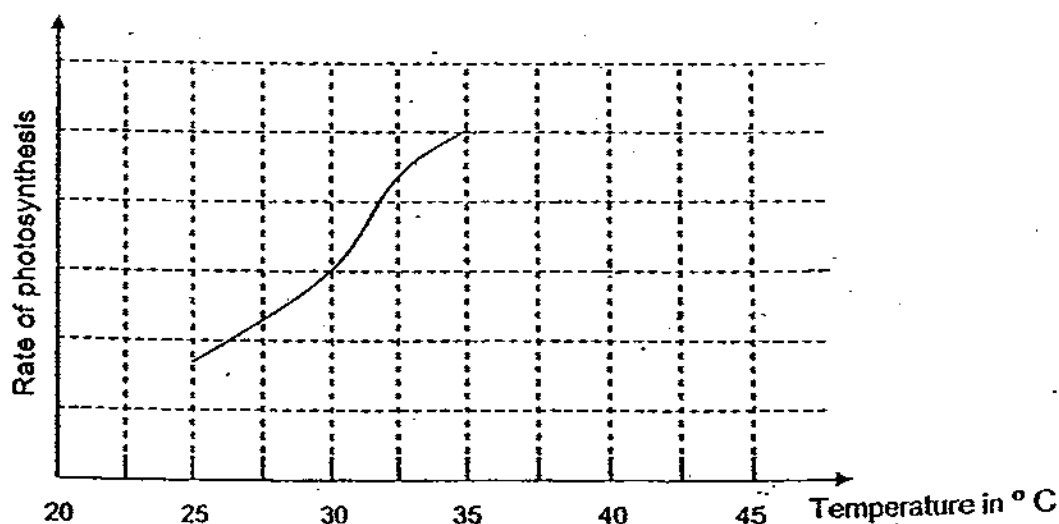
38. David carried out an experiment to find out the effect of temperature on the rate of photosynthesis of the hydrilla. He used the same amount of hydrilla in each set-up, A, B, C and D, and left them under the same light source for a few minutes as shown in the diagrams below.



- (a) What would he observe in the test tubes after some time? [1]

- (b) Explain your answer in (a) above. [1]

David found that the ~~maximum rate of photosynthesis~~ was reached when the temperature of the water was at 35°C. He plotted the graph below to show the results of his experiment when the temperature of the water was at 25°C, 30°C and 35°C respectively.



- (c) Complete the graph above to show the possible rate of photosynthesis when the temperature of water was at 40°C and 45°C respectively. [1]

39. Three identical cans, one filled with oil, the second one with sand and the third one with water were left standing in the Sun for an hour. The amount of the substance in each can was the same. At the end of one hour the cans were removed from sunlight and the temperatures of the substances were taken every two minutes. The results are recorded in the table below.

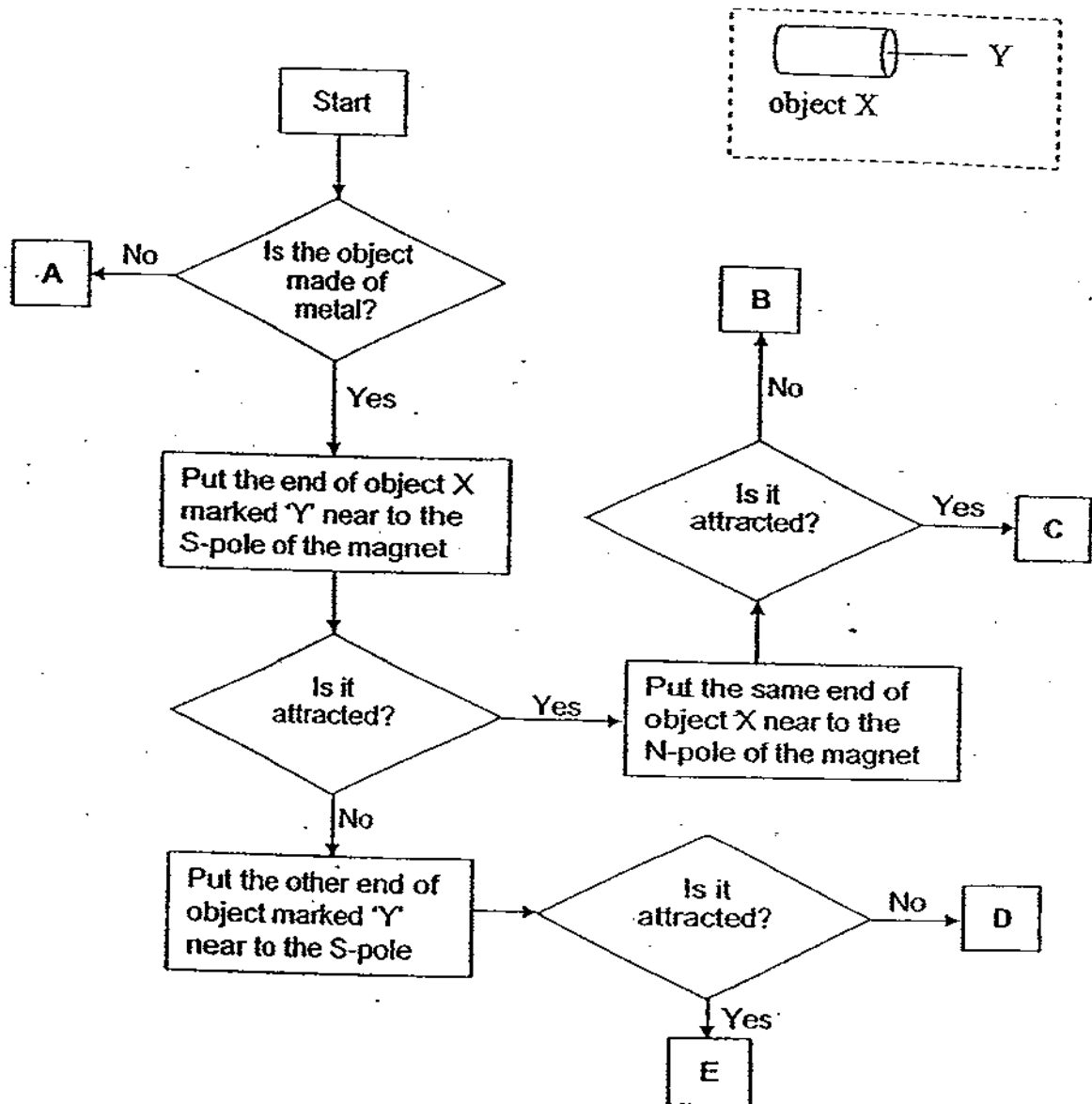
Time in minutes	Temperature ($^{\circ}\text{C}$)		
	Oil	Sand	Water
0	38	51	48
2	37	42	45
4	36	39	42
6	35	35	38
8	33	30	35
10	31	30	31

- (a) Based on the results above, which one of the three substances is best for retaining heat? [1]

- (b) Give a reason for your answer in (a) above. [1]

- (c) What would be the likely temperature of oil at the end of 12 minutes? Give a reason for your answer. [1]

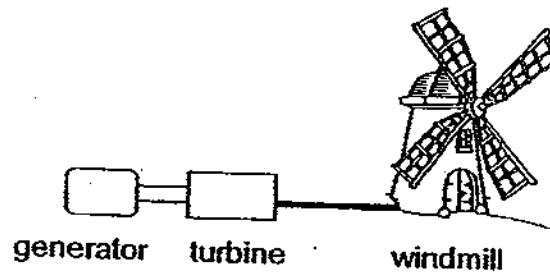
40. The following flow chart shows the process of finding out whether object X shown below is a magnet. The points, A, B, C and D are called 'exit' points. Meiling was given a magnet and object X. She was asked to go through the process of the flow chart beginning from "start".



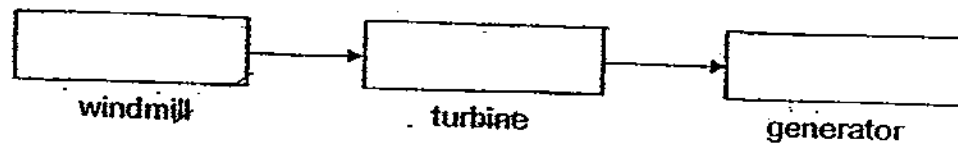
- (a) Which 'exit' point would object X end up with if it is a copper rod? [1]

- (b) If object X is a magnetised iron nail, would it end up at exit point C? Explain your answer. [1]

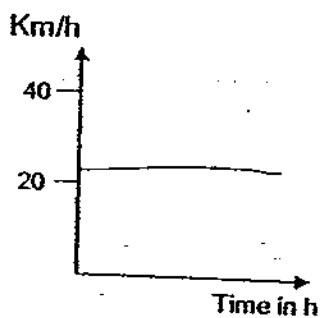
41. The diagram below shows a windmill which is connected to a turbine and a generator.



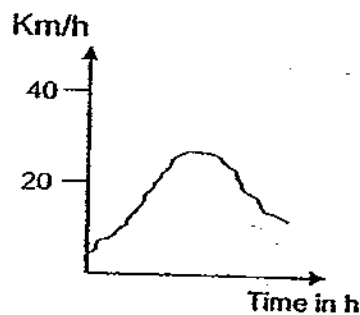
- (a) Write down the main energy conversion or transfer of energy from the windmill to the generator. [1]



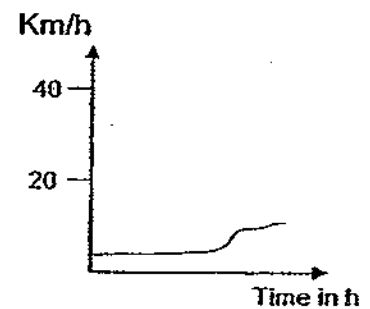
- (b) The graphs below show the wind speed of three places, X, Y and Z.



Place X



Place Y

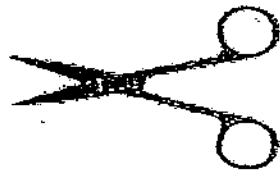


Place Z

- (i) Which place, X, Y or Z, is most suitable to build windmills to provide electricity for the town? [1]

- (ii) Explain your answer in (i) above clearly. [1]

42. Two different pairs of scissors are shown in the diagram below.



Scissors A



Scissors B

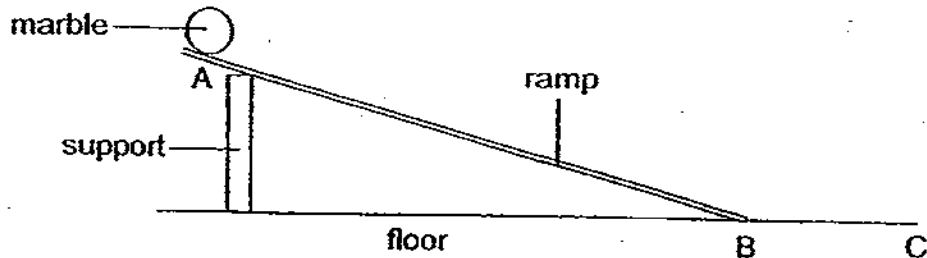
- (a) Which pair of scissors above requires a smaller force to cut a thin sheet of copper? Explain your answer. [2]

The diagram below shows a can opener.



- (b) A pair of scissors is different from the can opener above. In terms of effort, fulcrum and load, state one way in which they are different. [1]

43. Harry carried out an investigation with a ramp, a marble and three different materials, P, Q and R. He set up the experiment as shown in the diagram below.



He covered the entire surface of the ramp with material P and released the marble from position A. He measured the time taken for the marble to travel to position C on the floor. He repeated the above experiment with the other two materials. He carried out each experiment three times and recorded the results in the table below.

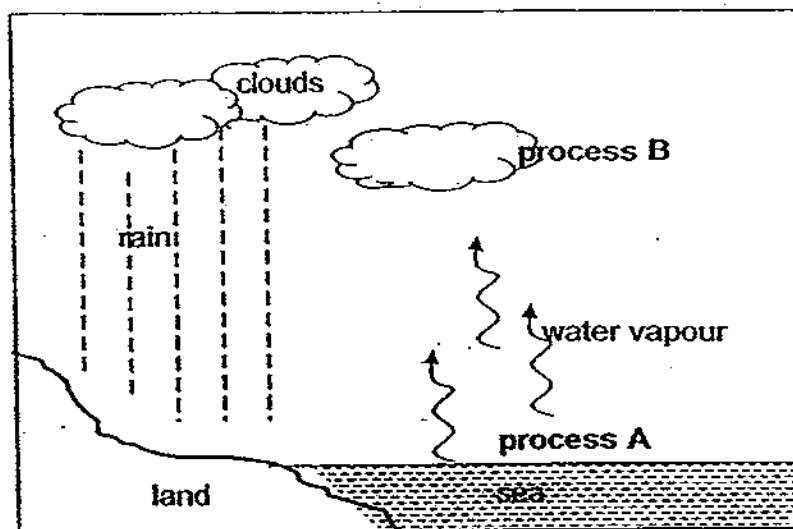
Material covering ramp	Time taken for the marble to travel from A to C (sec)			
	1 st try	2 nd try	3 rd try	Average time taken
P	4	5	3	4
Q	5	4	6	5
R	3	3	3	3

- (a) Why are several readings taken for each of the materials used? [1]

- (b) Based on the results above, what conclusion can he draw? [1]

- (c) State the two forces acting on the marble when it is rolling down the ramp. [1]

44. The diagram below shows the water cycle.



- (a) Name the two processes A and B in the water cycle above. [1]

Process A: _____

Process B: _____

- (b) Why is water cycle important for living things in the world? [1]

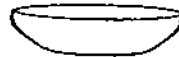
45. Xiao Long wanted to confirm the hypothesis that the rate of evaporation is higher when the exposed surface area is bigger. He filled four bowls, A, B, C and D, as shown in the diagram, with equal volume of water. He placed three of the bowls on a table in the science room and another one at the balcony.



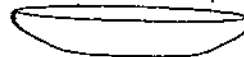
A



B



C



D

Two days later, he measured the volume of water left in each bowl using a measuring cylinder. The readings are shown in the table below.

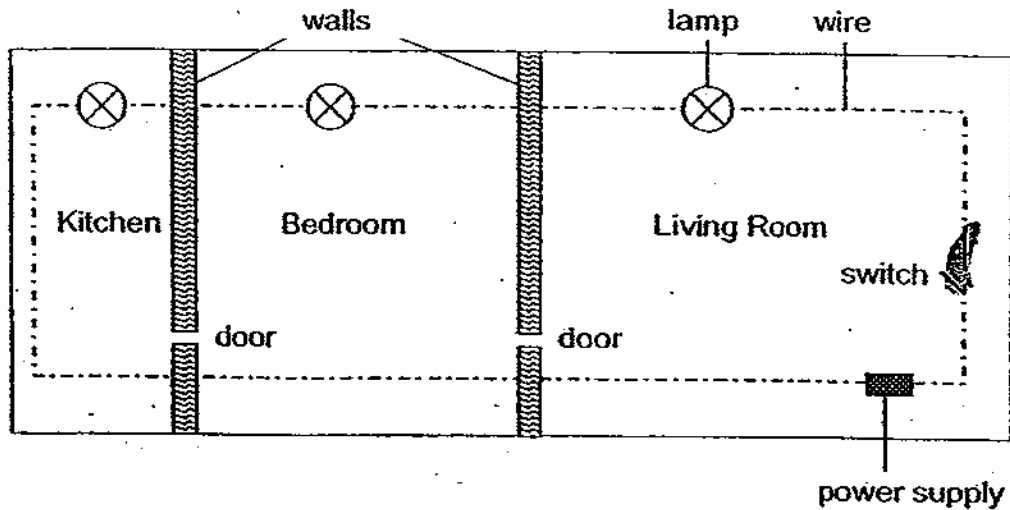
	Bowl A	Bowl B	Bowl C	Bowl D
Volume of water on first day (ml)	100	100	100	100
Volume of water two days later (ml)	88	73	74	60

His teacher told him that he did not carry out a fair test as he must keep the location of all the bowls the same.

- (a) Based on the results above, which bowl was most likely left in a different location from the rest? [1]

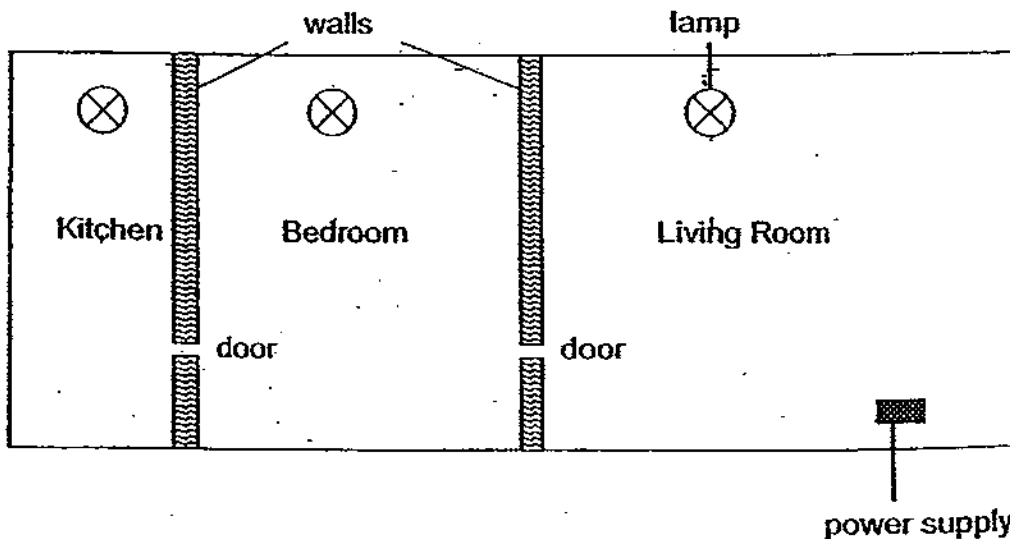
- (b) State two other factors that could affect the rate of evaporation. [1]

46. The diagram below shows the floor plan of Serena's house with its wiring and the positions of lamps. When she turns on the switch, all the lamps in her house will light up.



- (a) Give a reason why this is not the best way to connect the lamps? [1]

- (b) Based on your answer in (a) above, draw wires and switch(es) in the diagram below to reconnect the lamps to show how the arrangement can be improved. [2]



Answer Ke

EXAM PAPER 2009

SCHOOL : CHIJ PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA2

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

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

31)a)A: Wind-pollination. B: Insect-pollination.

b)The anthers of flower A are hanging out of the flower, and when the wind blows, it can blow the pollen grains of the anthers too and transfer it to the stigma.

32)a)Suckers. b)It grows faster the when planted by seeds.

33)a)He would observe air bubbles coming out of the leaf stalks of the water hyacinth.

b)It is to ensure that he can see the air bubbles escaping from the stalk of the water hyacinth.

34)a)They have sharp farces and straight hairs.

b)Rosalie.

35)a)i)Dead leaves→termites→spider→toad.

ii)Dead leaves→ant→spider→toad.

b)The populations of ants and millipedes would decrease.

36)a)The stems of these two plants are weak.

b)The cucumber reach for more sunlight by tendrils but the money plant reach for more sunlight by clasping roots.

37)a)The balloons would inflate.

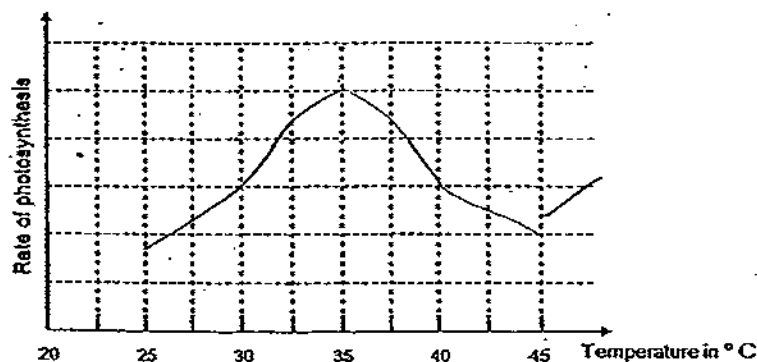
b)When the rubber sheet is pulled down, there would be more space in the plastic bottle and air would enter the plastic bottle to occupy the space and therefore, inflating the balloons.

c)Diaphragm.

38)a)He would observe an air space at the top of the test tubes.

b)The hydrillas would photosynthesis as it has all the nesscary condition and would take in carbon dioxide and give out oxygen and the oxygen would travel to be top of the test tube and occupy the space there.

c)



39)a)Oil.

b)It is the poorest conductor of heat among the three substances and lose the least heat.

c)30°C. It is the room temperature as the temperature of the sand stopped decreasing at 30°C and cannot go lower it should be the room temperature the the temperature of the oil should stop there.

40)a)D.

b)No, it would not. The magnetized iron should be able to repel one side of the magnet but C is attracted to both sides of the magnet therefore, object X would hot end up at exit point C.

41)a) Kinetic energy → Kinetic energy → Electrical energy.

b)i) Place X.

c) The speed of the wind remains constant and would provide a constant amount of electricity unlike Places Y and Z and it has the highest wind speed and maintains it unlike Place Y when it peaks only at one point and Place Z has lowest wind speed.

42)a) Scissors A. The effort is further away from the fulcrum and it moves a greater distance than the load and therefore it would require a smaller force.

b) The fulcrum of the opener is in front but the scissors has its fulcrum in the middle.

43)a) It is obtain a reliable result and reduce possible human errors when the average reading is taken.

b) Material R produces the least friction followed by material P and then Q. Material Q has the roughest surface followed by material P and then R.

c) Gravitational force and frictional force.

44)a) A: Evaporation. B: Condensation.

b) It supplies all living things with a continuous supply of fresh water.

45)a) B.

b) The speed of the wind and the humidity of the air.

46)a) If one lamp fuses, the electricity current would not be able to pass through it and result in the other lamps not able to light up.

b)

