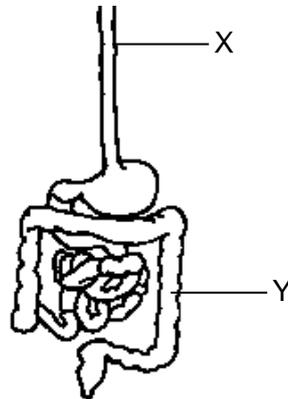


SECTION A (60 marks)

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

1. The diagram below shows the human digestive system.



How are the two parts, X and Y, similar?

- (1) Both absorb water.
- (2) Both absorb digested food.
- (3) Both contain undigested food.
- (4) Both produce digestive juices.

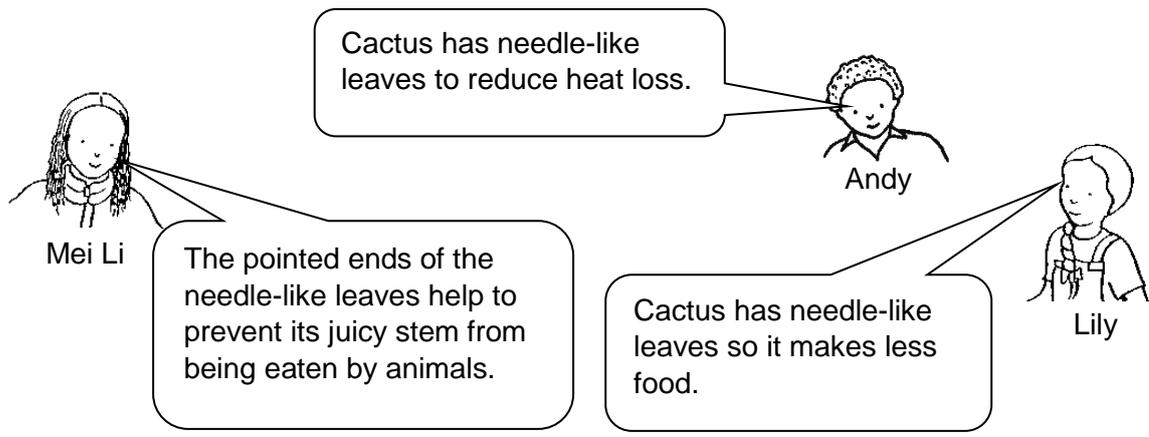
2. Study the classification table below.

Plants	
A	B
Angsana trees Cow grass	Ferns Conifers

Which of the following can be placed in Group B?

- (1) Mosses
- (2) Cattails
- (3) Duckweeds
- (4) Water Hyacinths

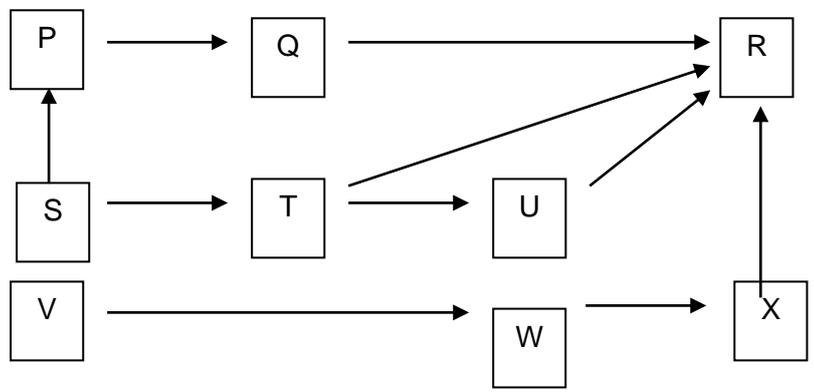
3. A group of friends was discussing why cactus has needle like leaves. Read their remarks below carefully.



Whose explanation is most likely correct?

- (1) Andy only
- (2) Mei Li only
- (3) Mei Li and Lily only
- (4) Andy, Lily and Mei Li

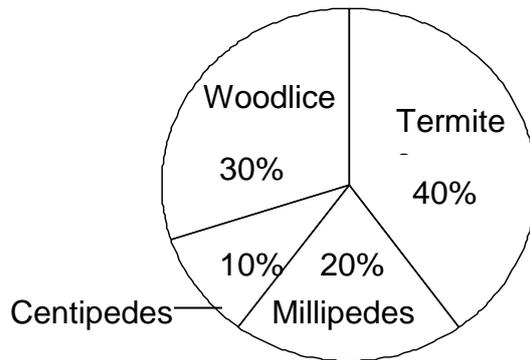
4. Study the food web below carefully.



How many food producers are there in the food web?

- (1) 1
- (2) 2
- (3) 3
- (4) 4

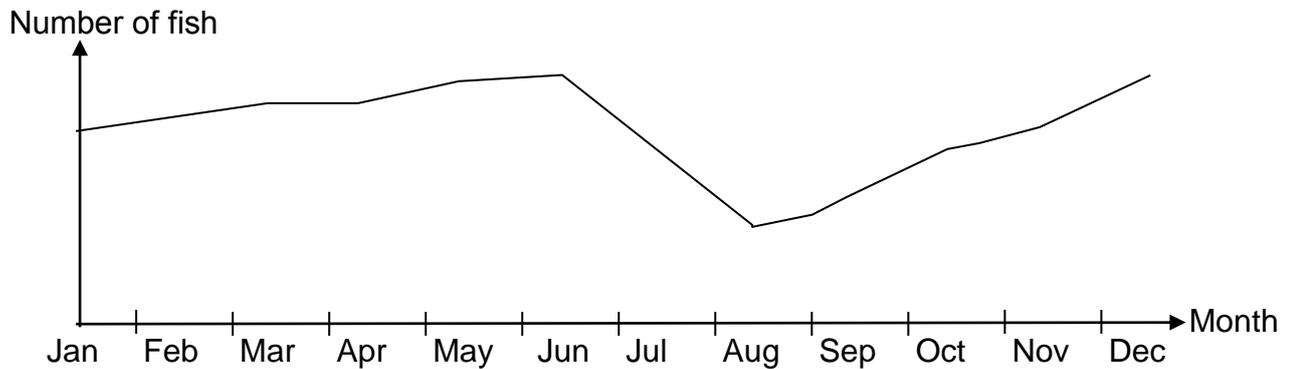
5. Study the pie chart on all the populations in a leaf litter community.



Which of the following statements is definitely **not** true about the organisms in this leaf litter community?

- (1) The centipedes feed on millipedes.
- (2) Termites are predators to the centipedes.
- (3) There are four populations in this community.
- (4) An increase in millipedes will cause a decrease in woodlice.

6. There was a leakage of harmful chemical from a nearby factory into the River Nile, causing fishes to die. When it was discovered, the government closed down the factory. The graph below shows the number of fish in the river over a year.



Which of the following shows when the leakage began causing the factory to shut down?

	Leakage began	Factory shut down
(1)	January	December
(2)	June	August
(3)	June	October
(4)	July	October

7. Which of the following statements about reproduction in animals are correct?

A: Sperms are produced by male animals.

B: Usually one egg is fertilised by many sperms.

C: After fertilisation, the eggs will develop into young animals.

D: Fertilisation always takes place inside the body of the female animals.

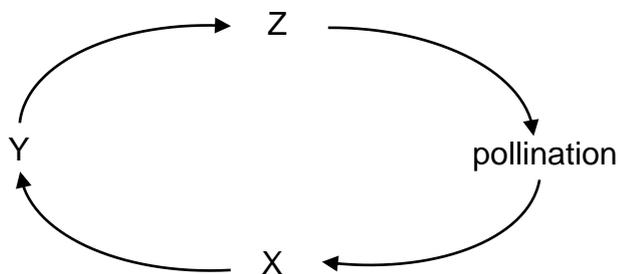
(1) A and C only

(2) A and D only

(3) B and C only

(4) A, B, C and D

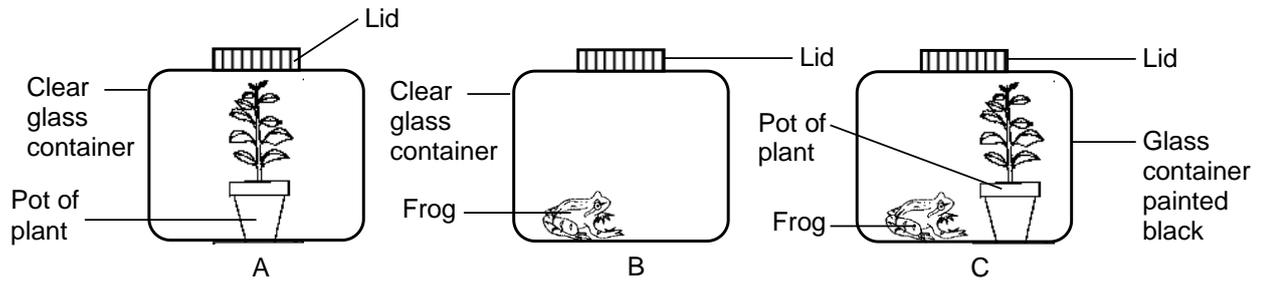
8. In the diagram below, X, Y and Z represent the reproduction processes of a flowering plant.



Which of the following can be X, Y and Z?

	X	Y	Z
(1)	seed dispersal	germination	fertilisation
(2)	fertilisation	seed dispersal	germination
(3)	germination	fertilisation	seed dispersal
(4)	fertilisation	germination	seed dispersal

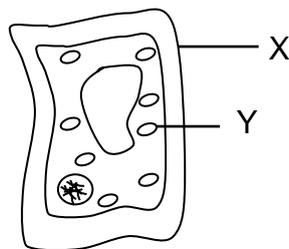
9. Three similar covered glass containers were set up as shown below.



All the containers were placed in the open field for 5 hours on a sunny day. How would the amount of carbon dioxide in each container change after 5 hours?

	Container A	Container B	Container C
(1)	Decrease	Increase	Increase
(2)	Increase	Increase	Decrease
(3)	No change	Decrease	Increase
(4)	Decrease	Increase	No change

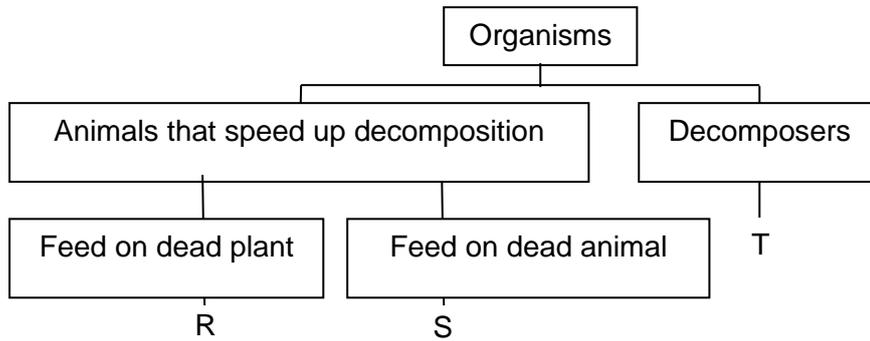
10. The diagram below shows a diagram of a cell from a certain organism.



The presence of Part X and Y shows that the organism _____.

- (1) produces fruits
- (2) reproduces by budding
- (3) depends on light to make food
- (4) can live both on land and in water

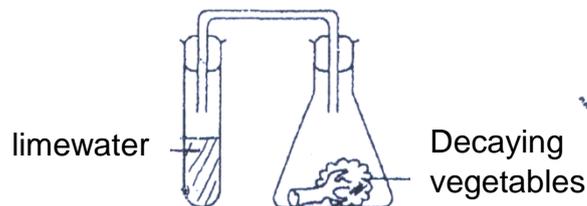
11. Study the classification diagram below carefully.



What could Organisms R, S and T be?

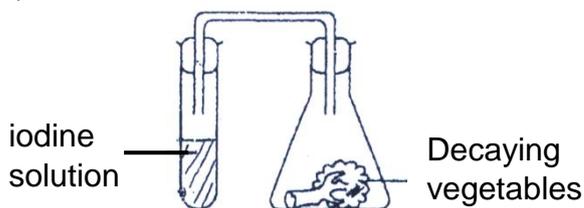
	R	S	T
(1)	Fungi	Vulture	Bacteria
(2)	Maggot	Millipede	Bacteria
(3)	Centipede	Termite	Fungi
(4)	Woodlouse	Vulture	Fungi

12. Jimmy set up an experiment shown below to find out whether decaying vegetables give out a particular gas.

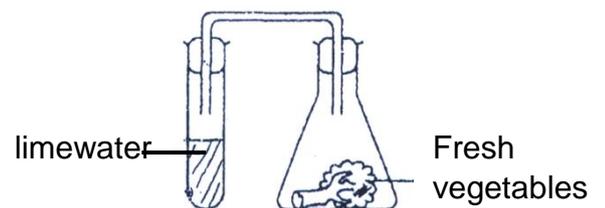


Which of the following should he use as a control?

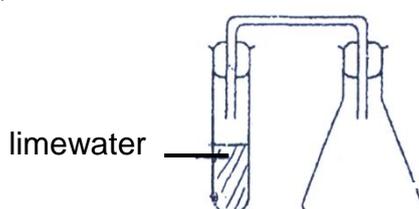
(1)



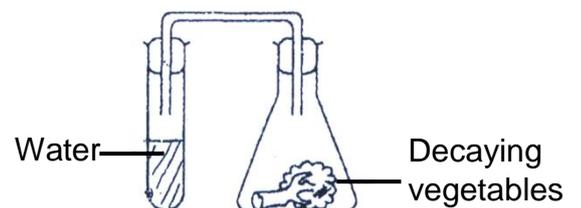
(2)



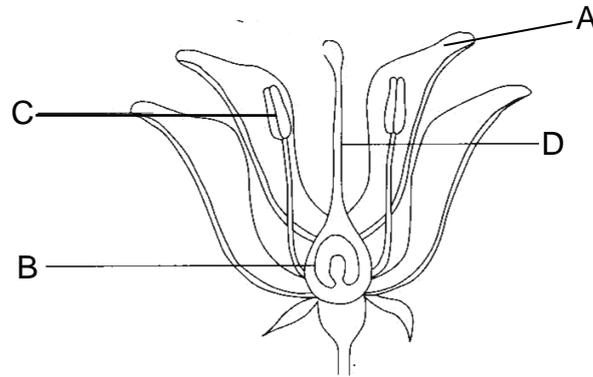
(3)



(4)



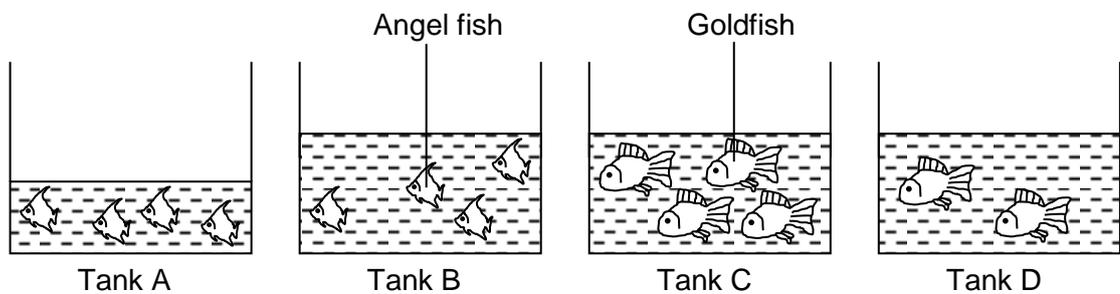
13. The diagram below shows the cross-section of a flower in a garden.



Which of the following statements is **not** true about Parts A, B, C and D?

- (1) Part A attracts insects to help pollinate the flower.
- (2) Part B contains ovules that will develop into seeds.
- (3) If Part C is removed, this flower will not develop into a fruit.
- (4) A pollen tube grows within Part D after pollination has taken place.

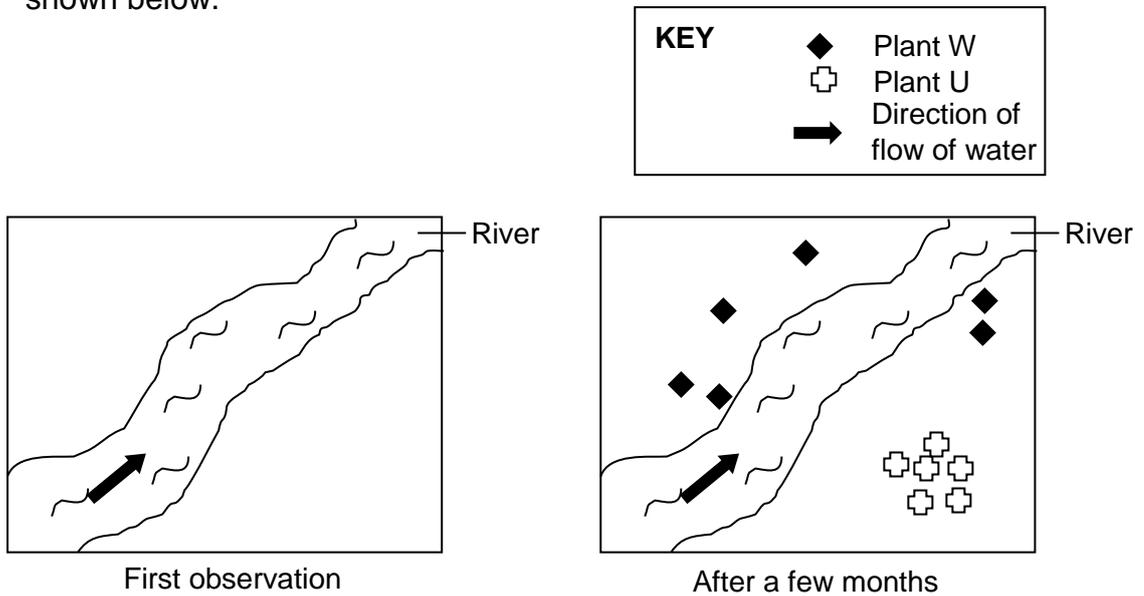
14. Hsin Yi wants to find out if overcrowding affects the organisms living in a tank.



To conduct a fair test, which two tanks should she use?

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

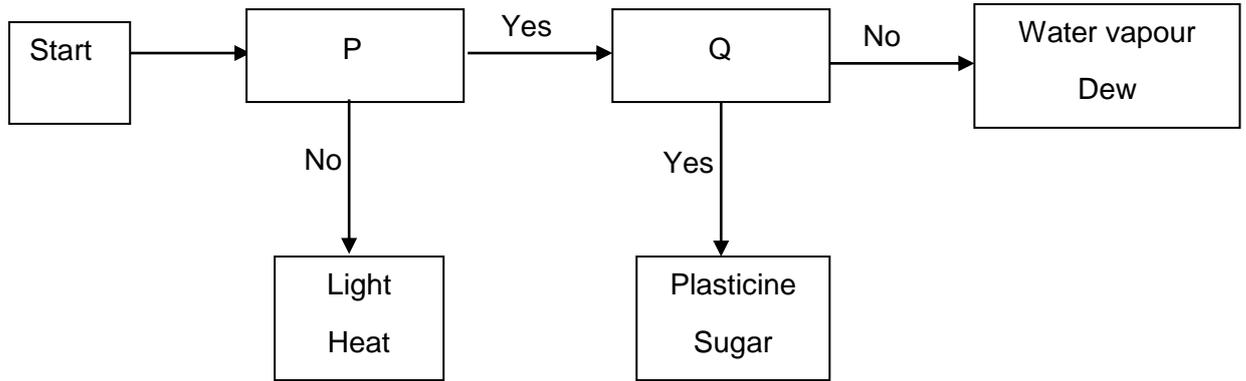
15. Raja found two wild plants, W and U, on a piece of land near a river. After a few months, he looked at the same piece of land again. His observations are shown below.



He jotted down some characteristics of the fruits of the plants he observed. Which one of the following characteristics is definitely **wrong**?

- (1) Fruits of Plant U can float.
- (2) Fruits of Plant W have stiff hairs.
- (3) Fruits of Plant U can be spilt open by explosive force.
- (4) Fruits of Plant W have fibrous husks which enable them to trap air.

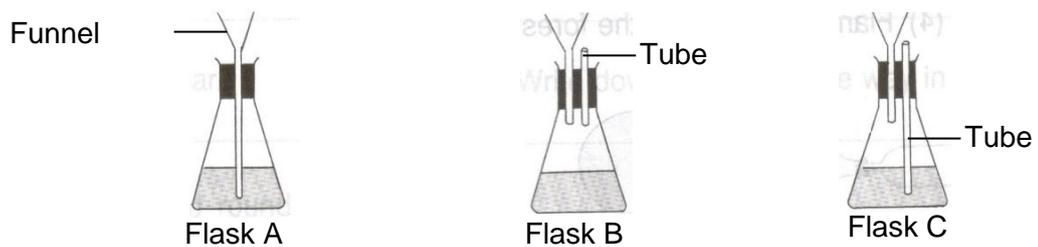
16. Study the flowchart below carefully.



Choose from below the most appropriate questions for P and Q.

	P	Q
(1)	Is it a form of energy?	Does it have a fixed shape?
(2)	Is it a push or a pull?	Can it be compressed?
(3)	Is it matter?	Does it have a fixed shape?
(4)	Is it matter?	Can it be compressed?

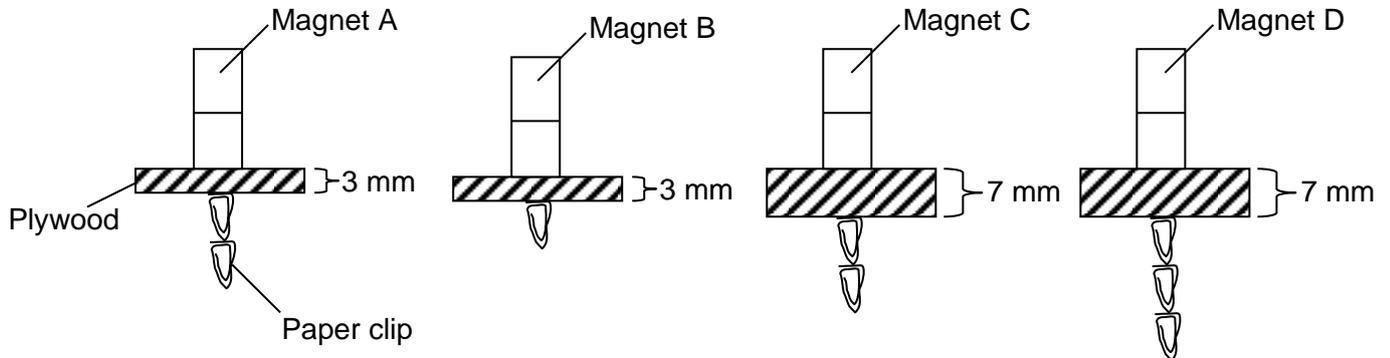
17. Water is poured into the following Flasks A, B and C, quickly through a funnel.



Which flask(s) will allow the water to flow into it easily?

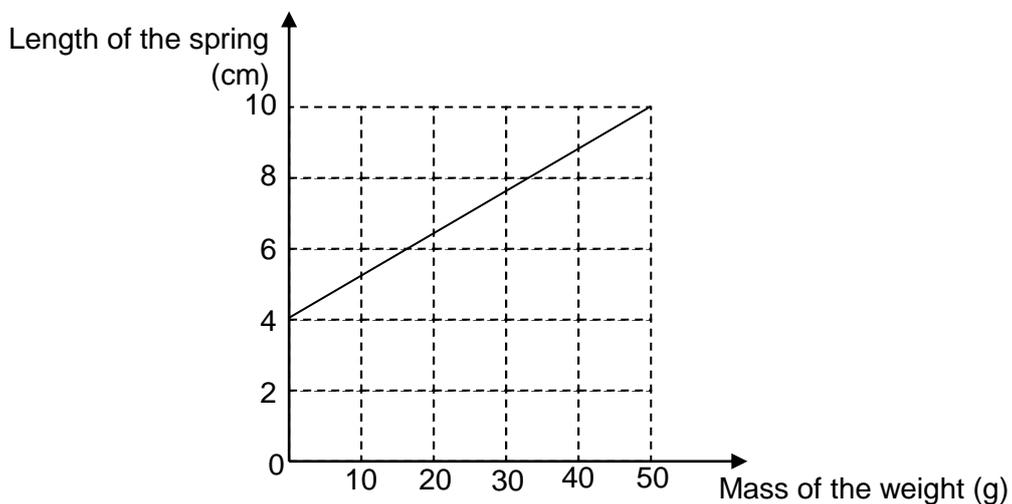
- (1) A only
- (2) B only
- (3) C only
- (4) B and C only

18. Jia Xuan carried out an experiment using 4 different bar magnets. He placed the magnets on the plywoods which were of different thickness. The diagrams below show the number of paper clips attracted to each magnet at the end of the experiment.



Which one of the following conclusions does **not** describe Jia Xuan's experiment?

- (1) Magnet B has the weakest magnetic force.
 - (2) Magnet C has weaker magnetic force than Magnet D.
 - (3) Magnet C has stronger magnetic force than Magnet A.
 - (4) Both Magnet A and Magnet C have the same amount of magnetic force.
19. The graph below shows the relationship between the length of a spring and the mass of a weight that is hung on it.



What is the extension of the spring when a 50g-weight is hung on it?

- (1) 4 cm
- (2) 6 cm
- (3) 8 cm
- (4) 10 cm

20. Four materials P, Q, R and S, are used to scratch each other. The observations are shown in the table below.

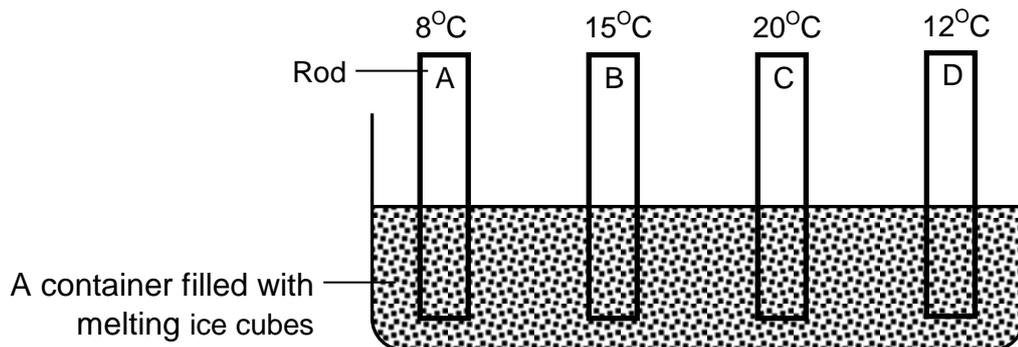
Material	Materials that can be scratched.			
	P	Q	R	S
P				
Q	✓		✓	
R	✓			
S	✓	✓	✓	

Which of the following shows the correct order of the materials from the hardest to the softest?

Hardest \longrightarrow Softest

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

21. An experiment was carried out with four different rods, A, B, C and D. Each rod was made of a different material. The rods were at room temperature before the start of the experiment. One end of each rod was then put into a container filled with melting ice cubes. After a while, the temperature at the other end of each rod was recorded as shown in the diagram below.



Which rod, A, B, C or D, is the best conductor of heat?

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

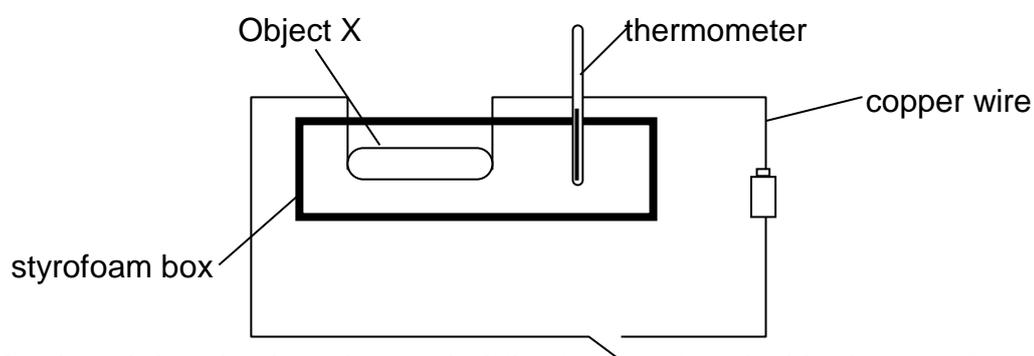
22. The table shows the energy conversion when electrical appliances / devices A, B and C are used.

Electrical appliances / devices	Energy Conversion
A	Electrical energy \longrightarrow Heat
B	Chemical energy \longrightarrow Electrical energy
C	Electrical energy \longrightarrow Kinetic energy

Identify the above electrical appliances / devices.

	A	B	C
(1)	Fan	Battery	Escalator
(2)	Toaster	Battery	Drill
(3)	Watch	Oven	Fan
(4)	Kettle	Fan	Torch

23. Kenneth set up an experiment as shown below.



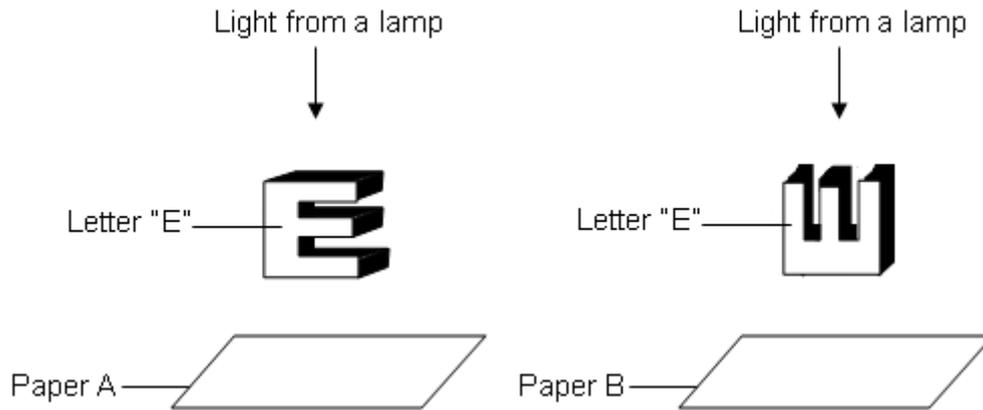
He closed the circuit and recorded the temperature inside the styrofoam box every 3 minutes. The results are shown in the table below.

Time (min)	Temperature ($^{\circ}\text{C}$)
0	30
3	32
6	34
9	36

What can Object X be?

- (1) Magnet
- (2) Plastic spoon
- (3) Thermometer
- (4) Ice cream stick

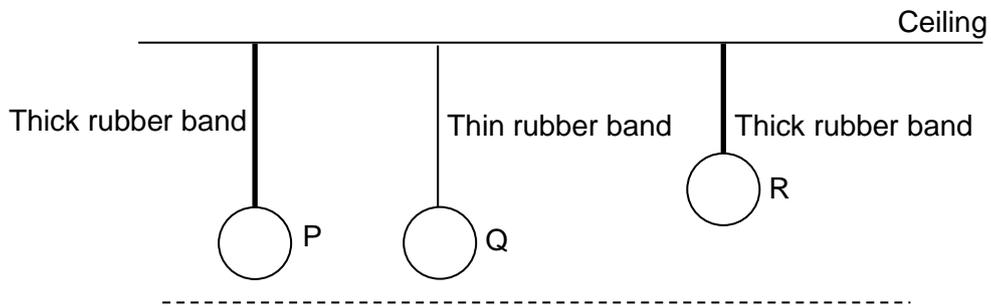
24. Linda studied the shadows formed by two identical E blocks. The letter blocks were placed at different positions under identical light sources in a dark room. Shadows were formed on Papers A and B as shown below.



Which of the following shadows would be observed on each paper?

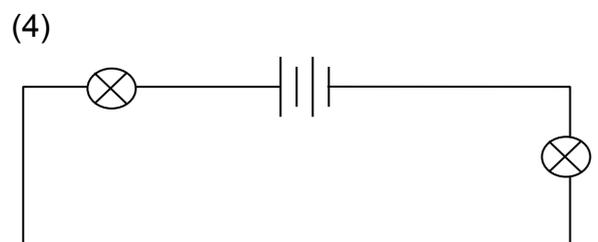
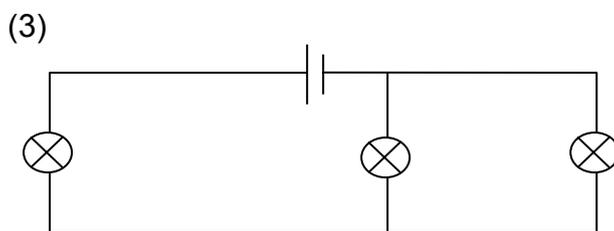
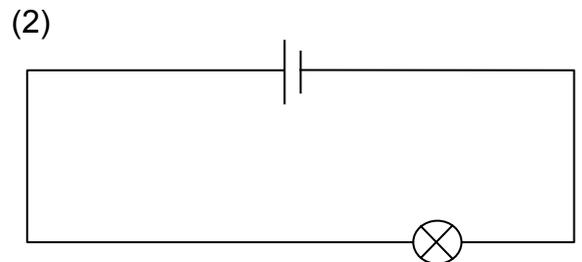
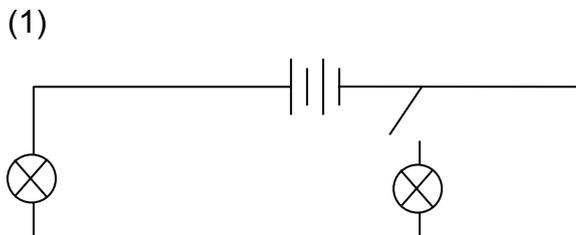
	Paper A	Paper B
(1)		
(2)		
(3)		
(4)		

25. An experiment is set up to compare the mass of three objects P, Q and R, using two different types of rubber bands. The objects are made of different materials and the three rubber bands are of the same length before extension.

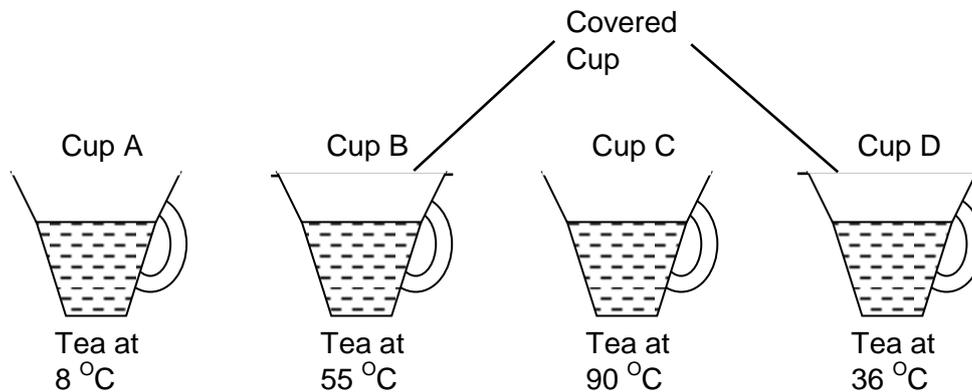


The objects are hung freely from the ceiling.
Which one of the following conclusions is correct?

- (1) Object P is heavier than Object Q.
 - (2) Object R is heavier than Object Q.
 - (3) Object R is heavier than Object P.
 - (4) Both objects P and Q have the same mass.
26. In the circuit set-ups below, similar bulbs and batteries are used.
In which set-up will the bulb light up the brightest?



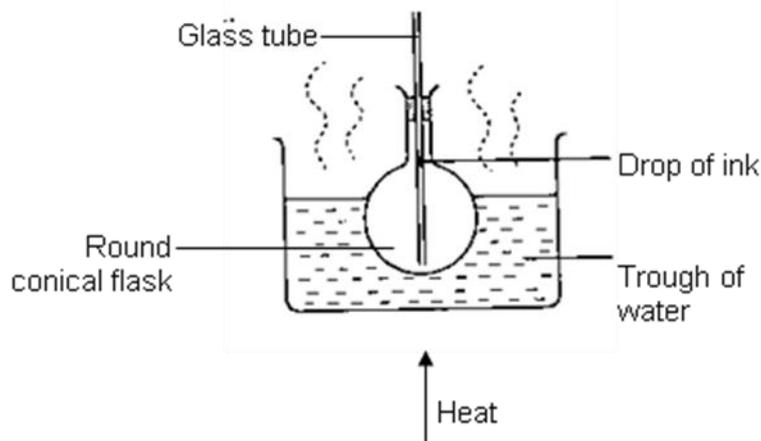
27. Four cups of tea, A, B, C and D, at different temperatures are left on a table in the school canteen.



In which cups of tea will evaporation take place?

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

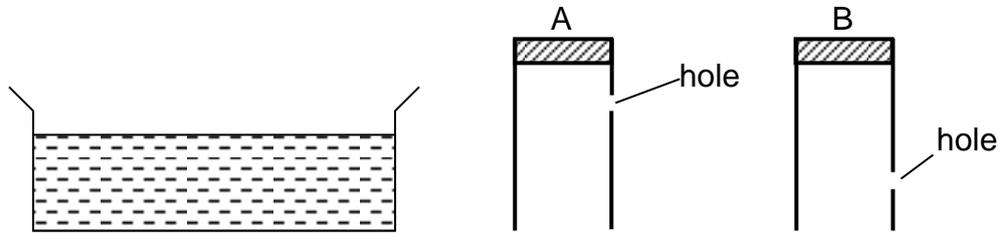
28. Mrs Wong set up the experiment shown below.



What observation will she make about the drop of ink in the glass tube when the water is heated up?

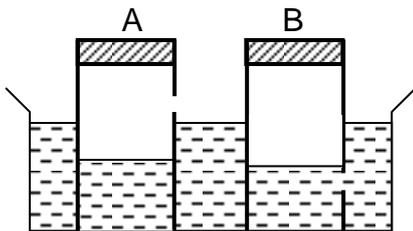
- (1) The drop of ink will rise.
- (2) The drop of ink will drop.
- (3) The drop of ink will first drop and then rise.
- (4) The drop of ink will first rise and then drop.

29. Alice took two identical containers A and B and cut away the bottom part. He pierced a hole on each container and lowered them vertically into a basin of water.

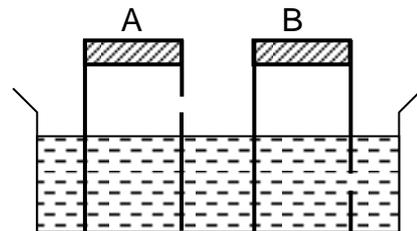


Which of the following diagrams shows the correct water levels?

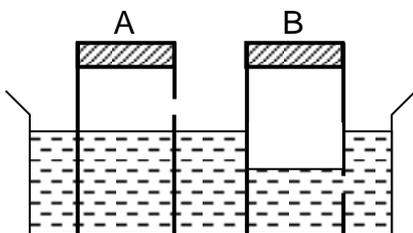
(1)



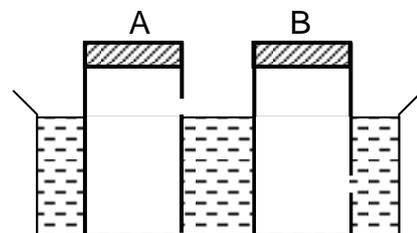
(2)



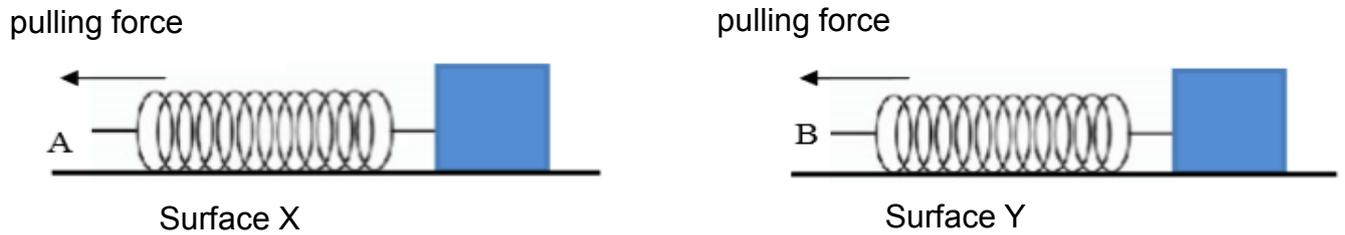
(3)



(4)



30. 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 elastic spring force exerted by Spring A on the wooden block is stronger as compared to Spring B.
- D: The elastic spring force exerted by Spring A on the wooden block is weaker as compared to Spring B.

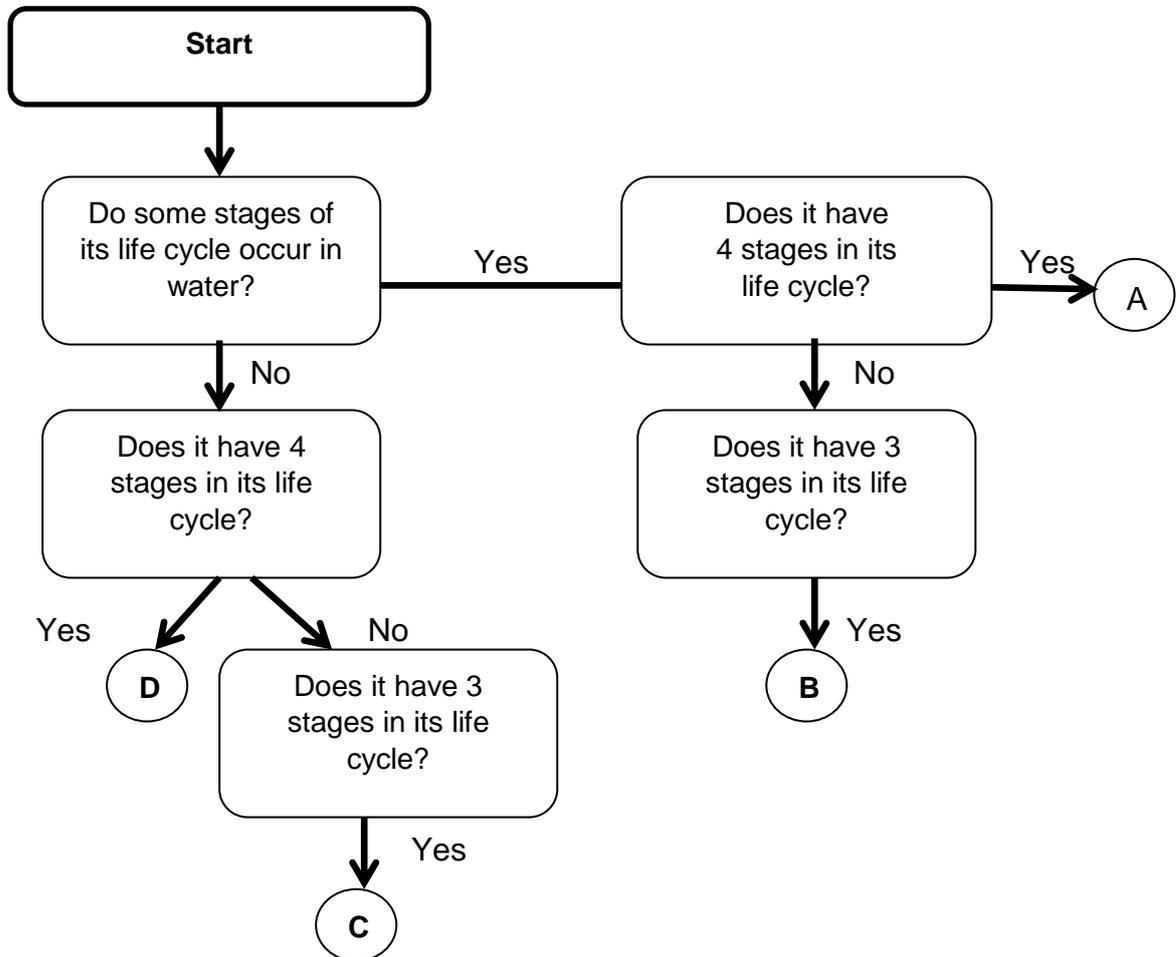
- (1) A and C only
- (2) A and D only
- (3) B and C only
- (4) B and D only

- End of Booklet A -

SECTION B (40 marks)

For Questions 31 to 45, write your answers in the booklet. The number of marks available is shown in the brackets [] at the end of each question or part-question.

31. The chart below shows the characteristics of some insects.

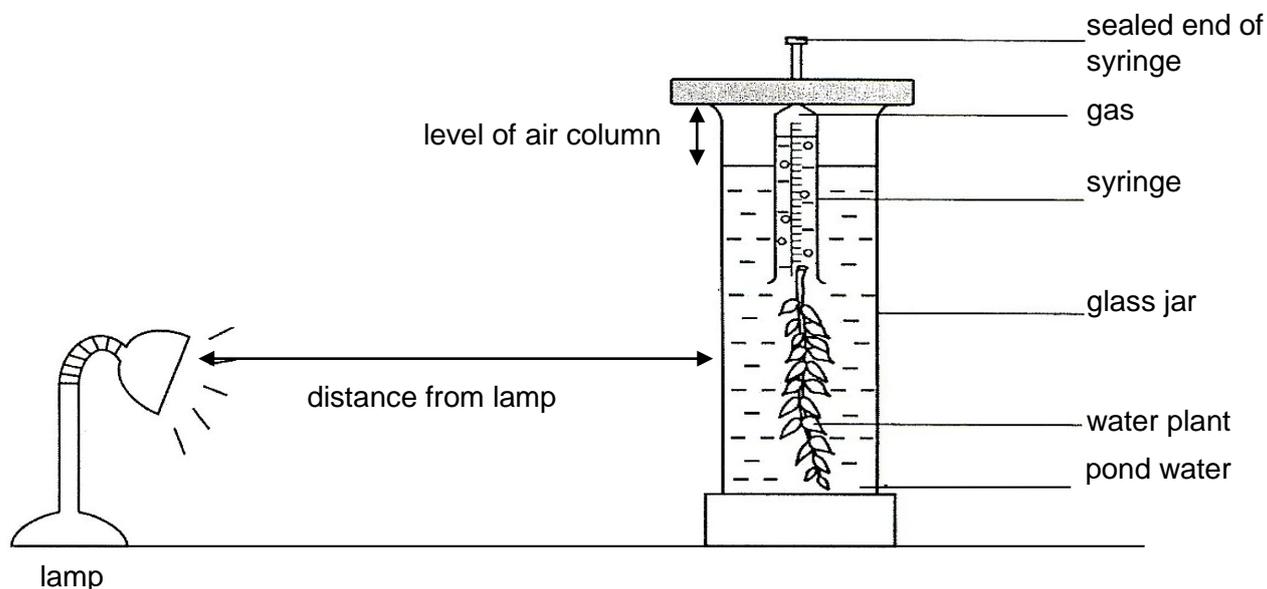


(a) Identify the letter, A, B, C or D, that the following insects are represented by. (1m)

Insect	Letter
i) Mosquito	
ii) Cockroach	

(b) State another difference which is not mentioned in the above chart, between the life cycle of the mosquito and the cockroach. (1m)

32. Jason set up an experiment in a dark room as shown below. He put a water plant in a glass jar of pond water. He then placed a lamp at different distances from the glass jar as shown in the diagram. He counted the number of gas bubbles produced in one minute.



He recorded his observations in the table below:

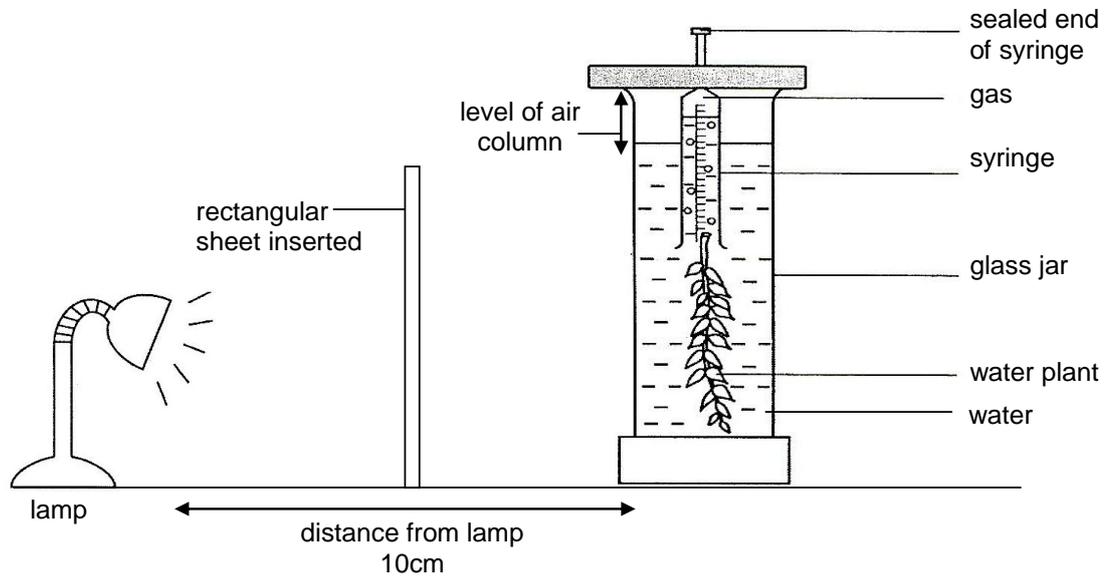
Distance of lamp from water plant (cm)	10	20	40	Lamp off
Number of bubbles per minute	60	30	20	11

(a) State the aim of this experiment. (1m)

(b) Jason's teacher told him that besides counting the number of gas bubbles produced by the water plant, he could also observe the level of air column in the syringe. Explain why the teacher said so. (1m)

(Continue with part (c) on the next page)

- (c) Jason then placed three rectangular sheets made of different materials, E, F and G, one at a time midway between the lamp and the glass jar. The distance of the lamp from the glass jar was kept constant at 10cm throughout the whole experiment.



His results are recorded in the table below.

Rectangular sheet made of material	E	F	G
Number of bubbles produced per minute	4	19	12

Arrange the materials E, F and G according to the amount of light passing through it in descending order. (1m)

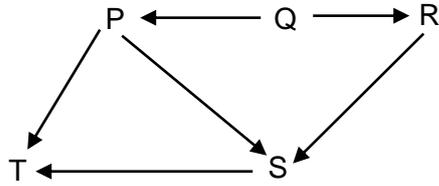
,

,

most light passing through

least light passing through

33. Study the food web below carefully. P, Q, R, S and T are organisms living in the same community.



(a) How many food chains are there in the above food web? (1m)

(b) What is the relationship between the population of Organism R and the population of Organism S? (1m)

(c) How can Organism T be useful to Organism Q? (1m)

34. The diagram below shows a floating aquatic plant.

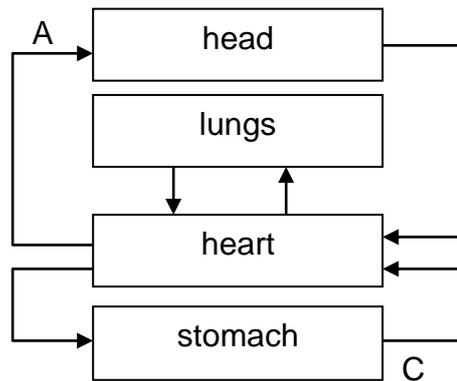


(a) **Mark** with the letter 'X' on a plant part which enables it to float on water. (1m)

(b) Explain how the part in (b) helps to keep the plant afloat. (1m)

(c) State one reason why this aquatic plant is important to some aquatic animals found in the pond. (1m)

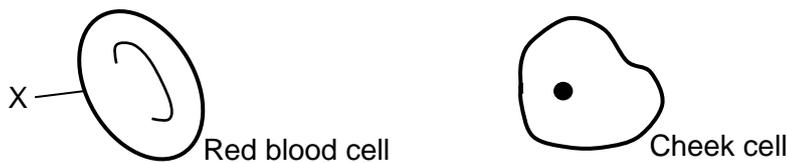
35. The diagram below shows how blood flows in certain parts of the body.



(a) Compare the blood in A and C in terms of the amount of oxygen they contain. Explain your comparison. (1m)

(b) Explain why a person's heart beat faster when he is exercising. (1m)

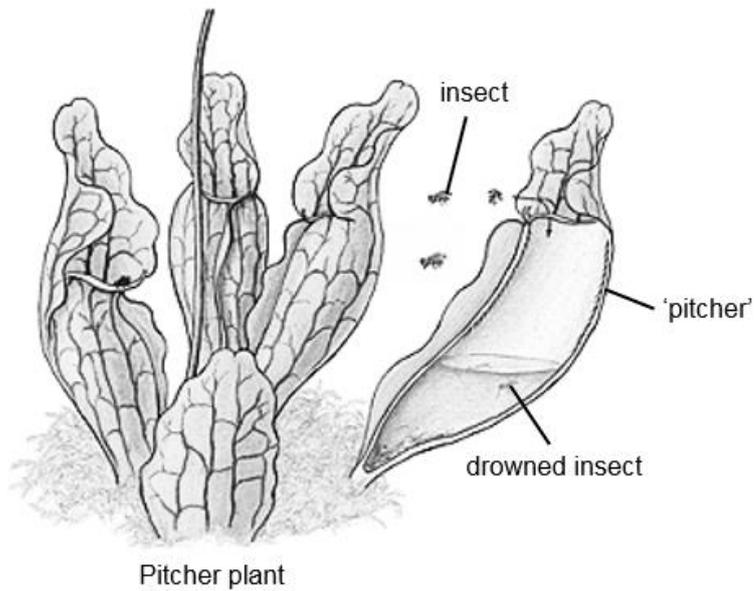
36. The diagrams below show a red blood cell and a cheek cell viewed under a microscope.



(a) Identify the cell part marked X. (1m)

(b) Based on the above diagrams, suggest one function that the red blood cell **cannot** perform as compared to the cheek cell. (1m)

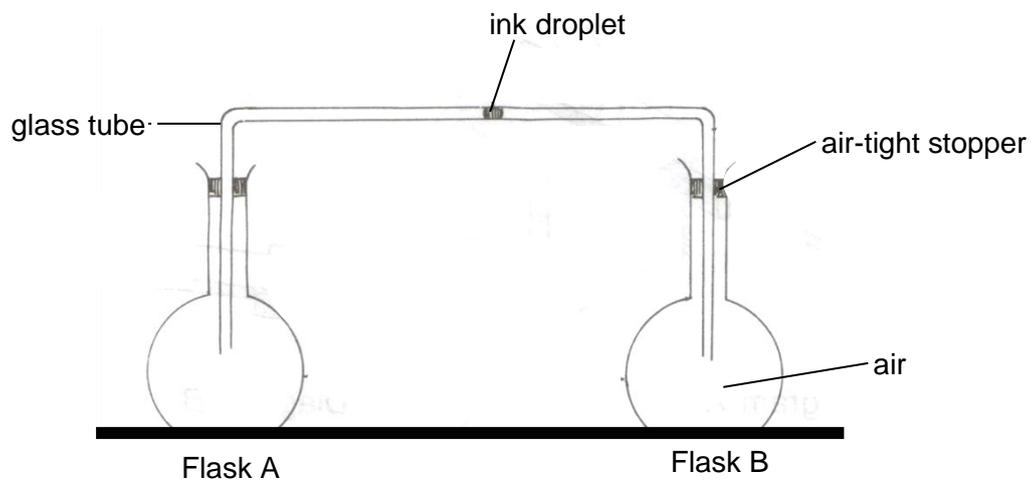
37. The diagram below shows a pitcher plant which are found growing among other bigger trees and plants. Each leaf forms a 'pitcher' which contains a liquid. An insect is lured into the leaf by the nectar. Once inside, it is unable to escape as the interior walls of the leaf are slippery and there are hairs on the top that keep the insect trapped. Eventually, the insect drowns in the liquid and is digested by the plant.



(a) Explain why the pitcher plant needs to trap and digest the insects. (2m)

(b) Is the formation of 'pitcher' leaf a structural or behavioural adaptation? Explain your answer. (1m)

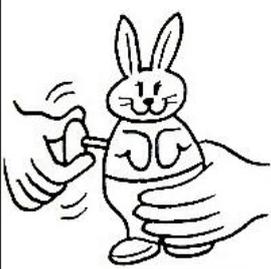
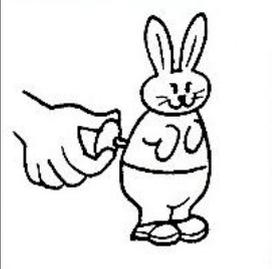
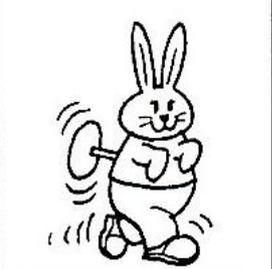
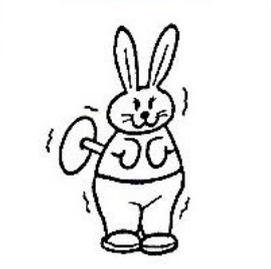
38. Study the following set-up carefully.

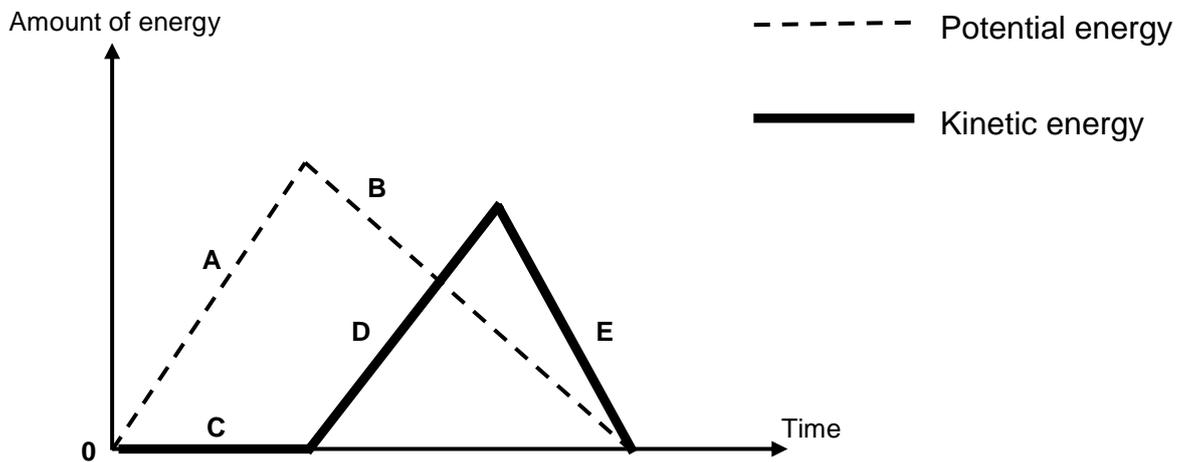


(a) If Flask A is put into a basin of iced water, what will be observed about the ink droplet? Give a reason for the above observation. (1m)

(b) Besides putting Flask A into a basin of iced water, suggest another way to get the same observation in (a). (1m)

39. The diagram and graph below show the changes in energy of a toy bunny that had been wound up.

			
Winding up the toy bunny.	Just wound up, ready to go.	Moving along.	Stops moving.

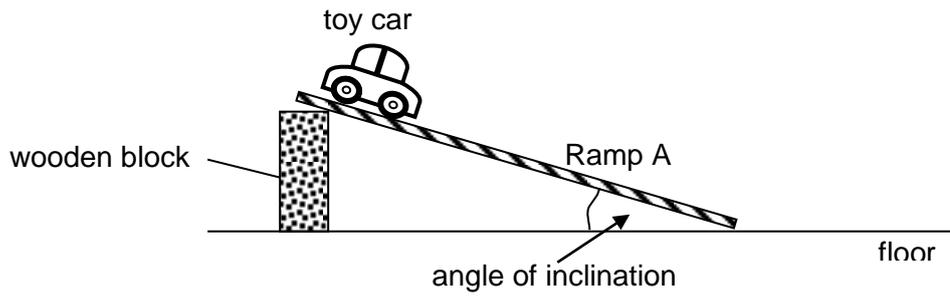


(a) Which two lines (A, B, C, D, E) of the graph show the spring of the toy bunny being wound up? (1m)

Line _____ and _____

(b) Explain how the toy bunny can be made to move a longer distance. (1m)

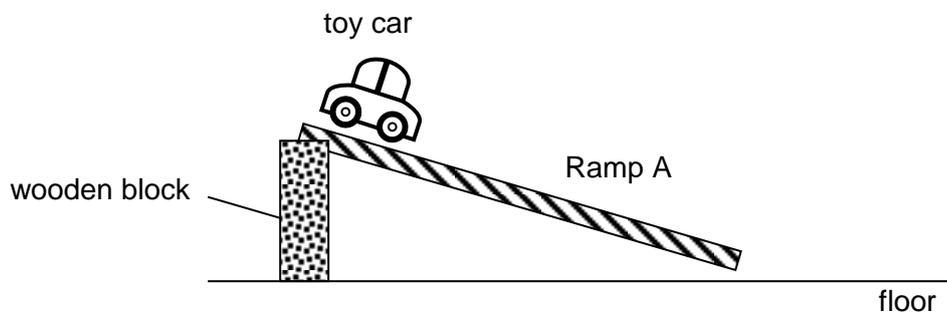
40. Suzy conducted an experiment as shown below.



She released a toy car down Ramp A. Then she repeated the experiment by using two other similar ramps, Ramp B and Ramp C, which had the same length and same angle of inclination. However, she changed the texture of each ramp.

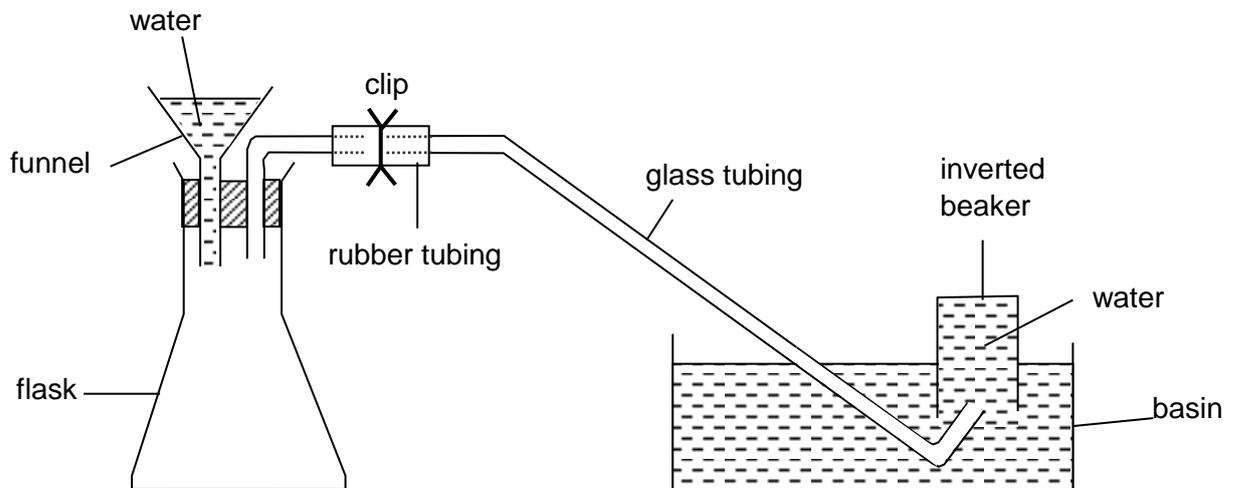
(a) State 2 measurements Suzy should take to determine if the texture of the ramps affected the results of her experiment. (2m)

Next, Suzy decided to repeat the above experiment using a thicker Ramp A as shown below. All other conditions remained the same.



(b) Would she observe a difference in result? Explain. (1m)

41. Study the experiment below carefully.



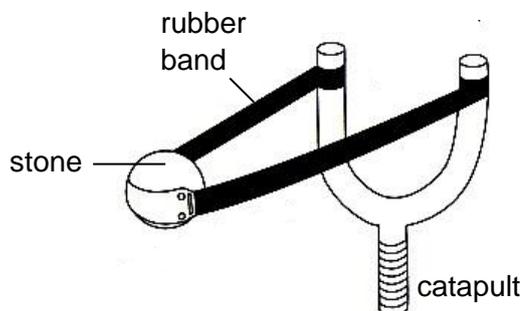
(a) At the beginning of the experiment, the clip was closed. Water from the funnel could **not** enter the flask. Explain why this happened. (1m)

(b) What would happen in the basin and beaker when the clip was released? State two observations. (2m)

(i) _____

(ii) _____

42. Raju bought three similar catapults, A, B and C, with rubber bands of the same length. He then used each of them to shoot a stone three times. Each time, the rubber band was pulled to the same length and released. He then recorded the distance travelled by the stone as shown in the table below.



The table below shows the results of Raju's experiment.

Catapult	Distance moved by the stone [m]			
	1 st try	2 nd try	3 rd try	Average
A	6.5	7.0	6.0	6.5
B	7.5	7.5	7.5	7.5
C	3.5	4.0	4.5	4.0

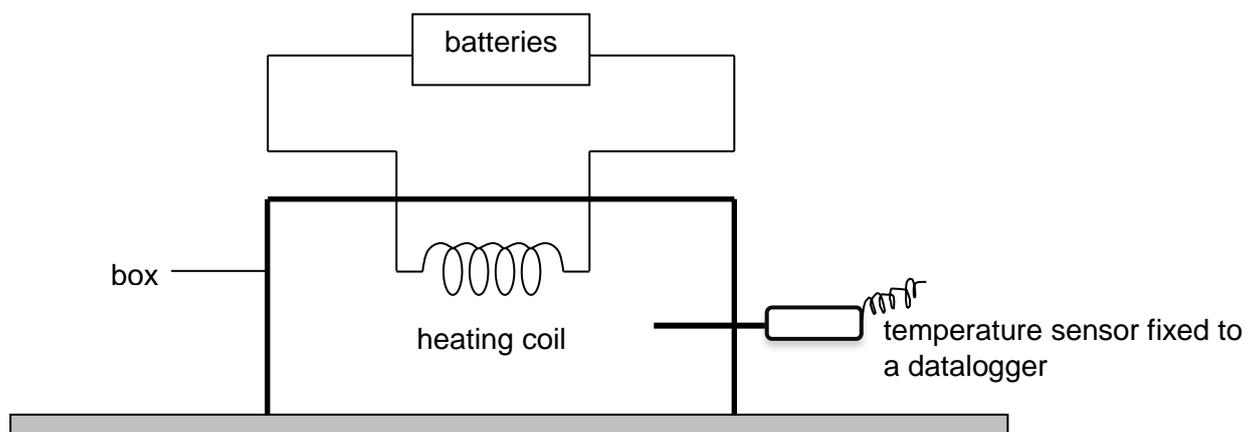
(a) Why did he carry out the experiment three times for each catapult? (1m)

(b) Arrange the catapults, A, B and C, in ascending order of the potential energy possessed by each rubber band. (1m)

, ,
 Least Potential Energy Greatest Potential Energy

(c) Raju wanted to use Catapult C to shoot the stone further. Suggest one way he could do it. (1m)

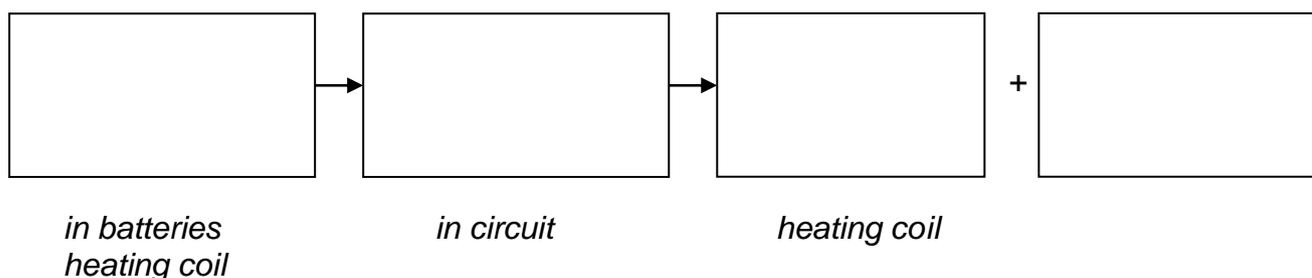
43. Jia Wei set up the following experiment to measure the change in temperature over ten minutes at 2 minutes intervals when four types of heating coil were used. The temperature of air in the box before the start of the experiment was 30°C.



The table below shows the results that he obtained.

Material of heating coil	Temperature of air in the box (°C)				
	2 minutes	4 minutes	6 minutes	8 minutes	10 minutes
A	40	45	50	43	45
B	40	52	58	57	65
C	40	41	42	33	33

(a) State the main energy conversions of the above experiment below: (2m)



(b) Based on the results, which material, A, B or C, is best suited to be used as a heating element in a kettle for boiling water? Explain your answer. (1m)

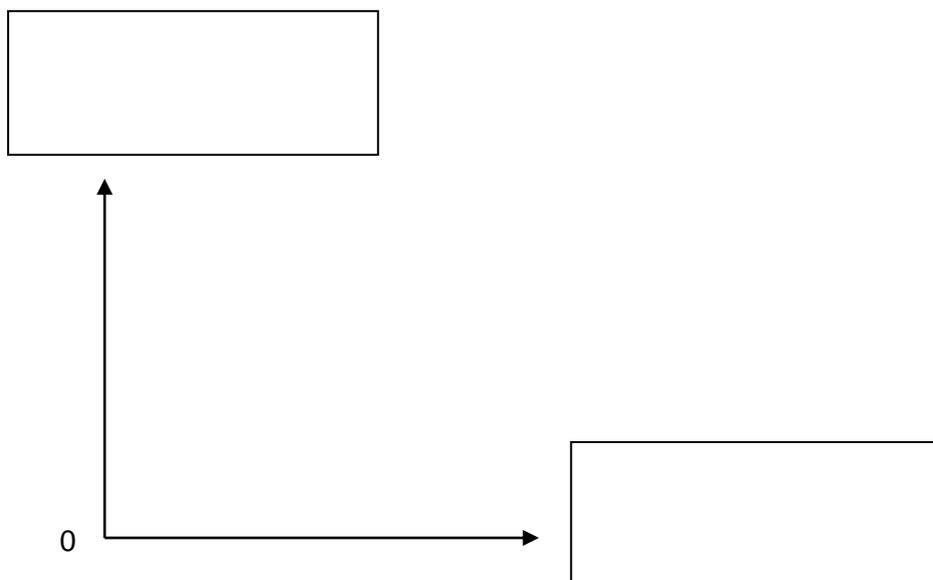
44. Siti conducted an experiment using three bath towels of the same mass. The mass of a dry bath towel is 300g. Study the table below carefully.

Towel	Material	Exposed surface area	Location	Amount of water added to the towel at the start	Time taken for the towel to dry completely
A	Cotton	80 cm ²	In the house	300 ml	2h 20 min
B	Polyester	80 cm ²	Garden	500ml	50 min
C	Cotton	40 cm ²	In the house	300ml	3h

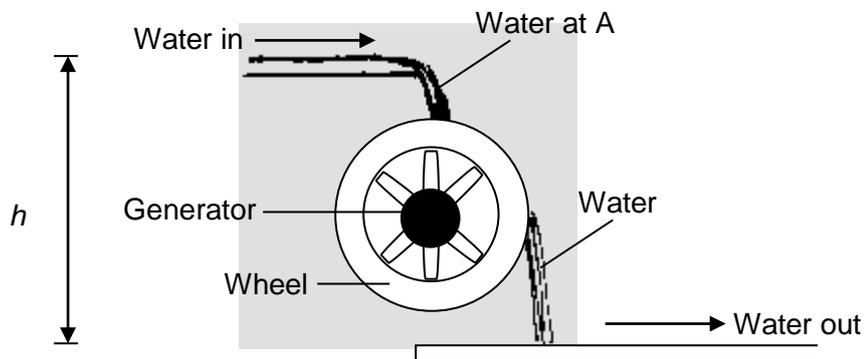
a) How does the variable 'location' affect her experiment? (1m)

b) Explain why there is a difference in the time taken for Towel A and C to dry completely. (1m)

c) **Draw a line graph** in the diagram below to show the relationship between the exposed surface area and the rate of evaporation. **Label** the axes on the graph. (2m)

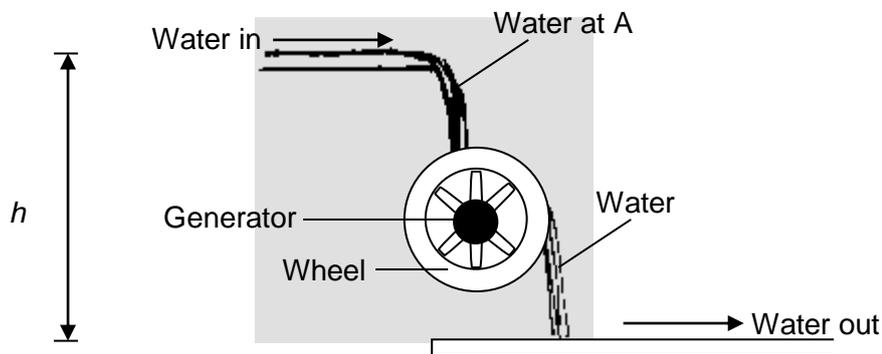


45. The diagram below shows a wheel that is turned by water. A generator is connected to the wheel to produce electricity.



(a) Identify the types of energy in the water at A. (1m)

Next, the wheel has been replaced by a smaller one as shown below.



(b) If the other factors remain the same, how will it affect the amount of electricity produced? Explain your answer. (2m)

END OF PAPER

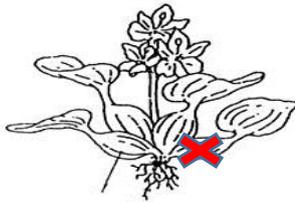
P6 STANDARD SCIENCE MOCK PAPER 2014 (Answer Key)

MCQs

1	3	6	2	11	4	16	3	21	1	26	1
2	1	7	1	12	3	17	2	22	2	27	4
3	2	8	2	13	3	18	4	23	1	28	3
4	2	9	1	14	1	19	2	24	3	29	3
5	2	10	3	15	1	20	4	25	1	30	1

Open-ended questions

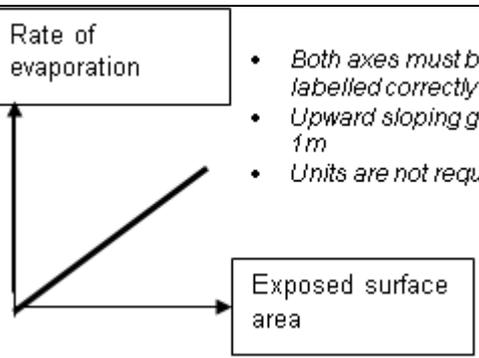
Qn	Answer	Marks	Unacceptable Answer
31a	Mosquito - A (½m) Cockroach - C (½m)	1 m	
31b	The young of the Cockroach <u>looks like / resembles</u> the adult Cockroach but the larva of the mosquito <u>does not look like / resemble</u> the adult mosquito. Other possible answers: <i>A cockroach does not have a pupa stage in its life cycle but a mosquito has.</i> <i>The mosquito's life cycle has a stage that change into a pupa but a cockroach does not.</i> <i>A mosquito does not have a nymph stage but a cockroach has.</i>	1m No partial mark	
32a	To find out if the <u>distance of the lamp from the water plant</u> affects the <u>number of bubbles produced per minute</u> . OR To find out if the <u>distance of the lamp from the water plant</u> affects the <u>rate of photosynthesis</u> .	1m	Must state the relationship between the lamp and bubbles produced.

32b	<u>Gas / Oxygen</u> is given off during <u>photosynthesis</u> and is collected and <u>occupying the air column</u> in the syringe.	1m	Gas/Oxygen is in the air column – 0m
32c	F, G, E	1m or 0m	No partial marks
33a	3 food chains	1m	
33b	As the population of Organism S increases, the population of Organism R decreases. OR As the population of Organism S decreases, the population of Organism R increases.	1m	As the population of Organism R increases, the population of Organism S decreases. - 0m
33c	When Organism T dies and decomposes, it returns to the soil as nutrients for Organism Q. OR Organism T helps keep the ecosystem in balance.	1m	
34a	 Any of the 4 swollen leaf stalks.	1m	
34b	There are <u>air spaces inside</u> the stalk to keep it afloat.	1m	There is air – 0m (Ambiguous)
34c	<u>Any one of the following:</u> It gives them shade. It provides them with oxygen (which is needed for survival). It gives the aquatic animals a place to hide from the predators. It provides them with food. It provides them with shelter.	1m	
35a	<u>Blood in A is richer in oxygen than C.</u> The heart pumps out oxygen-rich blood to all parts of the body while <u>oxygen has been used up by the cells in the stomach</u> (during cell respiration).	1m	Comparison must be made with explanation.



35b	The heart needs to pump blood rich in oxygen (oxygenated blood) and digested food to all parts of the body to <u>provide more energy</u> for the activity.	1m	To breathe faster – 0m To give more energy – 0m
36a	Cell membrane	1m	
36b	It cannot control the activities of the cell. OR It cannot pass genetic information from one generation to the next. OR It cannot reproduce	1m	It does not have nucleus. - 0m It does not give the cell a regular shape. - 0m It cannot make its own food. - 0m
37a	The pitcher plant trap and digest the insect to <u>provide nutrients for the plant (1m)</u> and hence this <u>reduce the competition for nutrients from soil with other bigger trees and plants.</u> (1m)	2m Partial mark	To provide food for the plant. – 0m
37b	Structural adaptation because these features are present in the plant.	1m	
38a	The ink droplet will move towards Flask A/to the left because <u>the air in Flask A contracts</u> (when the flask is dipped into the iced water and thereby sucking the ink droplet towards it.)	1m	No partial mark.
38b	Heat up Flask B using a Bunsen burner or a candle. OR Put Flask B into a container of hot / boiling water.	1m	
39a	A and C.	1m	
39b	<u>Winding the toy bunny a few more rounds</u> and there will be <u>more elastic potential energy</u> which is converted into <u>more kinetic energy</u> .	1m	Winding up the bunny a few more rounds. – 0m

40a	<p>She could measure the time taken for the toy car to reach the floor. (1m)</p> <p>and</p> <p>She could measure the distance travelled by the toy car <u>along the floor</u>. (1m)</p>	1m	<p>She could measure the time taken. – 0m</p> <p>She could measure the distance. – 0m</p>
40b	<p>No, because the <u>angle of inclination</u> and <u>the length of the ramps</u> for both experiments were the same.</p> <p>OR</p> <p>The texture of the ramp remained unchanged</p>	1m	<p>No, because the angle of inclination for both experiments was the same. – 0m</p> <p>No, because the length of the ramps for both experiments was the same. – 0m</p>
41a	<p>Air was trapped in the flask and as <u>air occupies space in the flask</u>, there was no more space for water from the funnel to drip into the flask.</p> <p>OR</p> <p>Air is not able to escape from the flask, it <u>occupies space</u> and so water cannot enter to take its place.</p>	1m	
41b	<p>i) There would be bubbles appearing in the water inside the beaker.</p> <p>ii) Water level in the beaker would drop/ decrease.</p> <p>iii) Water level in the basin would increase.</p> <p>Any 2 of the answers above.</p>	2m	1m for each answer.
42a	<p>He wanted a more reliable result and to reduce human error.</p>	1m	<p>He wanted more accurate results. - 0m</p> <p>To ensure his results are accurate -0m</p>
42b	C, A, B	1m	

42c	<p>He could stretch the rubber band longer.</p> <p>Or</p> <p>He could pull back the rubber band more/ longer.</p>	1m	He could use more rubber bands. -0m
43a	<p>Chemical) \longrightarrow Electrical \longrightarrow Heat + Light potential energy energy energy <i>in batteries circuit heating coil heating coil</i></p>	2m	½ m each
43b	<p>B. It has the <u>greatest temperature increase</u> in the same period of time hence it is the best conductor of heat among the three coils.</p>	1m	<p>B alone - (0m)</p> <p><i>It heat up the water very fast / easily. (0m)</i></p>
44a	<p>It affects the <u>temperature</u> of the environment/ surrounding/ amount of wind/humidity level which <u>affects the rate of evaporation/ time taken for evaporation.</u></p>	1m	<p>“Location” affects Sunlight/ light / sun’s energy which affects the rate of evaporation. – 0m</p>
44b	<p>Towel C has a <u>smaller exposed surface area than Towel A</u> so <u>the rate of evaporation decreases.</u> Hence the time taken to dry completely will be longer.</p> <p>OR</p> <p>Towel A has bigger <u>exposed surface area than Towel C</u> so <u>the rate of evaporation increases.</u></p>	1m	<p>They have different exposed surface area – 0m</p> <p>Evaporation increases/ decreases – 0m [no mention of rate of evaporation]</p>
44c	<div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;"> <p>Rate of evaporation</p> </div> <div style="margin-right: 20px;"> <ul style="list-style-type: none"> <i>Both axes must be labelled correctly – 1m</i> <i>Upward sloping graph – 1m</i> <i>Units are not required</i> </div> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;"> <p>Exposed surface area</p> </div>  </div>	2m	

45a	Gravitational potential energy and kinetic energy. OR Stored energy and kinetic energy.	1m	
45b	<p><u>More electricity</u> is produced. [1m]</p> <p>Since <u>the distance between the water entering and the wheel is greater</u> [$\frac{1}{2}$m], <u>the amount of gravitational potential energy is greater</u> [$\frac{1}{2}$m] and thus the amount of energy turning the wheel is more resulting in more electricity is produced.</p>	2m	Partial marks awarded.

Tips for tackling PSLE Science

In order to do well in Science, mastery of process skills is necessary.

The table below gives a useful guide on some of the common process skills you would need to know.

No.	Process Skill	Description
1	Observing	Examining something carefully so that you can gather information about it
2	Comparing	Identifying the similarities and differences between two or more things
3	Classifying	Sorting things or events into groups based on common characteristics or properties
4	Analysing	<ul style="list-style-type: none">❖ Identify parts of a system❖ Identify the relationship between parts❖ Relate the parts to their functions❖ Identify patterns and trends in data❖ Identify the variables that affect the investigation❖ Identify the relationship between variables
5	Generating	<ul style="list-style-type: none">❖ Draw inferences or conclusions from observations❖ Make predictions❖ Give reasonable explanations based on evidence❖ Construct hypothesis❖ Devise a method to test a hypothesis

Answering open-ended science questions requires you to not only master the process skills but also learn to apply them in context.

You would also need to familiarise yourself with the terms used in open-ended questions.

The table below gives you a guide on the terms you would encounter.

Terms used in questions:

No.	Term	Explanation
1	Describe	Give relevant details about an object or event. Not required to explain answer.
2	Explain	Give reasons or make something clear and simple to understand.
3	State	Simply write down the answer. No explanations required.
4	What does this experiment tell you?	Interpret the results of the experiment. State what the results mean.
5	What is the purpose / aim of this experiment?	State the aim of the experiment. Not required to interpret results or describe them.
6	What would happen? / Predict the results of the experiment.	Make logical predictions. No explanation is required.

Here are some useful tips to help you tackle open-ended questions.

- ❖ Read and understand the question.
- ❖ Look for the key words and underline them.
- ❖ Think of the topic related to the question.
- ❖ Think of the concepts that help to answer the question.
- ❖ Apply the appropriate concepts to answer the question.
- ❖ **Use scientific words to answer the question.**
- ❖ Note the marks awarded to each question in order to estimate the amount of information required in the answer.

Let us try applying the tips to this question:

Question:

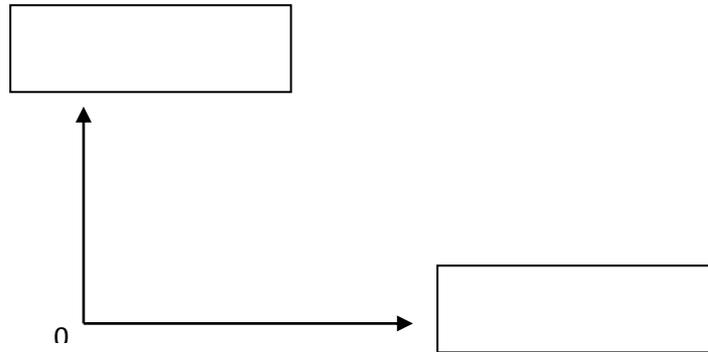
Siti conducted an experiment using three bath towels of the same mass. The mass of a dry bath towel is 300g. Study the table below carefully.

Towel	Material	Exposed surface area	Location	Amount of water added to the towel at the start	Time taken for the towel to dry completely
A	Cotton	80 cm ²	In the house	300 ml	2h 20 min
B	Polyester	80 cm ²	Garden	500ml	50 min
C	Cotton	40 cm ²	In the house	300ml	3h

a) How does the variable 'location' affect her experiment? (1m)

b) Explain why there is a difference in the time taken for Towel A and C to dry completely. (1m)

- c) **Draw a line graph** in the diagram below to show **the relationship between the exposed surface area and the rate of evaporation**. **Label** the axes on the graph. (2m)



- Study the experimental set-up and understand what it is about. In any experimental set-up, you must be able to identify the changed variable and the dependent variable (what you are measuring or looking out for in an experiment).
- Having done that, identify the key words in the question. They have been highlighted for you.
- Ask yourself what concept or topic this question is related to. The words 'exposed surface area', 'rate of evaporation', etc should give you the clue.
- For (a), think of the factors affecting the rate of evaporation. Focus on which factor 'location' would be related to. The factors that are possible would be wind speed, humidity and temperature. Think about how each affects the rate of evaporation. In your answer, it is necessary to mention the 'rate of evaporation'. This is an example of using scientific language in your answer.
- For (b), it is important that a **comparison** is made between the two towels. Again, identify the changed variable for the set-up. In this case, the changed variable, exposed surface area, is one of the factors affecting the rate of evaporation. Write in detail how this changed variable affects the results of the experiment. Again, use scientific language mentioned in the previous point.
- For (c), the clues to the axes are given in the stem of the question. They are 'exposed surface area' and 'rate of evaporation'. You just need to decide which to place in the x- and y-axes. Generally, we place the changed variable on the x-axis and the dependent variable on the y-axis but this is not a hard or fast rule. The important thing is to accurately capture the relationship between the two variables in the form of the line graph that you are required to draw. Does the rate of evaporation increase with increased surface area? If so, your line graph should have an upward trend profile.