HENRY PARK PRIMARY SCHOOL

FIRST SEMESTRAL ASSESSMENT 2018

PRIMARY 6

SCIENCE

BOOKLET A (56 MARKS)

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers on the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 6 ( )

Date: 14 May 2018

Total Time for Booklets A & B : 1 h 45 min

Booklet	Marks
A	/ 56
B	/ 44
Total (A+B)	/ 100

Parent's Signature: _____

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Booklet A (56 marks)

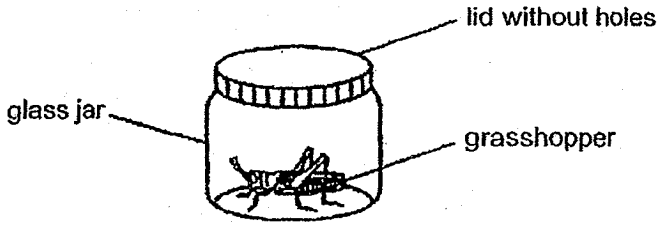
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the **Optical Answer Sheet.**

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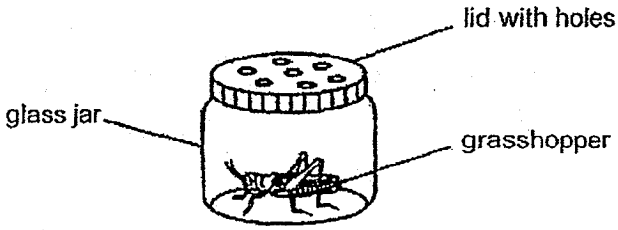
1 Timothy wants to keep his pet grasshopper alive for as long as possible.

Which of the following set-ups is the most suitable for keeping Timothy's pet grasshopper alive for the longest period of time?

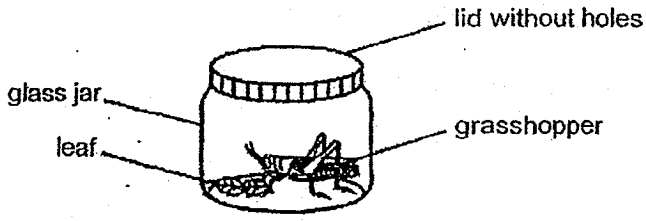
(1)



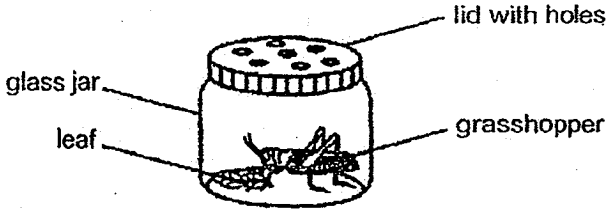
(2)



(3)



(4)



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2 Which of the following common characteristics are found in both amphibians and reptiles?

A : Both reproduce by laying eggs.

B : Both breathe through their lungs.

C : Both have part of their life cycle in the water.

D : Both have scales as their outer body covering.

(1) A and B only

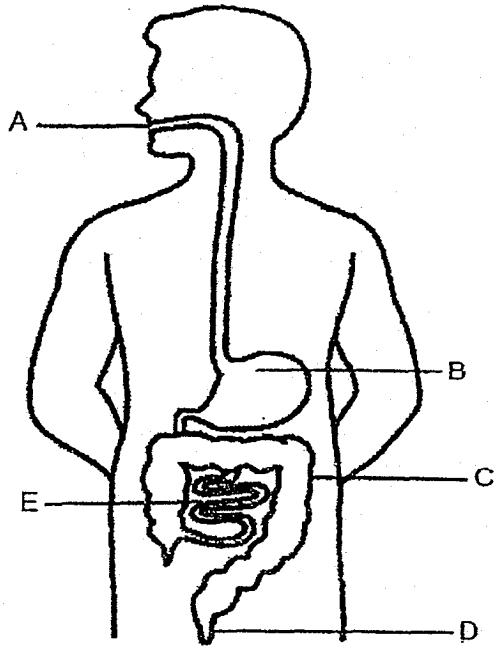
(2) C and D only

(3) A, B and D only

(4) A, B, C and D

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3 Study the diagram of the human digestive system shown below.

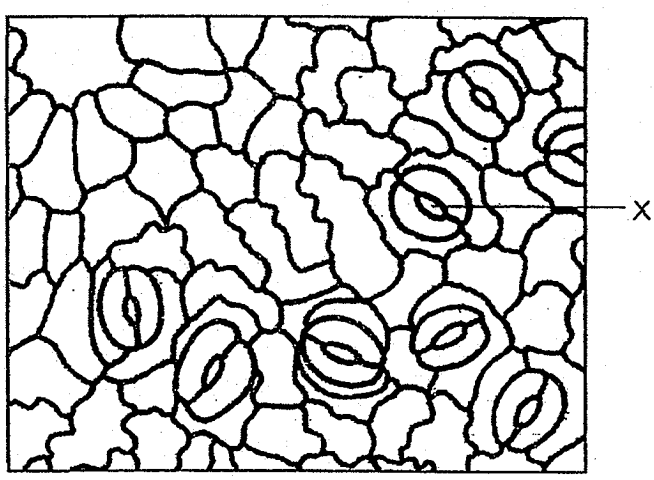


Which of the following correctly identifies the parts of the digestive system where digestion starts and ends?

	Parts of digestive system	
	Digestion starts here	**Digestion ends here**
(1)	A	C
(2)	A	E
(3)	B	D
(4)	B	E

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4 The diagram below shows part X which is found on the leaves of a plant.



When John put a leaf in hot water, he observed more bubbles on the lower surface than on the upper surface of the leaf.

Which of the following best explains his observation when the leaf was placed in the hot water?

(1) It absorbs sunlight during photosynthesis.

(2) It allows exchange of gases between the plant and the environment.

(3) More of part X are found on the upper surface than the lower surface of the leaf.

(4) More of part X are found on the lower surface than the upper surface of the leaf.

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5 Flowers benefit directly from the visits of insects like butterflies and bees because they _____.

(1) pollinate the flowers

(2) lay eggs on the flowers

(3) provide food for the flowers

(4) disperse the seeds of the flowers

6 Which of the following about photosynthesis is correct?

	Light needed?	Chlorophyll needed?	Gas taken in	Gas given out	Food made
(1)	no	yes	carbon dioxide	oxygen	starch
(2)	yes	no	oxygen	carbon dioxide	sugar
(3)	yes	yes	carbon dioxide	oxygen	starch
(4)	yes	yes	carbon dioxide	oxygen	sugar

7 In a pond, there are very tiny plants which are too small to be seen by our eyes.

They are important to the aquatic animals in the pond because they _____.

(1) protect them

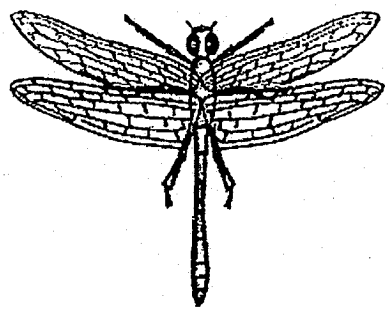
(2) provide them with warmth

(3) are a source of food for them

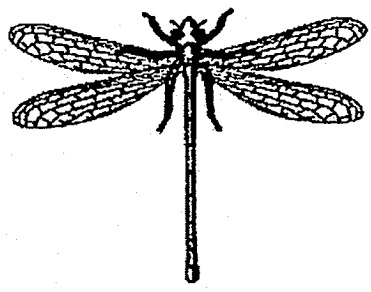
(4) break down dead organisms into simple substances

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8 The diagrams below show two insects, A and B, as they appear when resting.



Insect A



Insect B

Which of the following observable characteristic(s) of the insects would be most useful to tell them apart?

(1) The number of legs

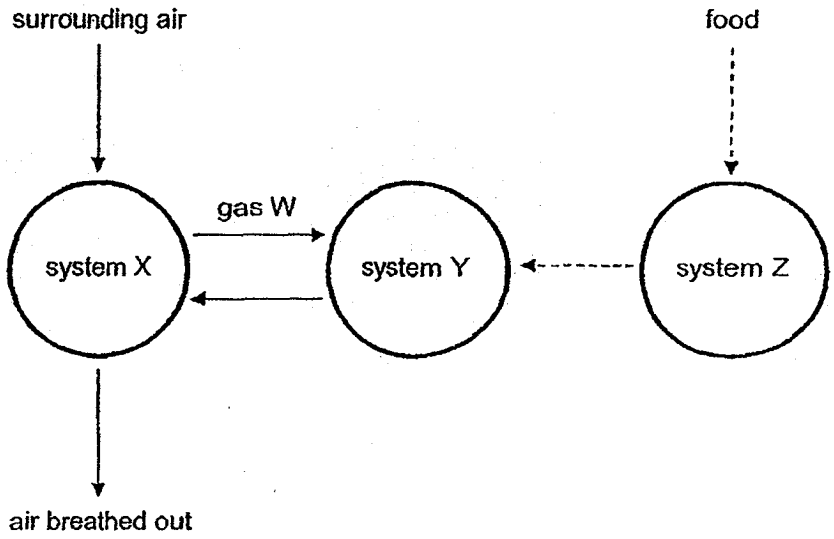
(2) The number of wings

(3) The wing shape at rest

(4) The number of body parts

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9 The diagram below shows how food and various gases are transported in the systems, X, Y and Z, in the human body.

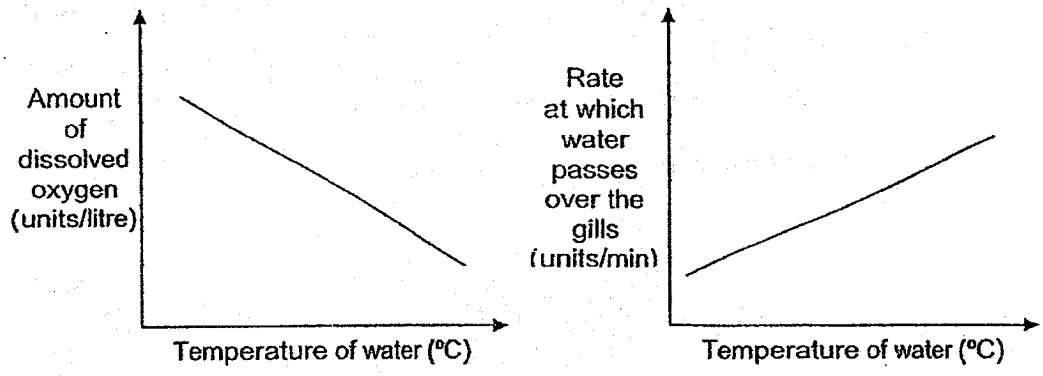


Which of the following shows the correct identification of systems X, Y and Z and gas W?

	System			Gas W
	X	Y	Z	
(1)	respiratory	circulatory	digestive	carbon dioxide
(2)	circulatory	digestive	respiratory	carbon dioxide
(3)	respiratory	circulatory	digestive	oxygen
(4)	circulatory	respiratory	digestive	oxygen

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10 The graphs below show how the temperature of water affects the amount of dissolved oxygen and the rate at which water passes over the gills of fish.

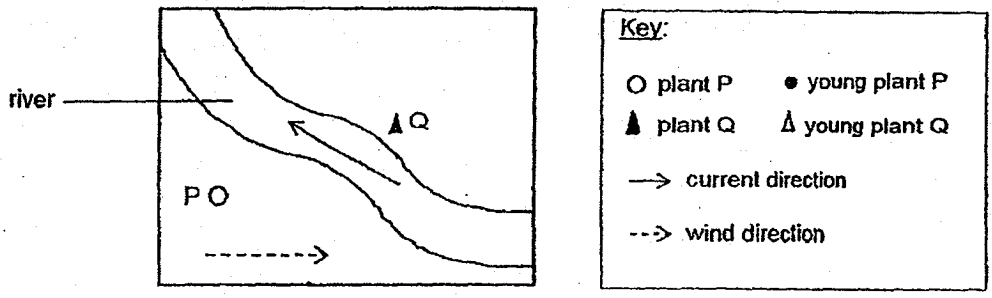


Which of the following shows the correct relationship between the temperature of water and amount of dissolved oxygen and rate of water passing over the gills?

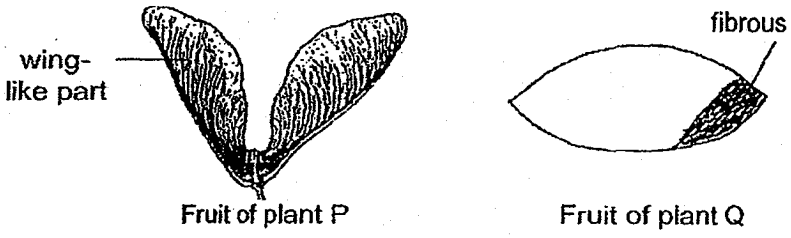
	Temperature of water	Amount of dissolved oxygen	Rate at which water passes over the gills
(1)	decreases	increases	decreases
(2)	decreases	increases	increases
(3)	increases	increases	decreases
(4)	increases	decreases	decreases

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11 The diagram below shows the location of two plants, P and Q.

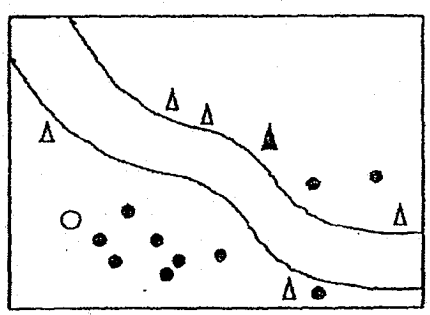


The fruits of plant P and Q are shown below.

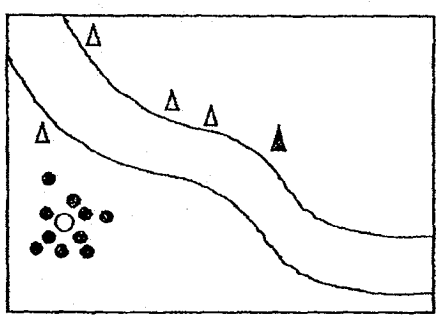


Which of the following correctly shows the dispersal patterns of the seedlings of plants P and Q after a period of time?

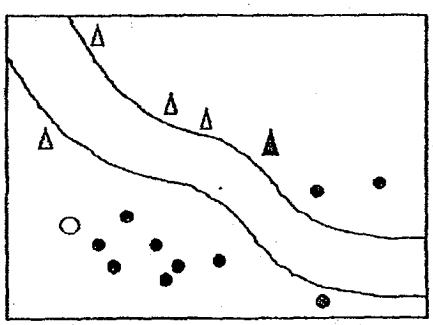
(1)



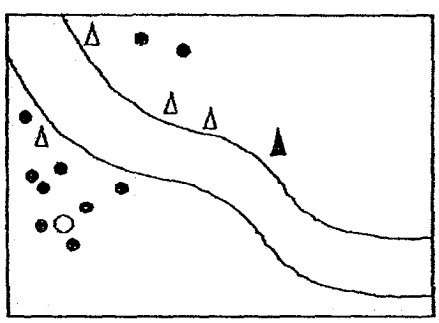
(2)



(3)

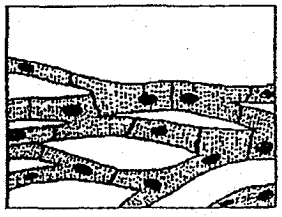


(4)

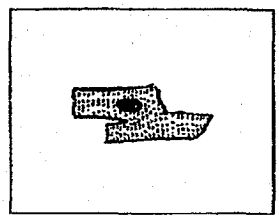


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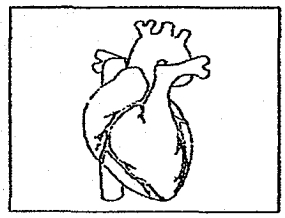
12 The diagrams below show the parts that make up the circulatory system in an organism.



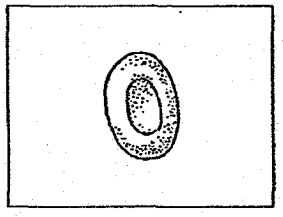
A



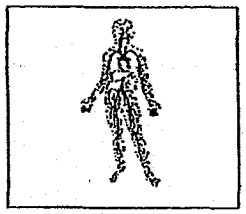
B



C

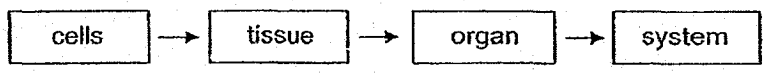


D



E

The organisation of the parts to make up the system is shown below.

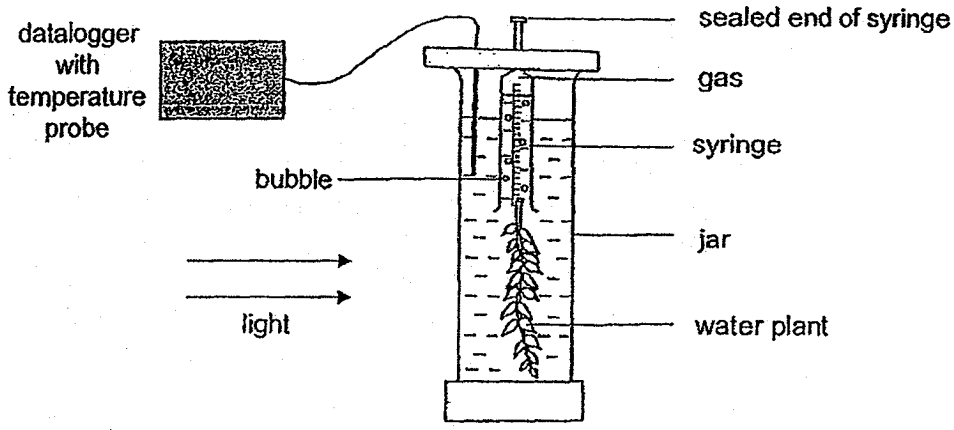


Which one of the following is correct about the parts that make up the circulatory system in an organism?

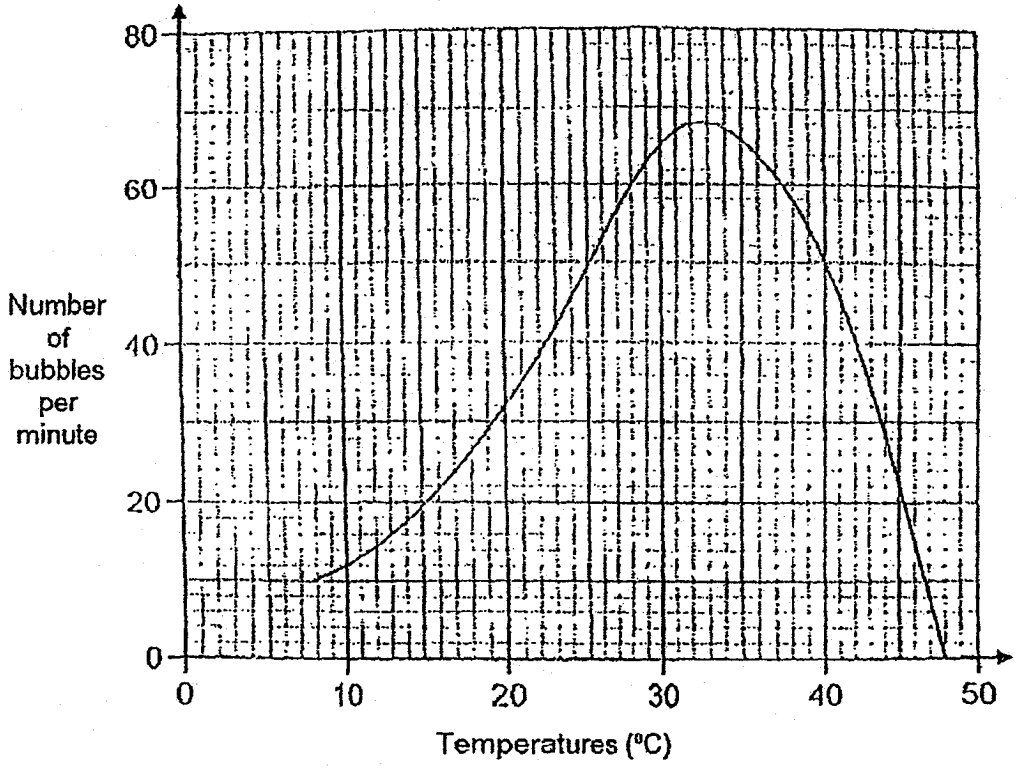
	cells	tissue	organ	system
(1)	A, B	D	C	E
(2)	B, D	A	C	E
(3)	D	A, B	C	E
(4)	A	B, D	E	C

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13 Teck An used the following set-up as shown below to investigate the rate of photosynthesis at different temperatures.



He plotted a graph to show the number of bubbles counted per minute at different temperatures as shown below.



At which temperature range of water should he expose the plant in the jar in order to have the highest rate of photosynthesis?

(1) 10°C to 15°C

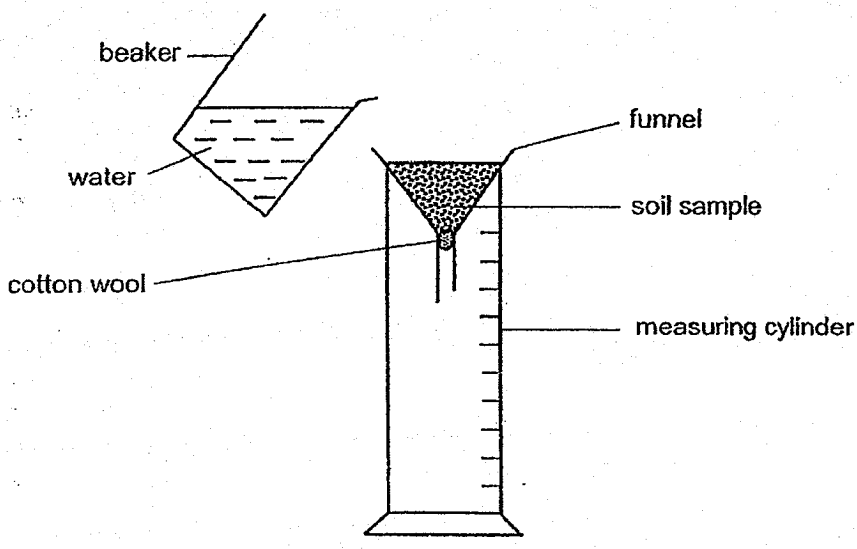
(2) 20°C to 25°C

(3) 30°C to 35°C

(4) 40°C to 45°C

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14 He Zhong wanted to find out which soil samples taken from four different places can retain the most amount of water. He used the set-up as shown below for his experiment.



He kept the duration of the experiment the same for each soil sample.

Which other variables must be kept the same to ensure that his experiment was carried out fairly?

A : Amount of water in the beaker

B : Amount of soil taken from each place

C : Amount of water collected in the measuring cylinder

(1) A and B only

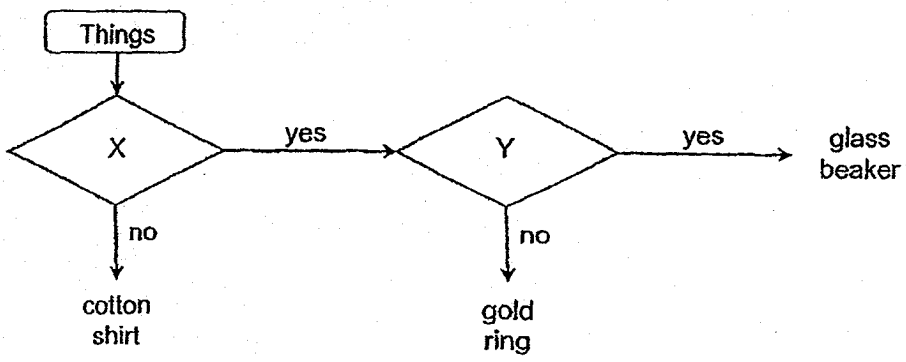
(2) A and C only

(3) B and C only

(4) A, B and C

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15 Study the flow chart below.

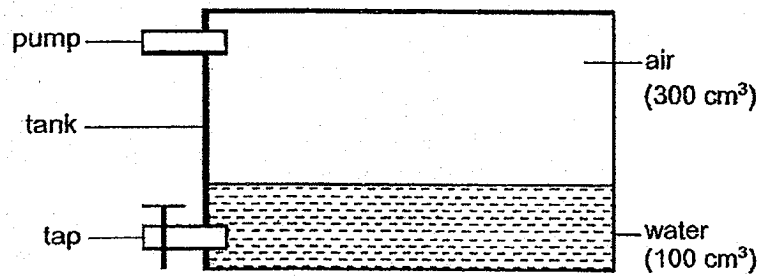


Which of the following represents the missing questions, X and Y, in the flow chart?

	X	Y
(1)	Does it absorb water?	Is it flexible?
(2)	Does it allow most light to pass through?	Is it strong?
(3)	Does it absorb water?	Does it allow most light to pass through?
(4)	Is it waterproof?	Does it allow most light to pass through?

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16 Aaron conducted an experiment with a tank that has a capacity of 400 cm^3 as shown below.



He used the tap to remove 20 cm^3 of water. He then used the pump to add 10 cm^3 of air into the container.

What was the final volume of air in the container?

(1) 300 cm^3

(2) 310 cm^3

(3) 320 cm^3

(4) 330 cm^3

17 Helen felt cold in an air-conditioned room.

Which one of the following statements can be used to explain correctly why she felt cold?

(1) Her body lost heat to the surrounding air.

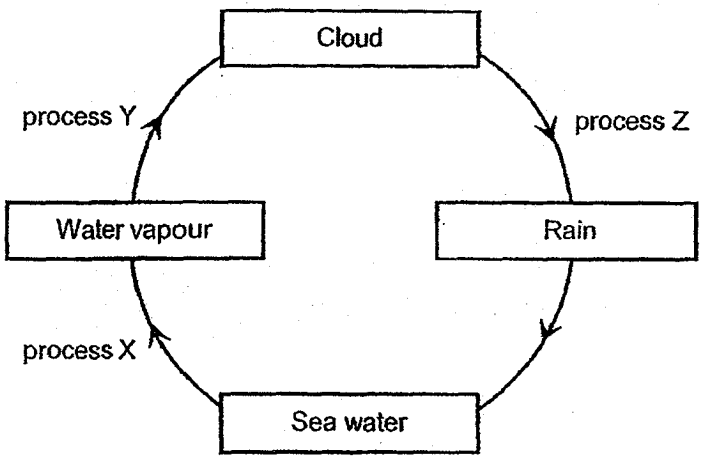
(2) Her body gained heat from the surrounding air.

(3) Her body lost coldness to the surrounding air.

(4) The surrounding air lost coldness to her body.

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18 The diagram below represents the water cycle.



Which of the following statements are correct?

A: Condensation occurs during process Z.

B: Water vapour gains heat during Process Y.

C: Evaporation occurs during Process X.

D: There is a change of state during Process Y.

(1) A and B only

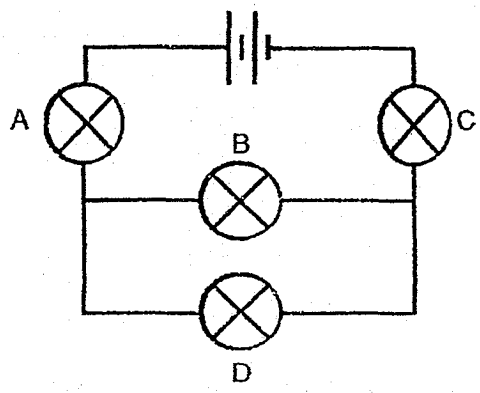
(2) C and D only

(3) B and D only

(4) A and C only

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19 Study the electrical circuit below.



Which of the following statements is correct?

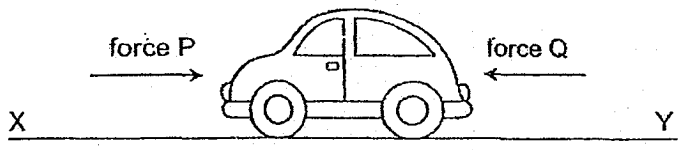
(1) If bulb A fuses, only bulb C will remain lit.

(2) If bulb B fuses, only bulb D will remain lit.

(3) If bulb D fuses, only bulbs A and C will remain lit.

(4) If bulb C fuses, all the other bulbs will not light up.

20 The diagram below shows a toy car on a flat surface. The direction of the toy car's movement depends on the amount of forces P and Q applied on it.



Which of the following statements correctly explain the car's possible movement?

A: The car does not move because force P is equal to force Q.

B. The car moves towards Y because force Q is smaller than force P.

C: The car moves towards X because force P is greater than force Q.

(1) A and B only

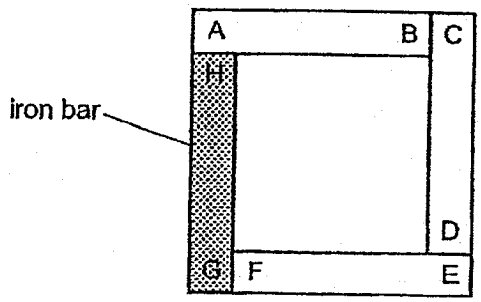
(2) A and C only

(3) B and C only

(4) A, B and C

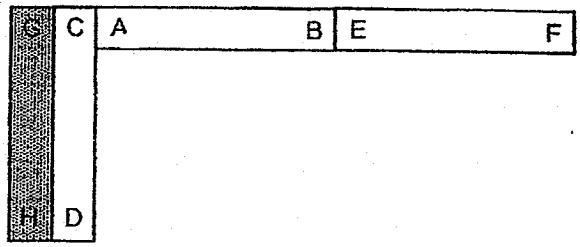
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21 Salim set up three magnets AB, CD and EF and an iron bar GH as shown in the arrangement below.

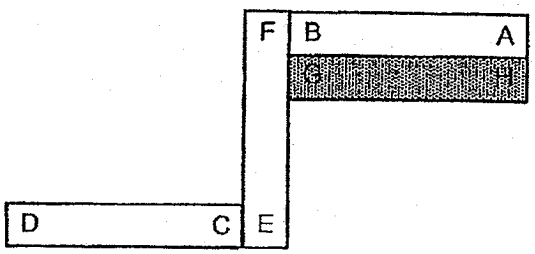


Which one of the following arrangements is possible?

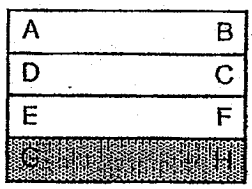
(1)



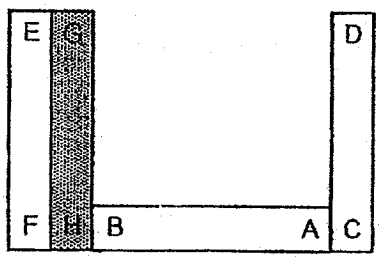
(2)



(3)

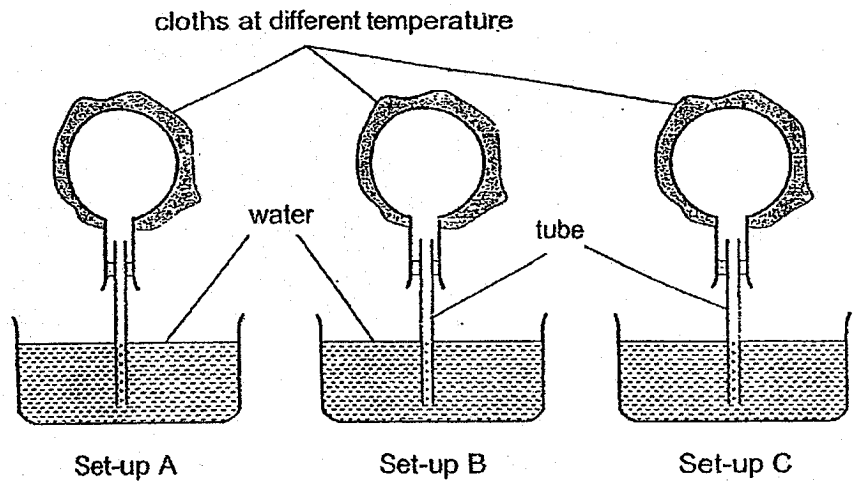


(4)



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22 Ray conducted an experiment using three set-ups as shown below.



He recorded his observations in the table below.

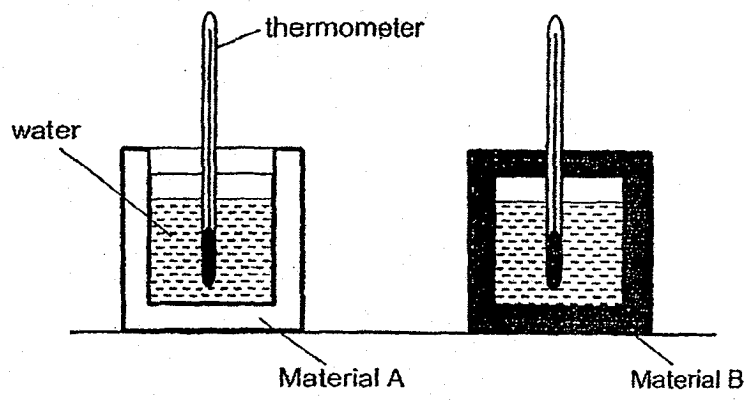
Set-up A	No changes were observed
Set-up B	Bubbles observed around the tube
Set-up C	Water rose up the tube

Which of the following correctly shows the temperature of the cloth used to wrap the flask in each set-up?

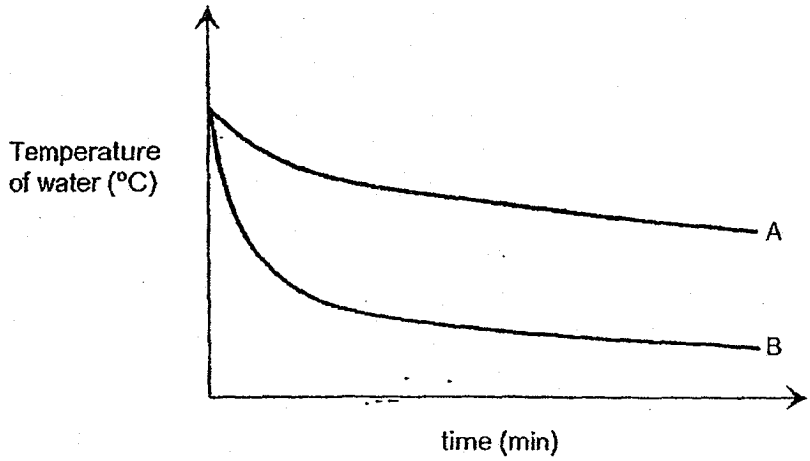
	Set-up A	Set-up B	Set-up C
(1)	90°C	Room temperature	5°C
(2)	5°C	Room temperature	90°C
(3)	Room temperature	5°C	90°C
(4)	Room temperature	90°C	5°C

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23 Containers in the two set-ups below were of the same size and thickness but made of different materials. The containers were filled with the same volume of water at 80°C and left on a table.



The graph shows the temperature of water in the two set-ups over a period of time.



Which of the following correctly shows the materials of the two containers?

	Material A	Material B
(1)	glass	wood
(2)	glass	iron
(3)	iron	glass
(4)	iron	wood

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24 Myra wanted to find out how the presence of wind affects the rate of evaporation of water.

Set-up	Exposed surface area of water in container (cm^2)	Volume of water in container (ml)	Temperature of surrounding air (°C)	Wind
A	150	320	27	Present
B	60	300	35	Absent
C	60	320	27	Present
D	150	320	27	Absent

Which two set-ups should Myra use so that her investigation is a fair test?

(1) A and D

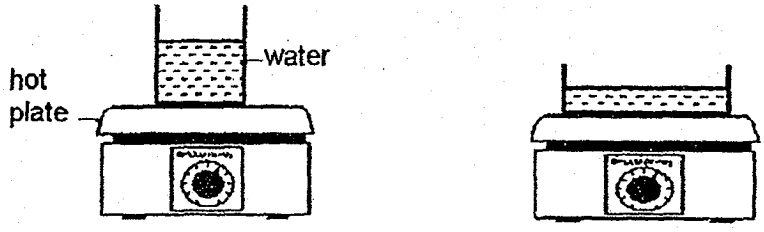
(2) A and C

(3) B and C

(4) C and D

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25 Two containers of water, at room temperature, were heated on hot plates. The identical hot plates were set to the same temperature.



set-up A set-up B

Each container had 500 cm^3 of water.

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

A Water in set-up A will boil first.

B The water in both containers will change state.

C Water in set-up B will boil first.

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

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26 Four metal pins, A, B, C and D, were fixed onto a wooden board as shown in Figure 1 below. Figure 2 shows a battery and a bulb connected to two wires, X and Y.

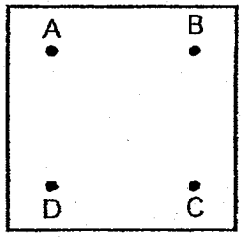


Figure 1

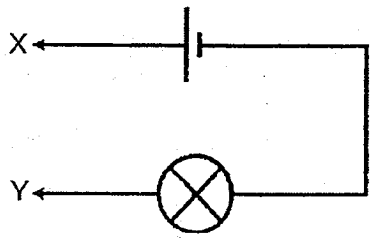


Figure 2

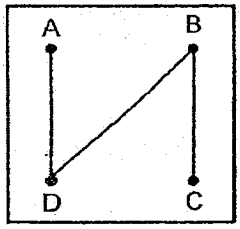
Lisa connected a few pins on the wooden board in Figure 1 with wires.

She then connected X and Y across different pairs of pins. She recorded her results in the table below.

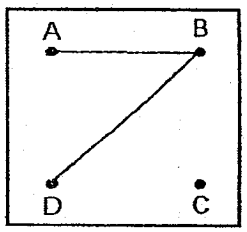
Pin connected to X	Pin connected to Y	Did the bulb light up?
A	B	no
B	C	yes
C	D	yes
D	A	no

Which one of the following correctly shows the connections made by Lisa?

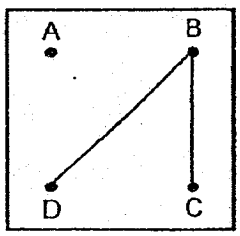
(1)



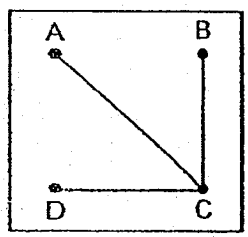
(2)



(3)

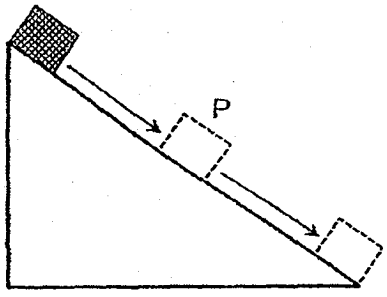


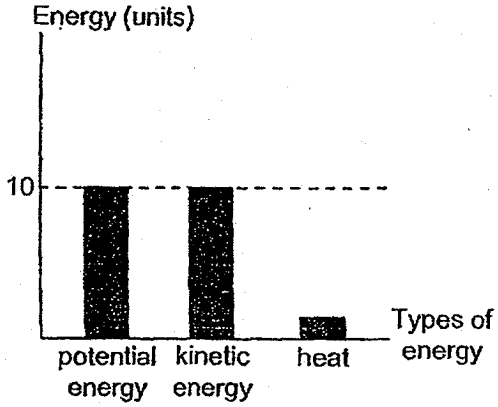
(4)



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27 A block of wood slid down a smooth glass slope after it was released at the top as shown in the diagram below. The graph shows the amount of different types of energy of the block at mid-point P.

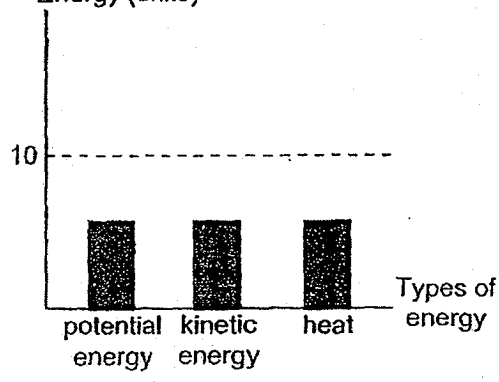




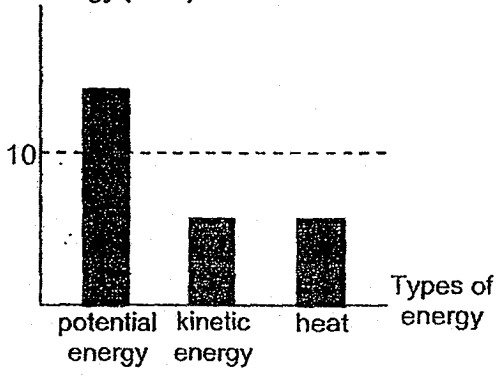
The experiment was repeated on a slope covered with a sheet of sandpaper.

Which one of the following graphs correctly shows the amounts of different types of energy at P?

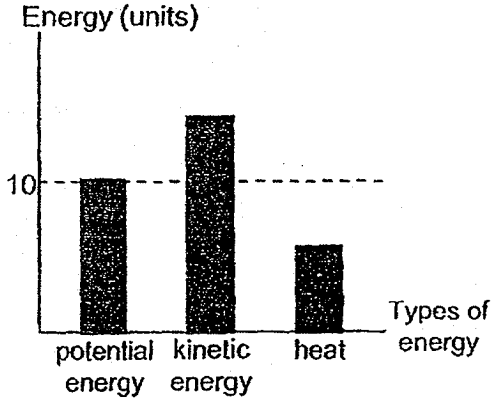
(1)



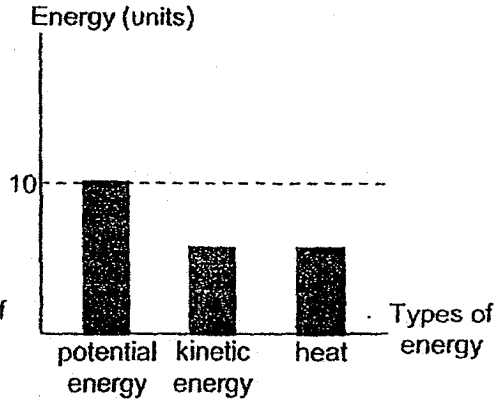
(2)



(3)



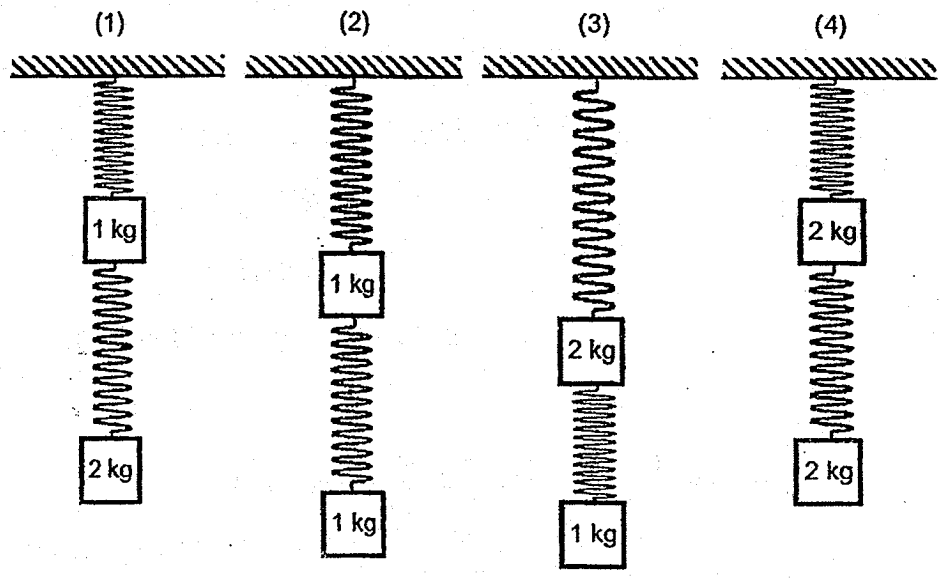
(4)



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28 Taylor hung two identical springs from the ceiling. Each spring is attached to a block of 1 kg or 2 kg weights.

Which one of the following arrangements would be possible?



End of Booklet A

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HENRY PARK PRIMARY SCHOOL

FIRST SEMESTRAL ASSESSMENT 2018

PRIMARY 6

SCIENCE

BOOKLET B (44 MARKS)

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

Name: _____ ( )

Class: Primary 6 ( )

Date: 14 May 2018

Total Time for Booklets A & B : 1 h 45 min

Marks for Booklet B : _____

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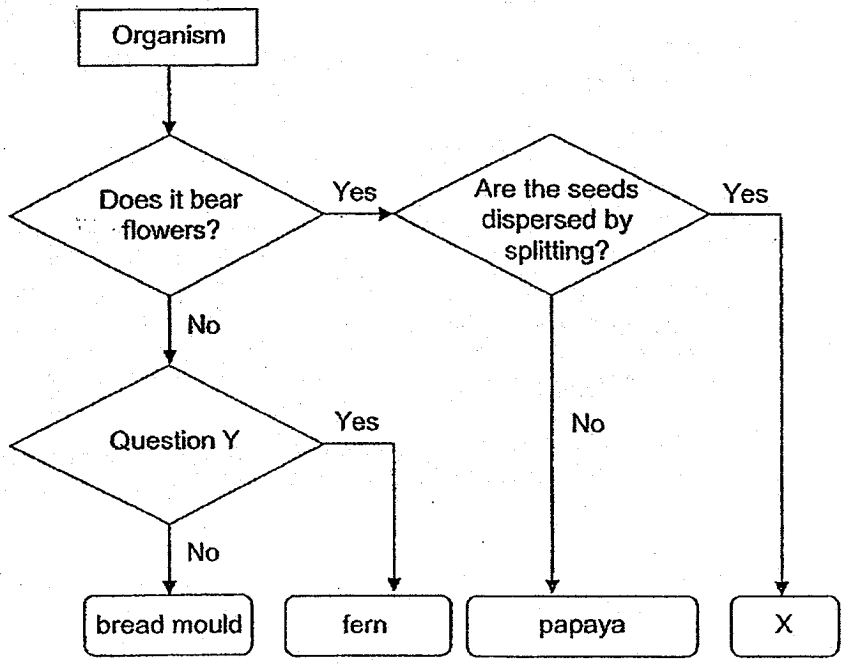
Booklet B (44 marks)

For questions 29 to 41, write your answers in this booklet.

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

---

29 Study the flow chart below.



Based on the information given,

(a) describe two characteristics of organism X. [1]

(i) _____

(ii) _____

(b) what could 'Question Y' be? [1]

_____

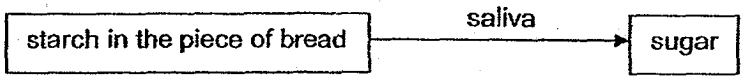
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30 Gabrielle wanted to find out if bread is digested better with saliva if it is placed in the saliva for a longer time. She cut up a slice of bread into pieces of equal size.

She placed one piece of bread for 5 seconds in 10 ml of saliva. She then tested the piece of bread for starch.

The reaction of the piece of bread and saliva is shown below.



Gabrielle repeated the experiment by increasing the time she placed each piece of bread in 10 ml of saliva and then tested it for starch.

The table below shows the results of her experiment.

Experiment	A	B	C	D	E	F	G
Time each piece of bread was placed in 10 ml of saliva (s)	5	10	15	20	25	35	40
Percentage of starch left in the chewed bread (%)	85	64	41	32	20	17	13

(a) What is the relationship between the time each piece of bread was placed in the saliva and the percentage of starch left in the chewed bread? [1]

(b) Gabrielle cut equal sizes from the same piece of bread. Give **two** reasons how using equal sizes of bread helps to make the experiment a fair test. [2]

Reason 1 :

Reason 2 :

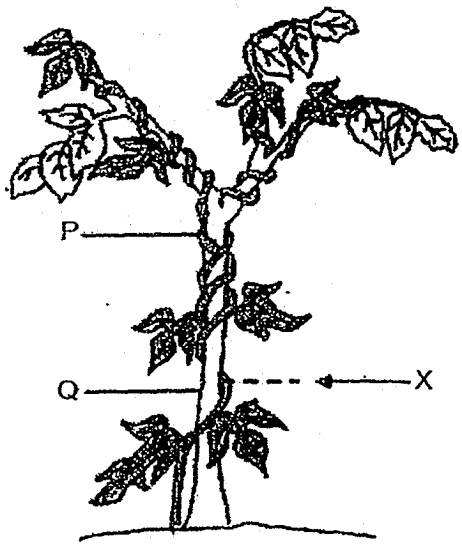
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Continuation of Question 30

(c) Suggest a suitable control set-up for Gabrielle's experiment. [1]

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31 The diagram below shows two plants, P and Q.



(a) Plant P has a weak stem and plant Q has a sturdy stem. [1]

Based on your observation, how does plant Q help plant P?

_____

_____

(b) The stem of plant P was cut at X. [2]

Describe what happens to the parts of plant P above X and explain why.

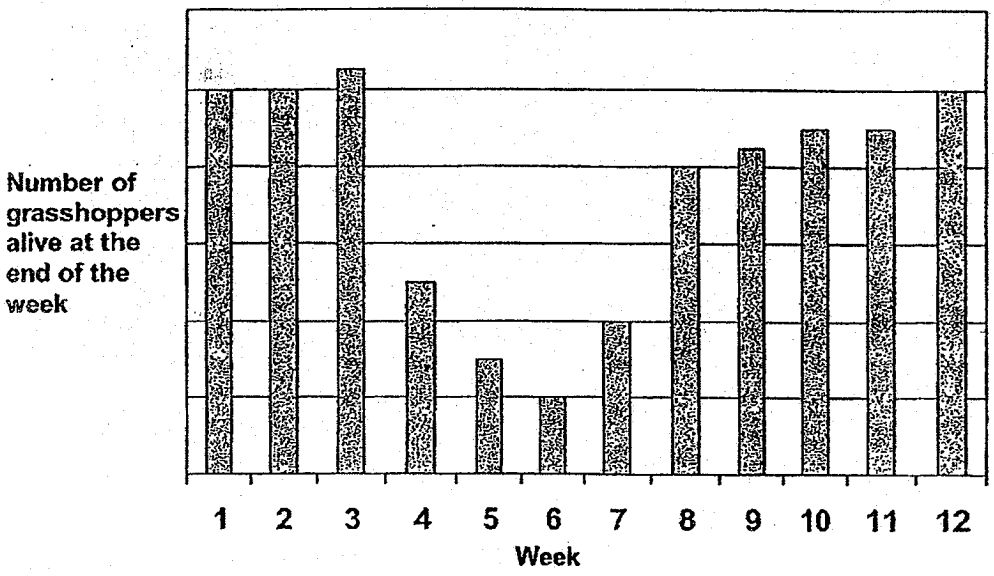
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32 Mr Rajoo noticed that his crop of tomato had been infested by grasshoppers. He decided to spray a chemical pesticide once on the crop to control the number of grasshoppers.

The graph below shows the number of grasshoppers alive at the end of each week over a period of 12 weeks.



The pesticide is sprayed on the crop at the start of the week.

(a) Based on the information given, at which week did Mr Rajoo start to spray the pesticide? [1]

_____

(b) Suggest two possible reasons why the number of grasshoppers increased to its original number at the end of the 12th week. [2]

Reason 1 :

_____

_____

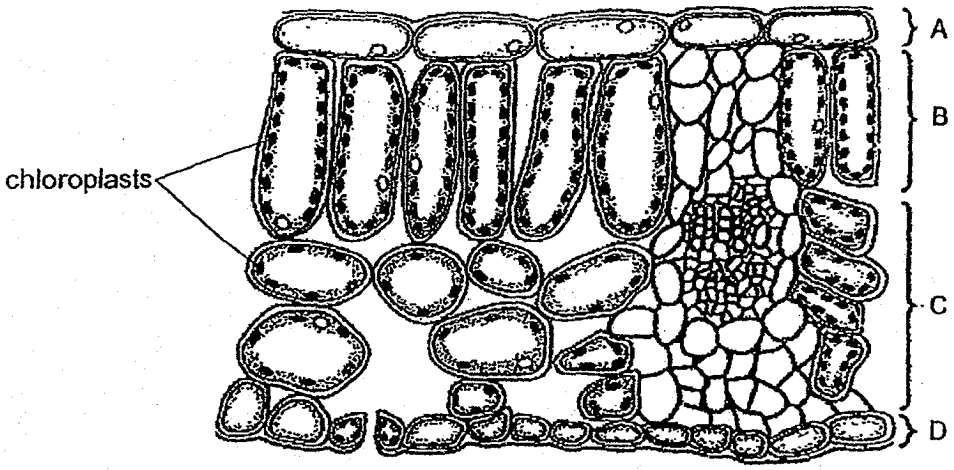
Reason 2 :

_____

_____

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33 The diagram below shows a cross-section of a leaf with four layers of cells, A, B, C and D.



(a) Which layers of cells, A, B, C or D, can carry out photosynthesis? [1]

Explain your answer.

_____

_____

(b) An energy conversion takes place in the layers of cells in your answer in (a) during photosynthesis. [1]

Write down the energy conversion in the space below.

_____

(c) The diagram below **shows a cell taken from** a section of the leaf as shown above.



[1]

Name part X : _____

[1]

Explain why part X is **not** found in animal cells.

_____

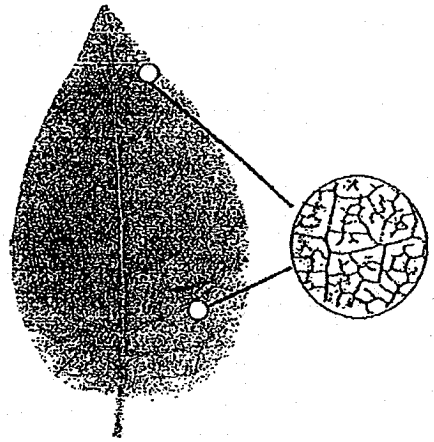
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34 Trevor carried out an experiment to investigate the relationship between different amount of carbon dioxide and rate of photosynthesis.

He plucked some green leaves from the same plant and then used a hole puncher to punch 20 identical discs out of them. Air was then removed from each of the discs before putting them into beakers of water.

The disc and the enlarged cross section of the disc are shown below.



Top view of the disc from a green leaf

The results of Trevor's experiment are shown in the table below.

Beaker	A	B	C	D
Number of discs in each beaker	5	5	5	5
Amount of water in each beaker (ml)	80	80	80	80
Amount of carbon dioxide in the water in each beaker (units)	0	10	20	30
Time for the discs to float to the surface (min)	20	6	3	1
Light intensity (units)	1000	1000	1000	1000

(a) State the dependent variable (variable measured) of Trevor's experiment. [1]

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Continuation of Question 34

(b) At the start of the experiment, the discs were found at the bottom of each beaker. When light was provided, the discs floated to the surface of the water. [2]

Explain why the discs floated to the surface of the water in the presence of light.

_____

_____

_____

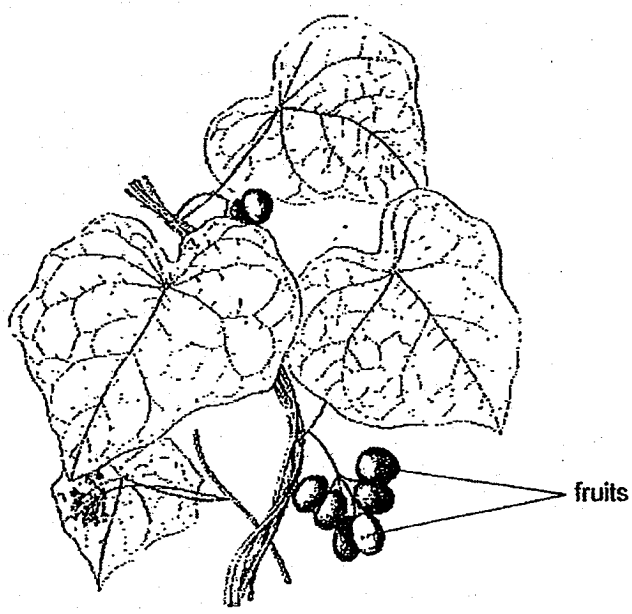
(c) Based on the results what can Trevor conclude from this experiment? [1]

_____

_____

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35 The diagram below shows a cluster of fruits of plant M.



(a) The fruits of plant M resemble the edible wild grapes and ripen at about the same time. Some animals were seen eating them. [1]

State a likely characteristic of the fruits of plant M.

_____

_____

(b) What are the two benefits for plant M when the seeds of plant M are dispersed far away from their parent plant? [2]

Benefit 1 :

_____

_____

Benefit 2 :

_____

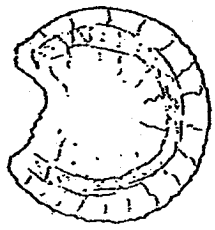
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Continuation of Question 35

(c) The diagram below shows the seed of the fruit of plant M.

The seed is hard and flat.



A substance found in the fruits of plant M when consumed can help the animals move their bowel more easily.

Explain why this is an advantage to plant M in its dispersal of seeds. [1]

36 Nelly poured some oil into a plastic bottle using a funnel. She noticed that some oil flowed into the bottle at first, but after a while, it remained in the funnel as shown in Diagram 1.

She then lifted up the funnel so that it was not in contact with the opening of the bottle as shown in Diagram 2. Oil in the funnel started to flow into the plastic bottle.

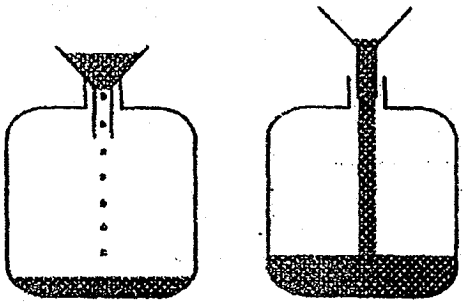
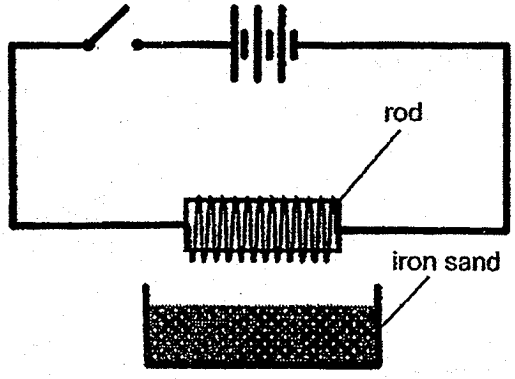


Diagram 1 **Diagram 2**

Explain why the action of lifting up the funnel enabled more oil to flow into the bottle. [2]

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37 Samantha had four rods, P, Q, R and S, each made of different materials. She wanted to investigate the magnetic strength of each rod using the set-up below.



When the switch was opened, the mass of the iron sand in the tray was 600 g. When the switch was closed, the rod attracted some of the iron sand. The mass of the iron sand left in the tray for each of the four rods was recorded in the table below.

Rod	Mass of iron sand left in the tray (g)
P	360
Q	300
R	330
S	230

(a) Based on the table above, which rod was the strongest electromagnet when the switch was closed? [1]

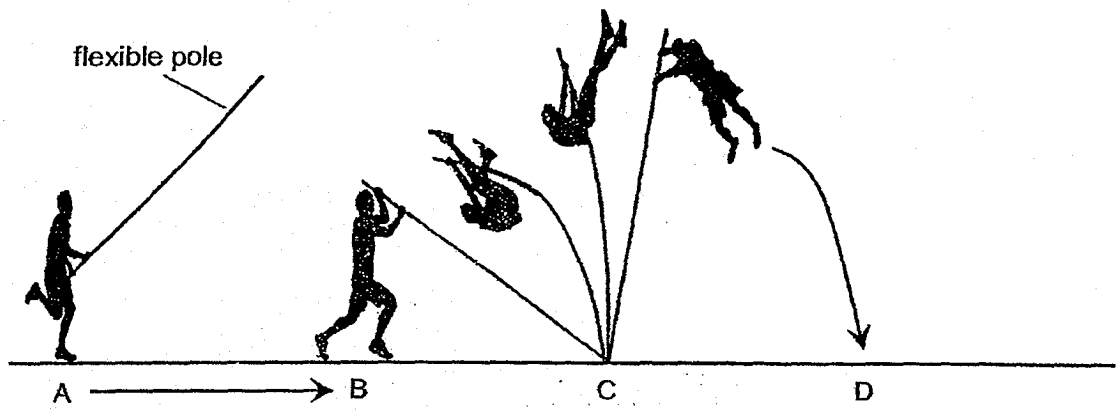
Explain your answer.

(b) When Samantha used another metal rod, T, she observed that the mass of the iron sand left in the tray was 600g. [1]

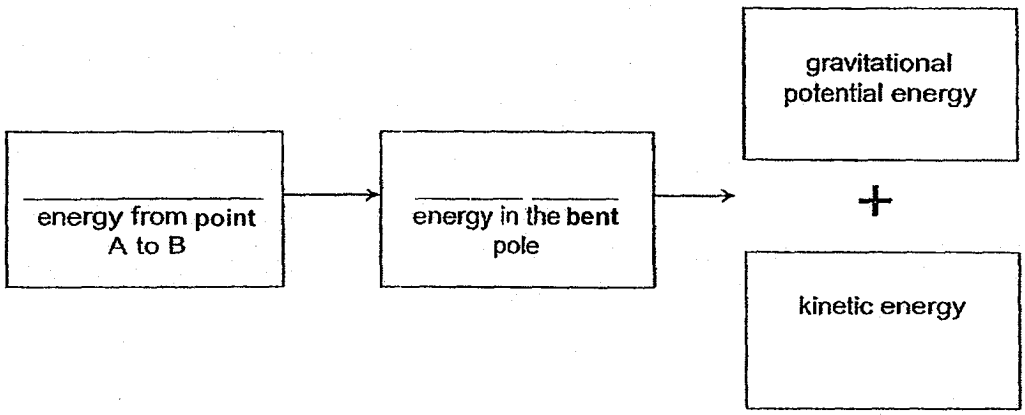
Based on this observation, what can be concluded about metal rod T?

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38 Jason attempted a high jump using a long flexible pole. He sprinted from point A to B, planted and bent the pole at point C. He landed at point D.



(a) Fill in the blanks below to show the energy conversion happening from point A to point C. [1]

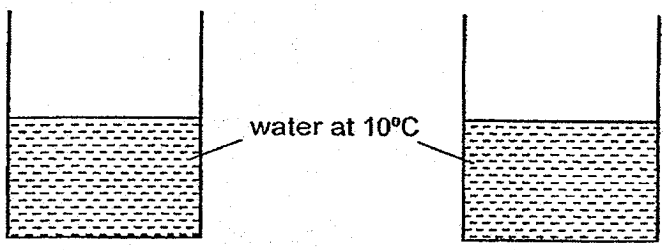


(b) Using the same pole, suggest what Jason can do in order to land further. [2]

Explain your answer.

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39 James used two containers, A and B, for an experiment. Container A is made of material X and container B is made of material Y. Each of the containers was filled with an equal amount of water at 10°C at the same time.



Container A made of material X **Container B made of material Y**

He touched the outside of both containers with his fingers. Container A felt colder than container B when touched and water droplets were formed more quickly on the outside of container A than container B.

(a) Which material, X or Y, is a better conductor of heat? [1]

Give a reason for your answer.

_____

_____

(b) Both containers were left in a room of temperature 30°C. [2]

The table below shows the temperature of water in containers A and B over a period of 20 minutes.

Time (minute)		0	5	10	15	20
Temperature of water (°C)	A	10	16	21	25	27
	B	10	13	16	19	20

State what is happening to the temperature of water in both containers.

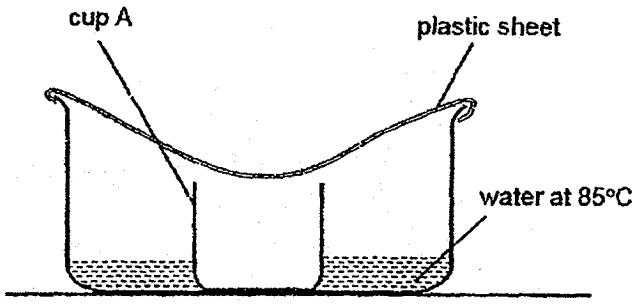
Explain your answer.

_____

_____

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40 Nicole set up an experiment as shown below. She poured 500 ml of water at 85°C in container A. After several hours, she saw some water collected in cup A.



Container A

(a) Nicole observed water droplets forming on the underside of the plastic sheet. [2]

How did the water droplets form?

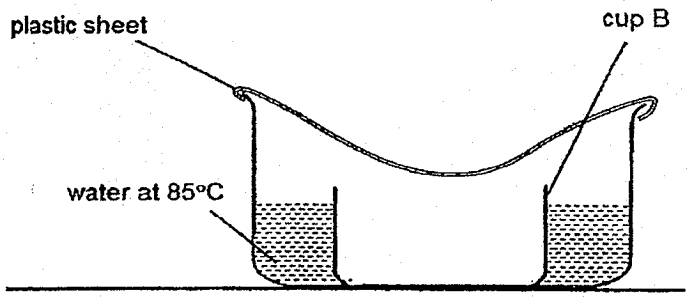
(b) After some time, the water in container A evaporated more slowly. [1]

Explain why.

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continuation of Question 40

Nicole repeated the experiment with a similar container of water, container B, and the same amount of water at 85°C. She used a larger cup, cup B, to collect the water.



Container B

(c) Which cup, A or B, will have more water collected in it? [1]

Give a reason for your answer.

_____

_____

_____

(d) Suggest one way to increase the amount of water collected in both cups. [1]

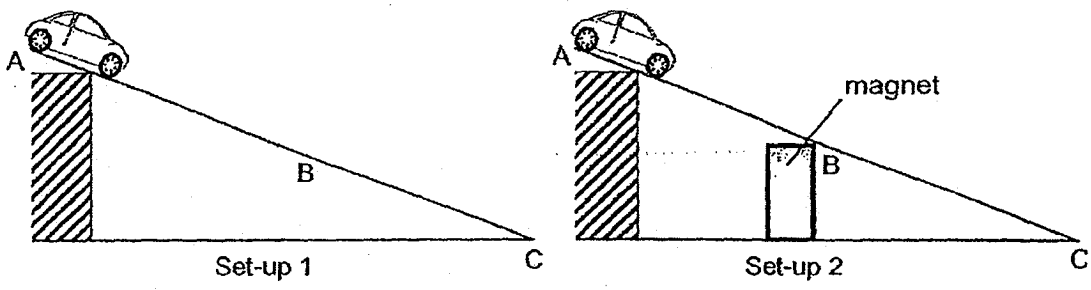
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41 A toy car, made of steel, was released at A of a thin wooden ramp as shown in set-up 1. The same experiment was then repeated with a strong magnet placed under the ramp as shown in set-up 2.

In both experiments, the toy car reached C.



The time taken for the toy car to move from A to B and then from B to C in both set-ups was recorded in the table below.

Set-up	Time taken (seconds)	
	A to B	B to C
1	18	10
2	12	14

(a) It took a longer time for the toy car to move from B to C in set-up 2. [2]

Explain why.

(b) Explain why the toy car took a shorter time to move from A to B in set-up 2 than in set-up 1. [1]

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Continuation of Question 41

(c) In another experiment, the ramp in set-up 1 was replaced with a ramp with a smoother surface. [2]

Will the toy car move **faster, slower** or at the **same** speed when it was released at A?

Explain why.

_____

_____

End of Booklet B

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EXAM PAPER 2018(P6)

SCHOOL : HENRY PARK

SUBJECT : SCIENCE

TERM : SA1

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

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Correction sheet for P6 SA1 Science Paper

Qn.	Suggested answer	Student's correction
29a	(i) X bears flowers. (ii)The seeds of X are dispersed by splitting.	
29b	Does it make its own food?	
30a	As the time each piece of bread was placed in saliva increases, the percentage of starch left in the chewed bread decreases.	
30b	Amount of starch in each piece will be the same / Mass of bread will be the same. And Surface area exposed to the saliva will be the same.	
30c	Use the same size and same type of bread, without placing it in saliva	
31a	Plant P climbs on plant Q for support to reach for sunlight.	
31b	The parts of P above X dies. The water-carrying tubes have been cut off and so, water cannot reach them for photosynthesis	
32a	Week 4	
32b	Reason 1:The grasshoppers reproduced over the time. Reason 2: The effect of the pesticide has worn off.	

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33a	B, C and D. The layers of cells have chloroplasts / chlorophyll.	
33b	Light energy is converted to chemical potential energy	
33c	Cell wall Not needed or required as animals have skeletal system to support them.	
34a	Time taken for the discs to float to the surface of the water / Rate of photosynthesis	
34b	Photosynthesis takes place in the presence of light, producing oxygen which fills up the air spaces in the discs.	
34c	As the amount of carbon dioxide increases, the rate of photosynthesis also increases.	
35a	The fruit is sweet or juicy.	
35b	Prevent overcrowding, thus reducing competition for water, nutrients, space and light. And Allowing plant M to colonise more areas.	
35c	The seeds will be passed out (together with the waste / droppings) quickly / easily.	

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36	Air can escape and the oil can take up the space.	
37a	Rod S. The amount of iron sand left in the tray was the least as the electromagnet had attracted the most amount of iron sand.	
37b	Rod T is a non-magnetic material.	
38a	Kinetic energy to Elastic Potential Energy	
38b	He should run faster. Thus, more kinetic energy is converted into more elastic potential energy which is converted into more kinetic energy to enable him to land further.	
39a	Material X. It felt colder to the touch because more heat is conducted from the fingers to the container.	
39b	The temperature is increasing. The water in both containers is gaining heat from the surrounding air as the room temperature is higher.	
40a	Water in the basin gains heat and evaporate to form water vapour which then comes into contact with the cooler underside of the plastic sheet, loses heat quickly and condenses into water droplets which falls into the cup.	

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40b	The temperature of water in container A decreases	
40c	A. The exposed surface area of water in container A is greater, so the rate of evaporation is faster.	
40d	Put ice on top of the plastic sheet.	
41a	Magnetic force acted on the toy car in set-up 2 but not in set-up 1. Both magnetic and frictional forces acted on the toy car to overcome gravitational force.	
41b	Both magnetic and gravitational forces acted on the toy car in the same direction.	
41c	Move faster because there is less friction between the wheel of the toy car and the wooden ramp.	

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