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ST. HILDA'S PRIMARY SCHOOL

PRELIMINARY EXAMINATIONS, 2017

PRIMARY 6 SCIENCE

Booklet A

Date: 4th August 2017 **Duration: 1h 45min**

(Booklets A & B)

Name: _____ ( ) Marks: 56

Class: Pri 6 /_____ Parent's signature : _____

Number of printed pages: 19 (excluding cover page)

28 Questions (28 X 2 marks)

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For each question from 1 to 28, four options are given. One of these is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet. (56 marks)

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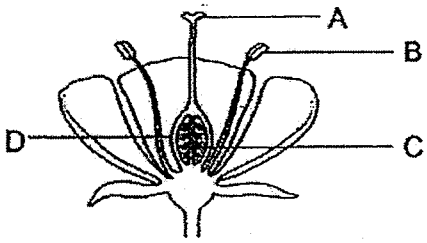
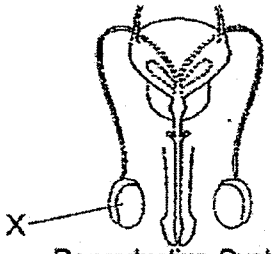
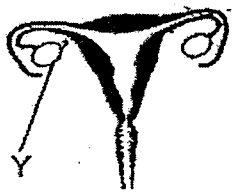
1 The diagrams below show the plant and human reproductive systems respectively.



Reproductive System of Plant



Reproductive System of Human Male

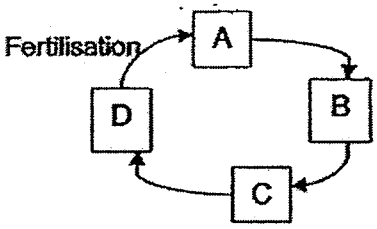


Reproductive System of Human Female

Which parts of the plant reproductive system function in the same manner as parts X and Y of the human reproductive systems?

	Human Part X	Human Part Y
(1)	A	B
(2)	B	A
(3)	D	C
(4)	B	D

2 The diagram below shows the stages in the life cycle of a butterfly and when fertilisation occurs.



Which one of the boxes A, B, C or D represents the stage at which it is a garden pest?

(1) A

(2) B

(3) C

(4) D

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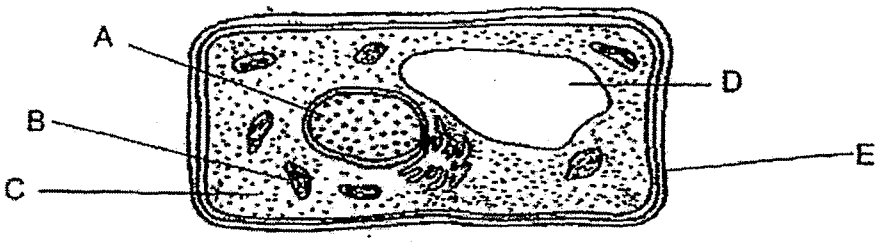
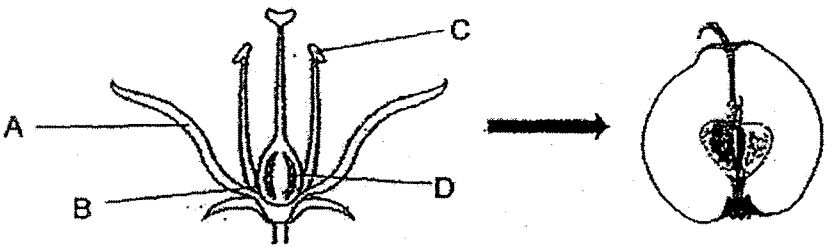
3 Study the cell shown below.



Which of the parts A, B, C, D and E of the cell labelled above show that the cell was taken from the leaf of a bird's nest fern?

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

4 The diagrams below show the cross-sections of a fruit and a flower.



Cross-section of a flower Cross-section of a fruit

Which parts of the flower do not develop into parts of the fruit after fertilisation?

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

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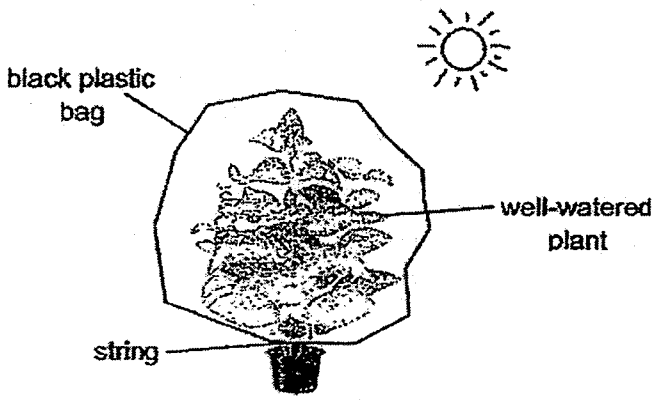
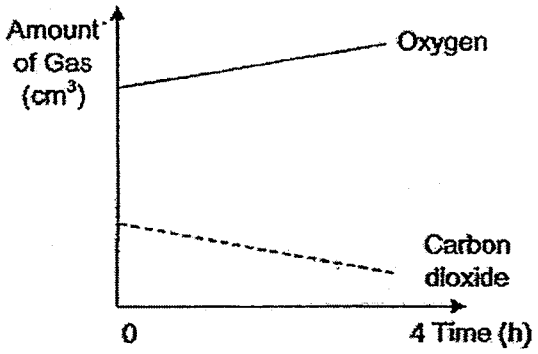
5 At noon, Susie put a well-watered plant into a black plastic bag. Then she tied the black plastic bag with a string and placed it in an open field for four hours.

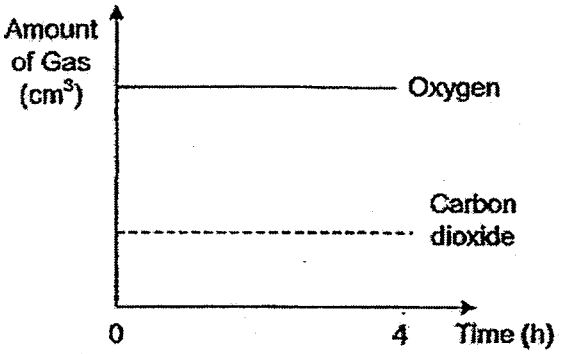


Which one of the following graphs shows the changes in the amount of carbon dioxide and oxygen in the black plastic bag over the four hour period?

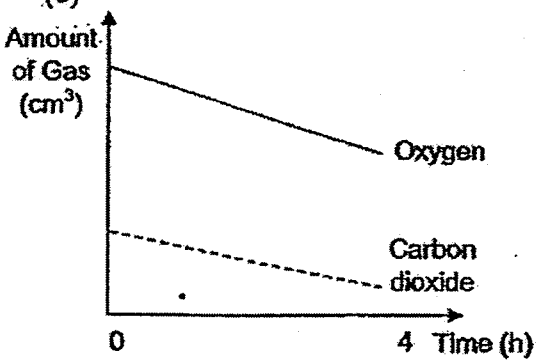
(1)



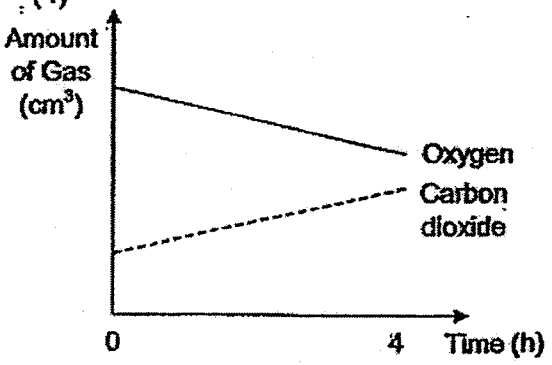
(2)



(3)



(4)



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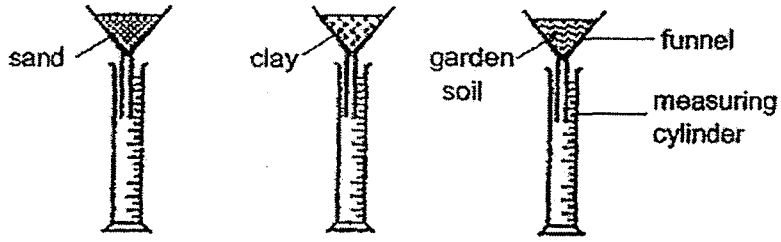
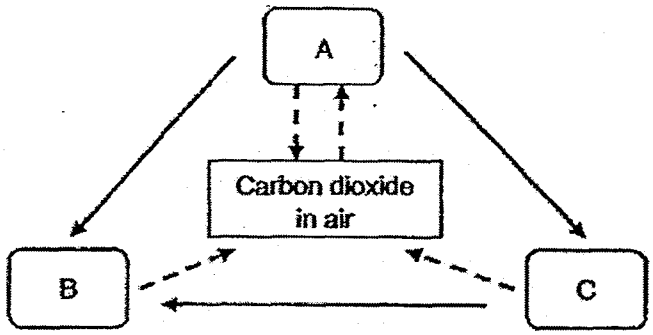
6 Lenny prepared the following 3 set-ups by putting identical amounts of sand, clay and garden soil respectively into each funnel as shown below.



She poured 100ml of water into the funnel of each set-up. She recorded the amount of water collected in each measuring cylinder after 5 minutes in the table below. Which of the following is most likely to be the water level reading in the measuring cylinder taken for each soil sample?

	Type and water level reading in each measuring cylinder		
	sand	clay	garden soil
(1)	90 ml	90 ml	90 ml
(2)	50 ml	70 ml	30 ml
(3)	70 ml	30 ml	50 ml
(4)	30 ml	30 ml	30 ml

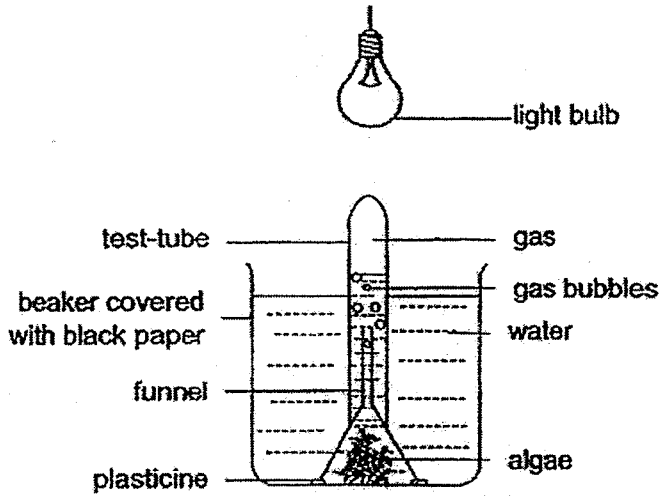
7 The diagram below shows a food chain. The dotted lines in the food chain show how carbon dioxide is added to or removed from plants, animals and decomposers.



What do A, B and C represent?

	A	B	C
(1)	plants	animals	decomposers
(2)	plants	decomposers	animals
(3)	animals	plants	decomposers
(4)	decomposers	animals	plants

8 Algae grow well in the presence of light. Tim set up the following experiment to find out how using light bulbs with different coloured lights affects how fast algae grow.



He noticed that when light from bulb P was used, the algae produced gas bubbles which were then collected in the test-tube. He recorded the number of bubbles produced in the table below. He conducted the same experiment with bulbs Q, R and S and the number of bubbles produced in one minute was recorded in the table below.

Light Bulbs	Number of bubbles produced in one minute
P	124
Q	59
R	21
S	77

Which one of the light bulbs should he use for his fish tank to prevent the rapid growth of algae?

(1) P

(2) Q

(3) R

(4) S

9 John prepared five different set-ups, A, B, C, D and E to find out how the presence of carbon dioxide affects photosynthesis. Using identical plants in each set-up, the different conditions in each of the five set-ups were listed below.

Conditions	Set-ups				
	A	B	C	D	E
Water	√	√		√	√
Oxygen		√	√		√
Fertiliser			√		
Sunlight	√	√	√		√
Carbon dioxide	√				√

Which set-ups should be used to show how the presence of carbon dioxide affects photosynthesis?

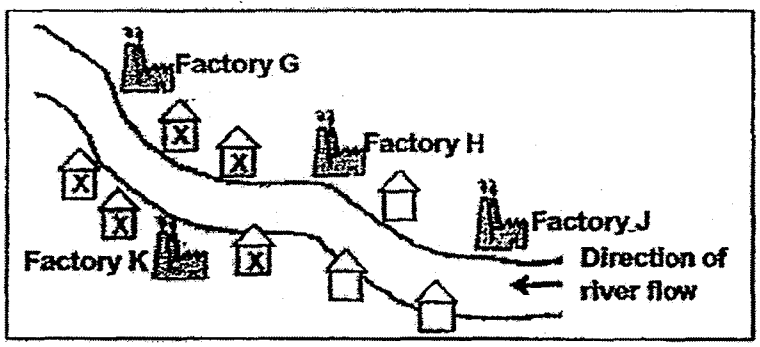
(1) A and C

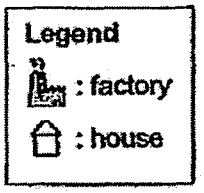
(2) B and E

(3) C and D

(4) D and E

10 In a town, many residents lived along both sides of a river as shown in the diagram below.





It was found that chemicals had been dumped into the river which caused many residents living in the areas marked with an 'X' to fall ill. Which of the factories was/were most likely responsible for the dumping of chemicals into the river?

(1) Factory G only

(2) Factory J only

(3) Factories H and K only

(4) Factories H, J and K only

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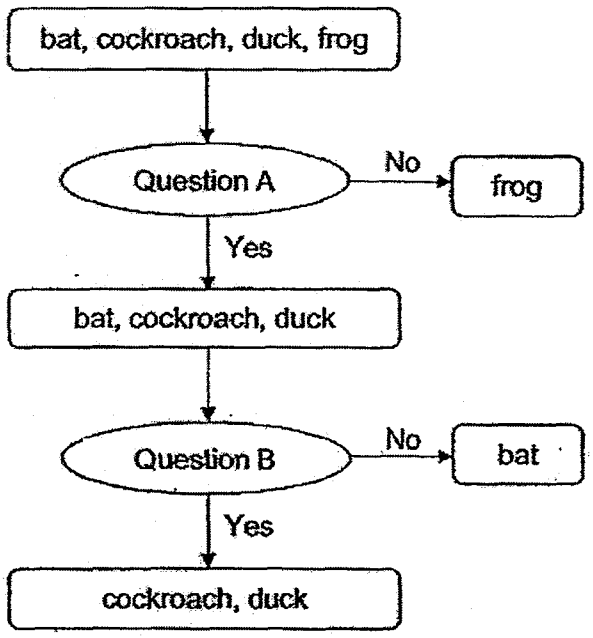
11 Adrian had to classify the four animals shown below.

bat cockroach duck frog

He classified them using a flowchart below.



What were the two questions, A and B in the flowchart shown above?

	Question A	Question B
(1)	Do they lay eggs?	Do they have wings?
(2)	Do they have wings?	Do they lay eggs?
(3)	Do they lay eggs?	Do they give birth to their young alive?
(4)	Do they have wings?	Do they give birth to their young alive?

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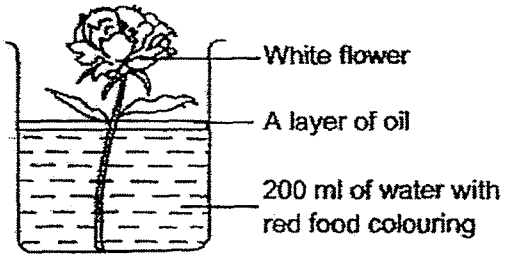
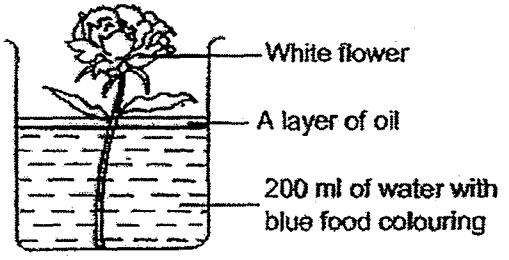
12 A florist wants to find out if the stem of a flower takes in water. She placed a white flower in a beaker containing 200 ml of water with red food colouring as shown below.

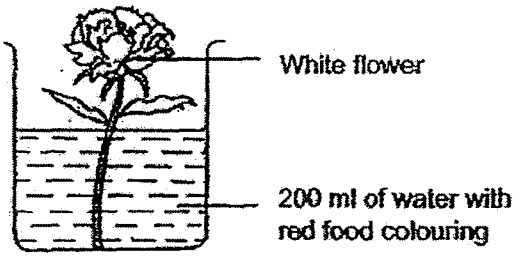


Which one of the following should she use as a control?

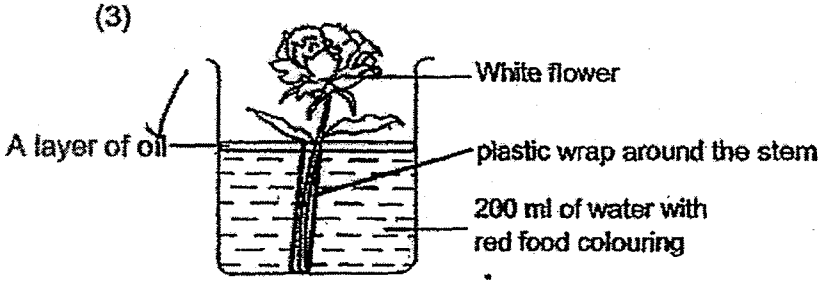
(1)



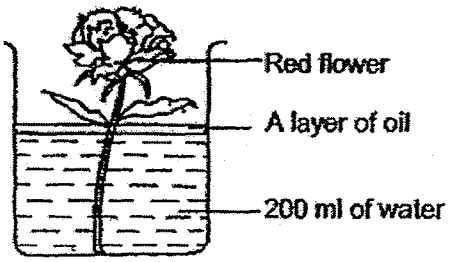
(2)



(3)



(4)



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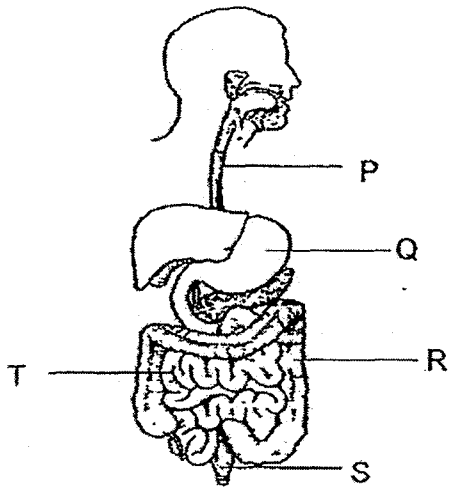
13 The diagram below shows a human digestive system.



Gary, Hairil, Irene and Jadyn each made a statement about the digestive system.

Gary : Solid waste is found here.
Hairil : Digestion is completed here.
Irene : Water is absorbed from the undigested food here.
Jadyn : Digestive juices are added here.

Which one of the following **correctly** matches each statement with the labelled parts of the digestive system shown above?

	Gary	Hairil	Irene	Jadyn
(1)	S	T	R	Q
(2)	T	R	T	R
(3)	R	T	P	S
(4)	S	S	S	P

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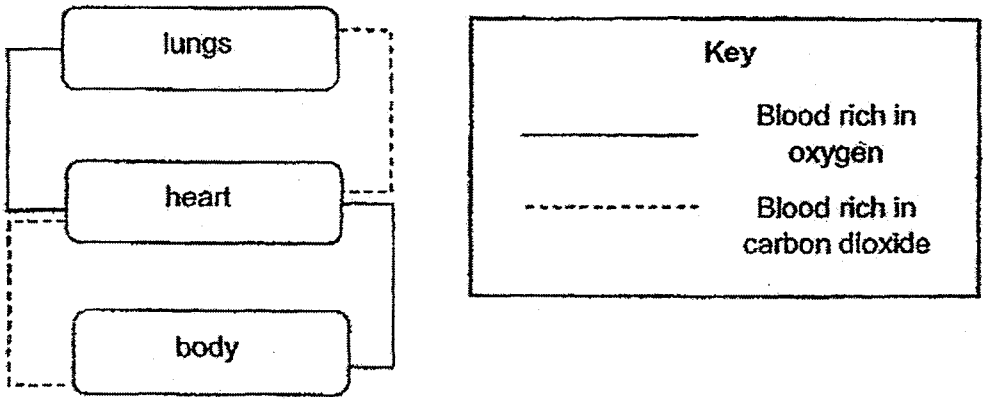
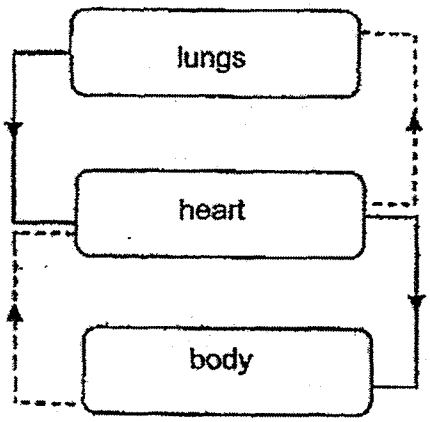
14 The circulatory system carries blood containing the gases, oxygen and carbon dioxide through blood vessels to all parts of the body. The following diagram shows the blood flow in the different parts of the circulatory system.

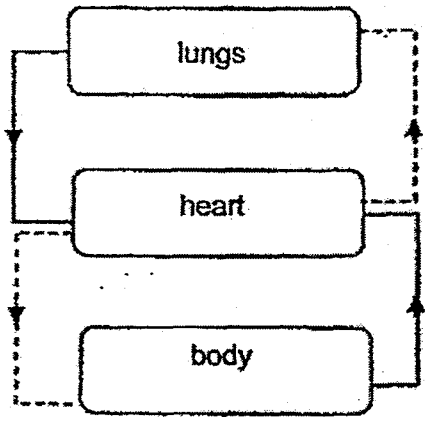


Which one of the following diagrams **correctly** shows the direction in which blood flows?

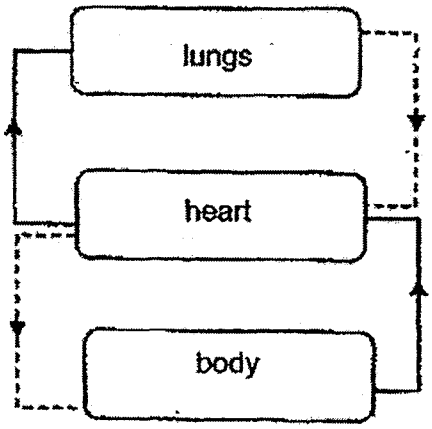
(1)



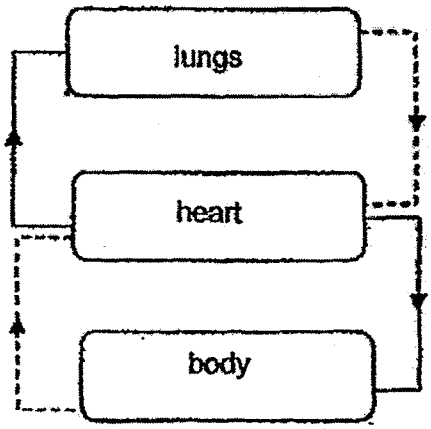
(2)



(3)



(4)



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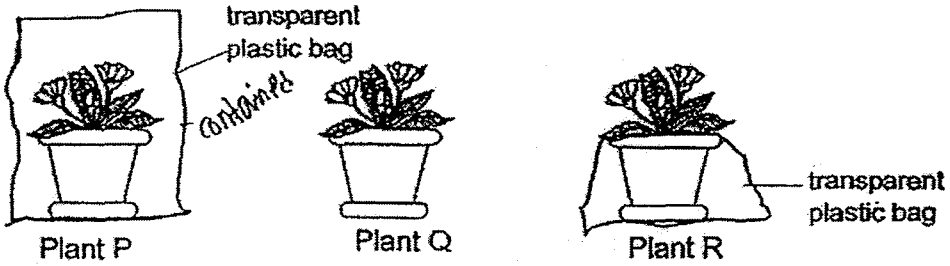
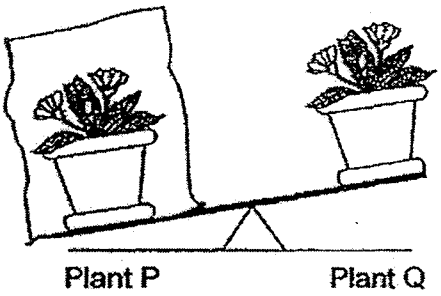
15 Three similar pots of plants of the same mass, P, Q and R, are used in the experiment shown below. They are placed in an airy and sunny place. Each pot of plant is watered with 300ml of water.

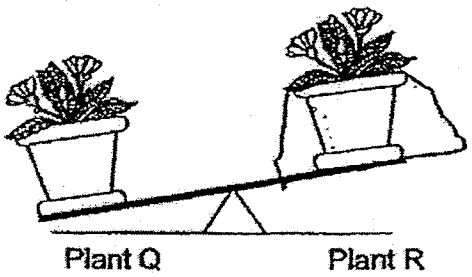


Which one of the following set-ups shows the correct observation after a day?

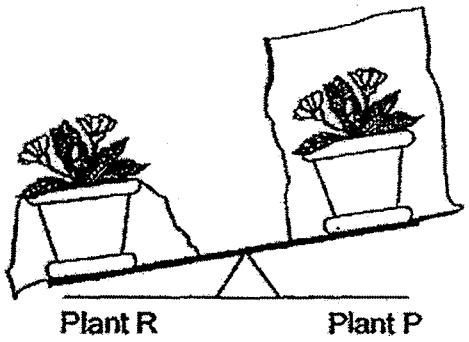
(1) **Set-up A**



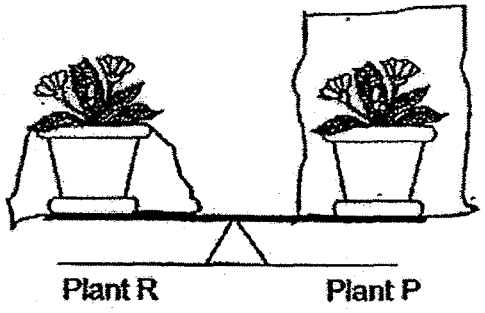
(2) **Set-up B**



(3) **Set-up C**



(4) **Set-up D**



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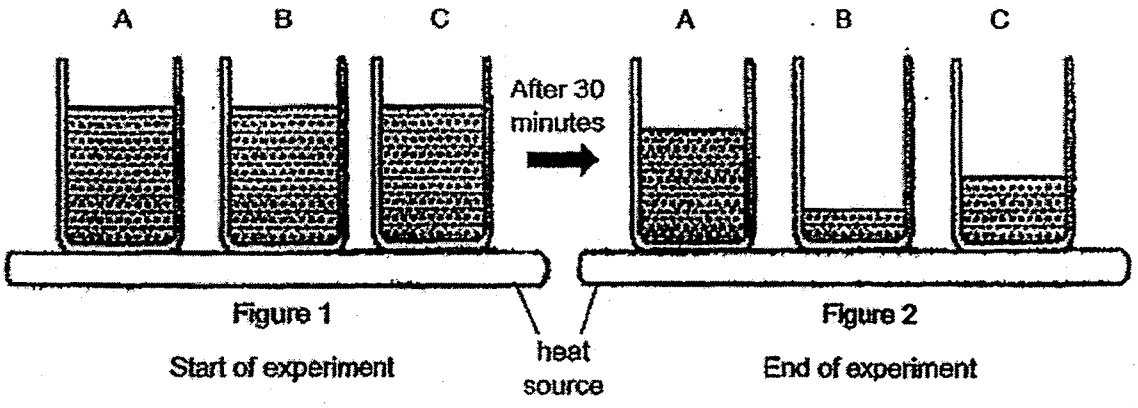
16 The table below shows the freezing and boiling points of substances C, D, E and F.

Substance	Freezing Point (°C)	Boiling Point (°C)
C	15	35
D	0	100
E	7	19
F	4	22

At which temperature will only two of the above substances be at its liquid state?

(1) 2 °C
(2) 12 °C
(3) 25 °C
(4) 39 °C

17 Mike wanted to find out how well 3 containers of different materials could conduct heat. The containers were equal in volume and contained the same amount of water. They were placed on a heat source, as shown in Figure 1. After 30 minutes, he observed changes to the water levels of the 3 containers as seen in Figure 2.



Based on the above diagrams, what conclusion can Mike make about each containers' ability to conduct heat?

(1) Container A is the best conductor of heat.
(2) Container B is the worst conductor of heat.
(3) Container B is a better conductor of heat than container C.
(4) Container C is a poorer conductor of heat than container A.

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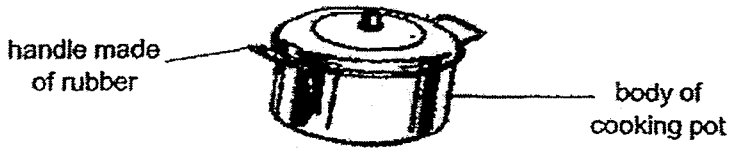
18 The diagram below shows a cooking pot.



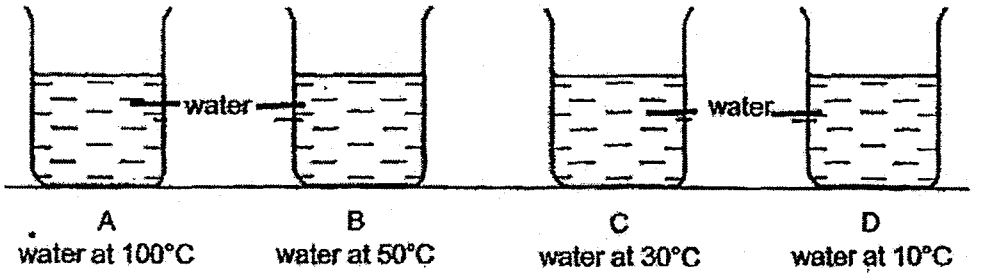
Study the properties of the four materials shown below.

Material	Property of material	
	Flexible	Good heat conductor
A	No	No
B	Yes	Yes
C	No	Yes
D	Yes	No

Which material is most suitable for making the body of the cooking pot?

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

19 The diagram below shows four beakers containing water at different temperatures. The four beakers are placed in the Science Laboratory at a room temperature of 25°C.



In which of the beakers will evaporation of water take place?

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

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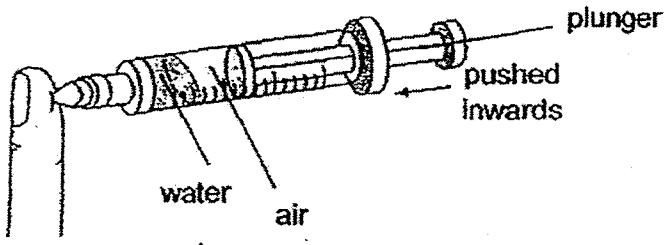
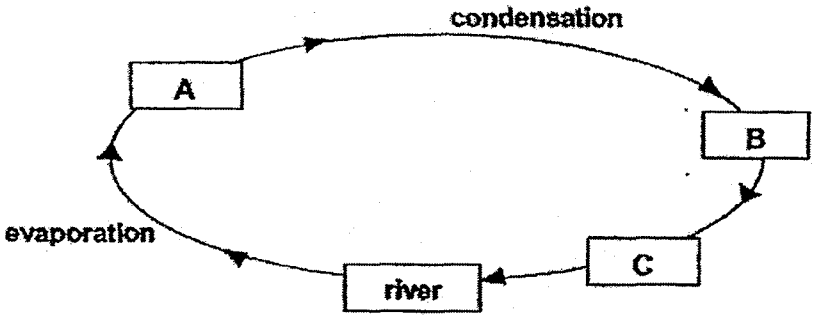
20 Ben fills a syringe with some water as shown in the diagram below. He pushes the plunger inwards into the syringe until he could not push any longer.



Which of the following correctly describes what will happen to the volume of air and water in the syringe after he pushes the plunger inwards?

	Volume of air	Volume of water
(1)	decreases	remains the same
(2)	decreases	decreases
(3)	remains the same	decreases
(4)	remains the same	remains the same

21 The diagram below shows the water cycle.



Which one of the following represents A, B and C?

	A	B	C
(1)	rain	clouds	water vapour
(2)	water vapour	clouds	rain
(3)	clouds	rain	water vapour
(4)	water vapour	rain	clouds

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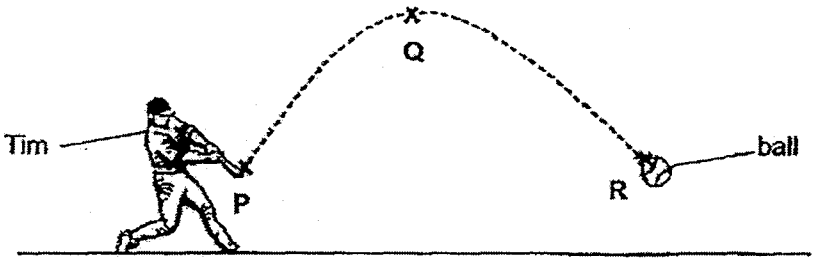
22 The diagram below shows the path a ball takes from P to R after Tim hits it at P.

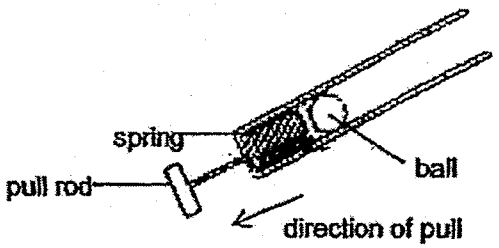


Which of the following **correctly** describes the energy in the ball?

A The ball had no kinetic energy at Q.
B The ball had more kinetic energy at P than Q.
C From Q to R, the amount of kinetic energy in the ball increased while the amount of gravitational potential energy decreased.
D From Q to R, the amount of kinetic energy in the ball decreased while the amount of gravitational potential energy increased.

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

23 Megan had a toy shown below. The toy consisted of a pull rod and a spring which could be used to shoot a ball out.



When Megan pulled the rod, the spring in the toy was compressed and the ball moved downwards. Which one of the following forces caused the ball to move downwards?

(1) frictional force
(2) magnetic force
(3) gravitational force
(4) elastic spring force

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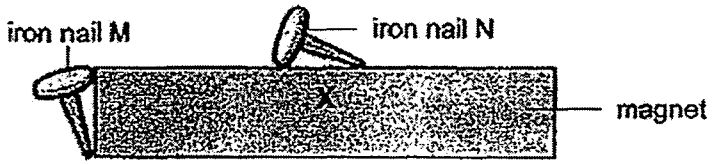
24 Daisy placed two similar iron nails M and N next to a magnet as shown in the diagram below.

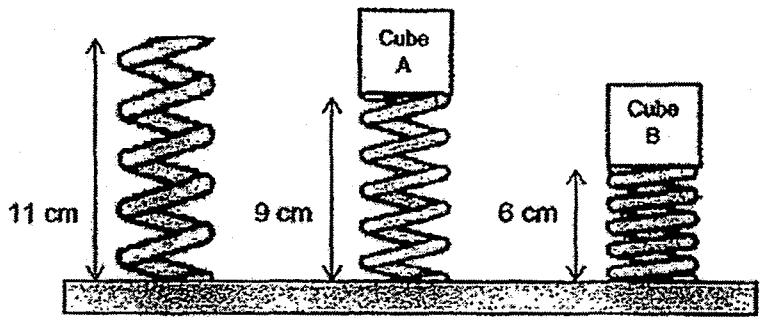


When Daisy picked up the magnet, only iron nail M remained attached to the magnet. Which of the following statement(s) best explain(s) Daisy's observations?

A Iron nail N repelled the magnet.
B The magnet lost its magnetism at point X.
C Iron nail M was attracted to the magnet as the magnetic attraction of the magnet was strongest at its poles.

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

25 James had two cubes of the same size but made of different materials. He placed the two cubes on two identical springs as shown in the diagram below.



Based on his observation, what could he conclude from the experiment?

(1) Cube A has a larger mass than Cube B.
(2) Only Cube B experiences elastic spring force.
(3) Cube A experiences more gravitational force than Cube B.
(4) Cube B experiences more elastic spring force than Cube A.

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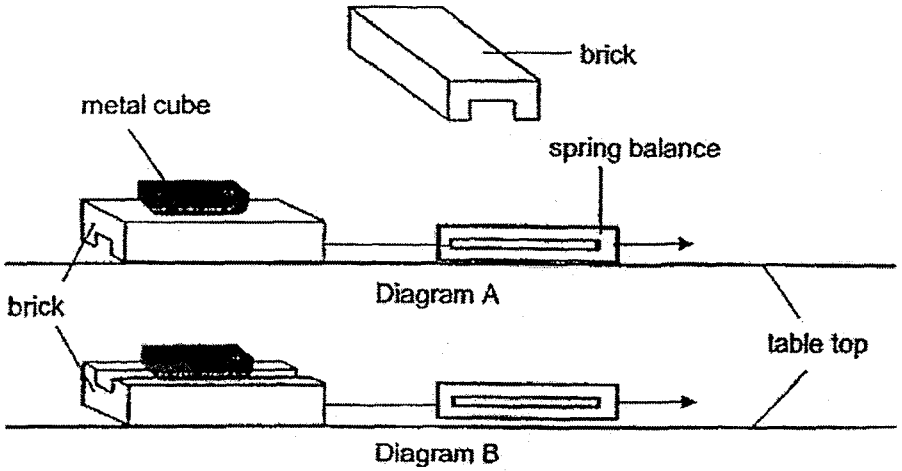
26 Study the experiment below. Bryan used a piece of brick as shown in the diagram below.



In Diagram A, Bryan placed a metal cube on the brick and measured the amount of force needed to move both the brick and metal cube across a table top using the spring balance. He then turned the brick over and repeated the experiment again as shown in Diagram B. He repeated the experiment using a heavier cube.

His results are shown below.

Mass of cube (kg)	Area of contact with the table (cm^2)	Force needed (N)
1.0	100	50
1.0	150	50
1.5	100	80
1.5	150	80

Which of the following best explains Bryan's observations?

A The mass of the object does not affect the amount of force needed to move the object.

B The area of contact with the table affects the amount of force needed to move the object.

C The area of contact with the table does not affect the amount of force needed to move the object.

D The greater the mass of the object, the greater the amount of force needed to move the object.

(1) A only

(2) B only

(3) A and C only

(4) C and D only

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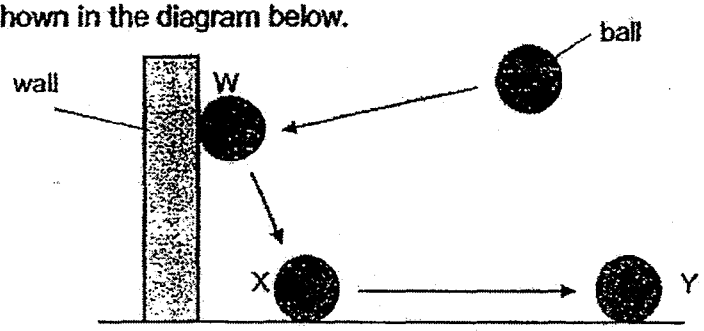
27 During PE class, Matthew picked up a ball from the floor and threw it against a wall as shown in the diagram below.



The ball hit the wall at point W, landed at point X and rolled on the floor before finally stopping at point Y. What are some effects of forces which can be observed from the above?

A A force can stop a moving object.
B A force can move a stationary object.
C A force can change the speed of a moving object.
D A force can change the direction of motion of a moving object.

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

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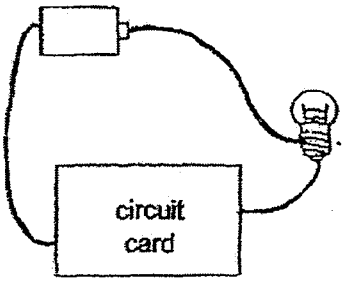
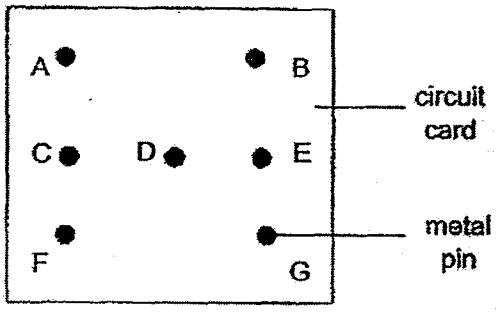
28 Jerry tested the circuit card using the set-up as shown below. The circuit card below consisted of metal pins at each of the points (A, B, C, D, E, F and G). Some of the metal pins are connected by wires behind the card.



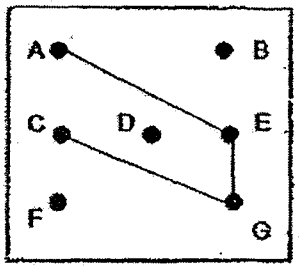


He connected the two ends of the set-up to 2 different pins on the circuit card each time. The results are shown in the table below.

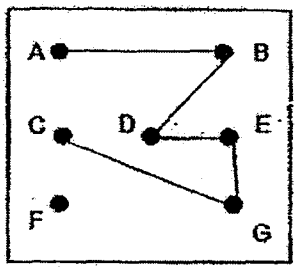
Location of pins tested	Did the bulb light up?
A and D	No
A and G	Yes
B and F	No
C and E	Yes

From the results shown, which of the following is <u>not</u> a possible arrangement of the wires behind the circuit card?

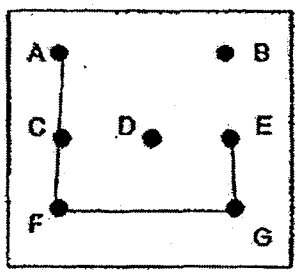
(1)



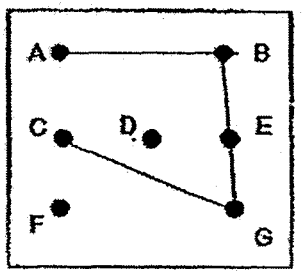
(2)



(3)



(4)



End of Booklet A

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PRELIMINARY EXAMINATIONS, 2017
PRIMARY 6 SCIENCE

Booklet B

Date: 4th August 2017

Name : _____ ( ) Marks : 44

Class : Pri 6 /_____

Marks obtained in Booklet A	56
Total Marks obtained	100

Parent's signature: _____

Number of printed pages: 17 (excluding cover page)

13 questions (44 marks)

Study all the given diagrams and read each question carefully. Write your answer in the space provided. The number of marks given is shown in brackets [ ] at the end of each part.

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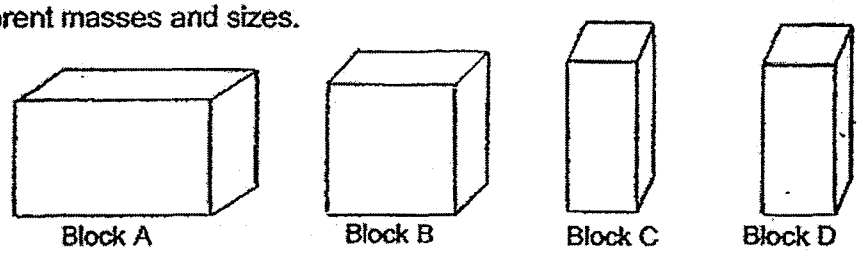
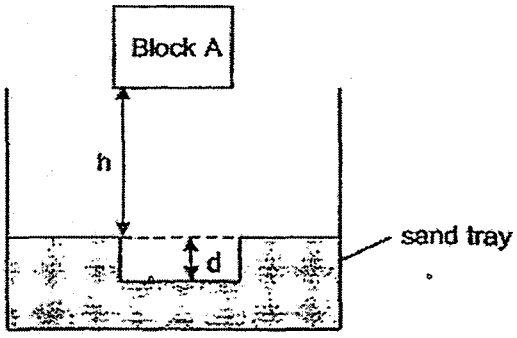
This section consists of **13 questions** which carries **44 marks**. Read the questions carefully and write down your answers in the space provided. **(44 marks)**

---

29 Sherry prepared the following set-up using blocks A, B, C and D which are of different masses and sizes.



She dropped block A from height 'h' into a tray of sand. After that, she removed Block A from the tray and measured the depth of depression **'d'** as shown in the diagram below.



She repeated the experiment using blocks B, C and D and recorded the results of her experiment in the table below.

Block	Mass (g)	Area of contact with the sand (cm^2)	Depth of depression, d (cm)
A	300	100	3
B	300	50	5
C	300	25	8
D	100	25	?

(a) Based on the above results for blocks of the same mass, what is the relationship between the area of contact with the sand and the depth of the depression formed? **[1]**

_____

_____

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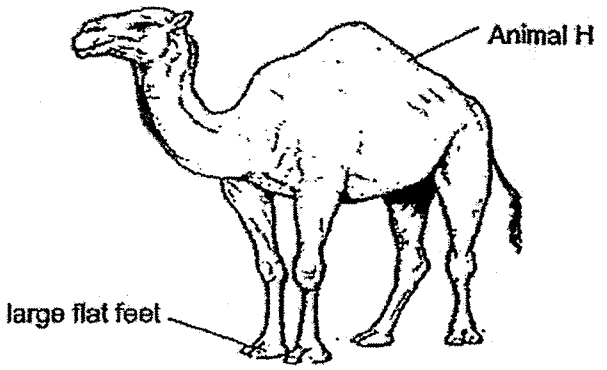
(b) The experiment was repeated with block D. Block D had the same size and area of contact with the sand as block C but had a smaller mass. State whether the depth of depression caused by block D was more than, less than or the same as block C. Explain your answer. [2]

_____

_____

(c) Animal H lives in the desert.



Although animal H has a large mass, it does not have difficulty walking in the desert. Based on the findings from the experiment, explain why having large flat feet is an advantage for animal H. [1]

_____

_____

(d) State one other structural adaptation animal H has and describe how the adaptation enables animal H to survive in a hot desert environment. [1]

_____

_____

4

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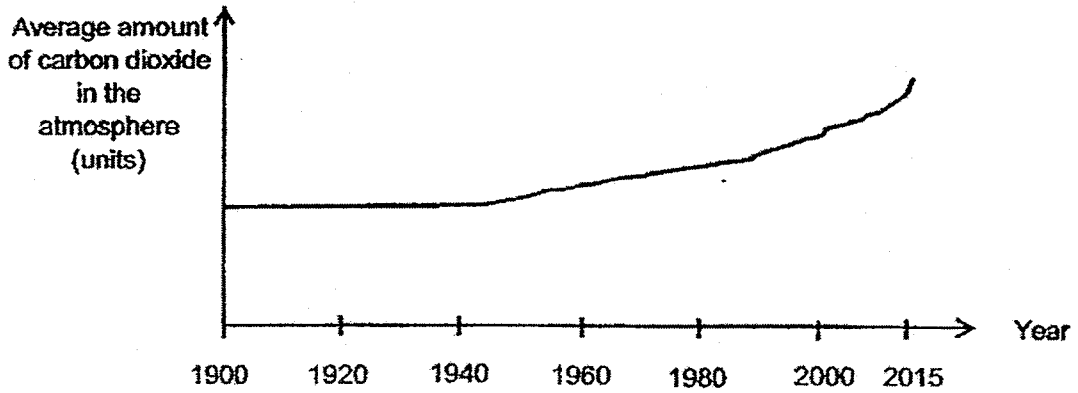
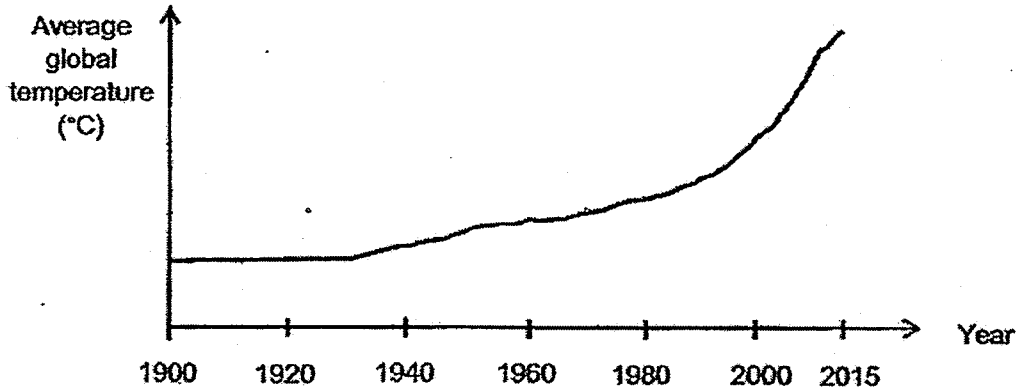
30 Over the years, more farmers are burning down trees to clear forests to grow their crops. The graphs below show the average global temperature readings and the average amount of carbon dioxide in the atmosphere for the period between 1900 and 2015.





(a) What is the relationship between the average global temperature and the average amount of carbon dioxide in the atmosphere? [1]

_____

_____

(b) Explain how the burning of trees leads to global warming. [2]

_____

_____

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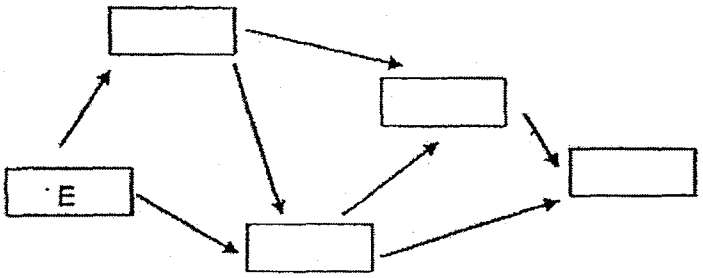
31 The letters A to E represent organisms living in a community. Study the food relationships of the organisms in the table below.

- Both A and B feed on E.
- D is a prey of C and a predator of A.
- E gets its energy directly from the Sun.

(a) Use the information above to complete the food web below. Write the letters A, B, C and D in the boxes below. [1]



(b) Which organism(s) is/are both prey and predator? [1]

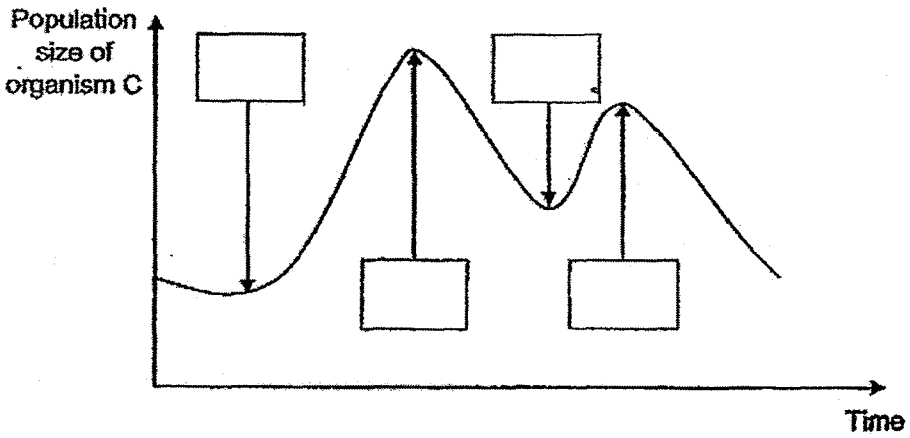
_____

(c) After some time, organism F was introduced to the habitat. The food relationship organism F has with the other organisms living in the habitat is listed below.

F preys on C and D.

The graph below shows the population size of organism C over a period of time. Mark with an 'X' in <u>only one</u> of the boxes provided the point in the graph when organism F was first introduced.

[1]



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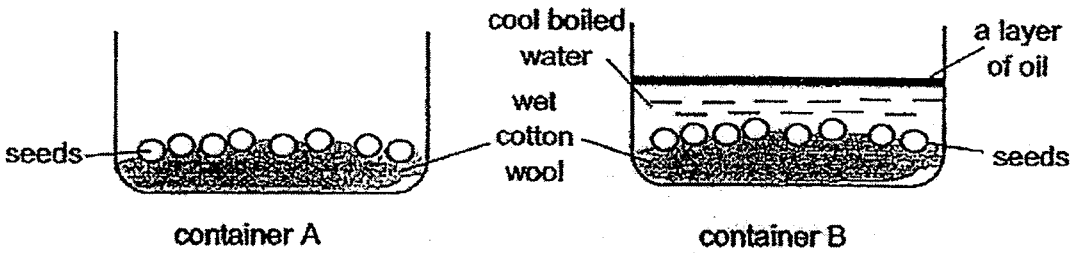
32 Donna carried out an experiment on the germination of seeds using two containers, A and B. She placed both containers in the classroom near an open window.



(a) What will Donna observe about the seeds in both containers A and B after two days? [1]

_____

_____

(b) Explain your answer in Part (a). [2]

_____

_____

_____

3

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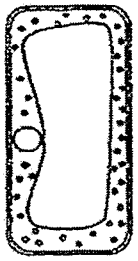
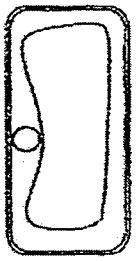
33 The diagram below shows two different cells A and B as seen under the microscope. Observe the two cells carefully and answer the questions that follow.



Cell A



Cell B

(a) Which of the cell(s) shown above is/are plant cell(s)? Explain your answer. [1]

_____

_____

(b) State one difference between Cell A and Cell B. [1]

_____

_____

(c) Explain the difference in the function of Cell A and Cell B due to the difference stated in Part (b). [1]

_____

_____

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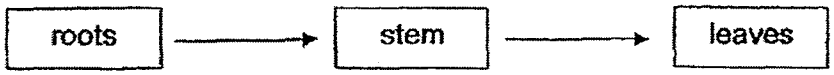
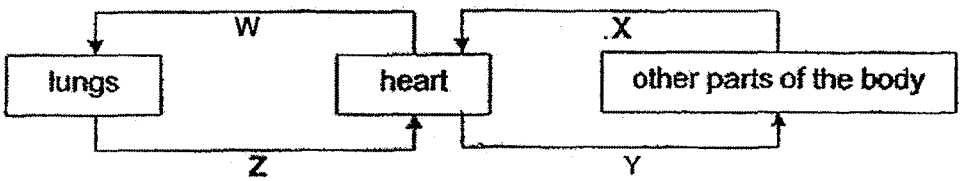
34 The diagram below shows the movement of water in a plant.

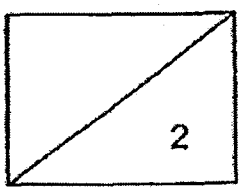


(a) What happens to the water after it reaches the leaves? [1]

The arrows below show the flow of blood in a human body.



(b) Other than the direction of blood flow, state one difference between the blood in W and the blood in Y. [1]



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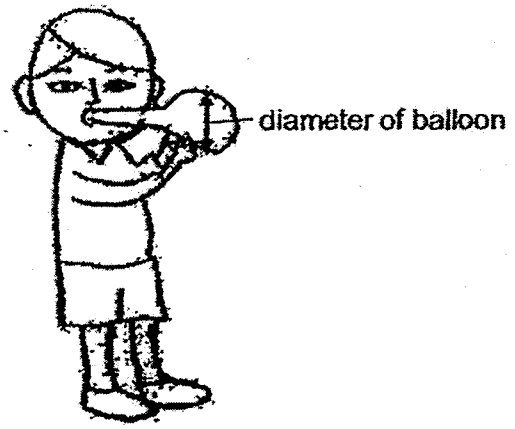
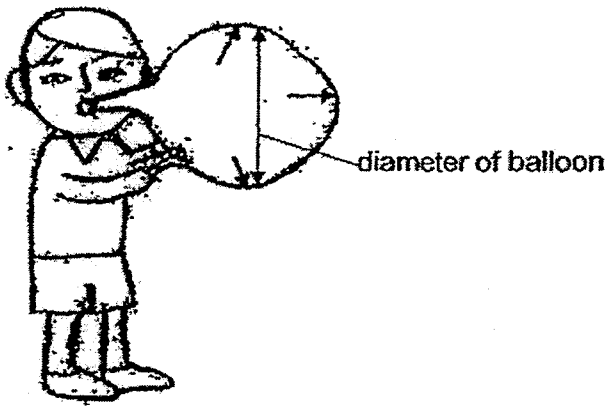
During Science lessons, Simon learnt that the walls of some blood vessels that carry blood to all parts of the body, like arteries, are very thick. He carried out an investigation on the different grades of balloon of different thickness to better understand the purpose of a thick wall in an artery.

Steps of Experiment:

1) Measure the thickness of the skin of the Balloon A and record it in the table.
2) Exhale into the balloon 5 times.
3) Measure the diameter of the balloon after it has been inflated and record the measurement in the table below.
4) Repeat steps 1 to 3 for Balloons B and C.



Before exhaling



After exhaling

Results table:

Balloon	Thickness of skin of balloon (cm)	Diameter of balloon (cm)
A	0.1 cm	Could not record (balloon burst)
B	0.3 cm	15cm
C	0.5 cm	7cm

(c) Based on the results of the experiment, explain why the wall of the artery that carries blood from the heart of the body is thick. [2]

_____

_____

_____

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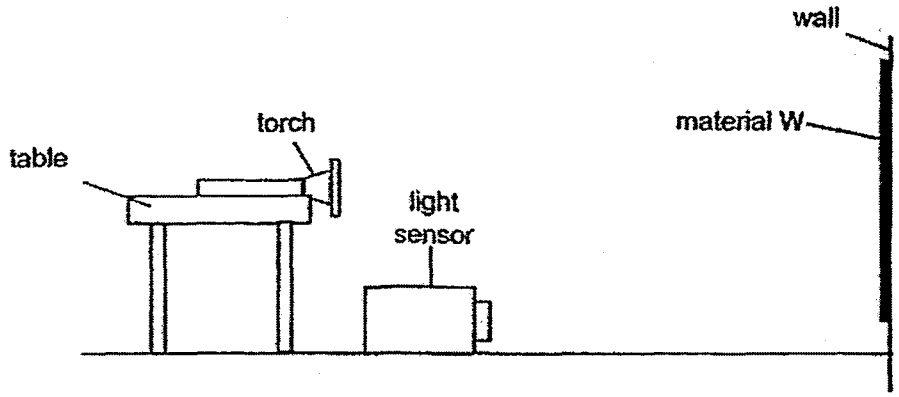
35 Siti set up the following experiment.



She shone the light from the torch onto material W which she had hung on the wall and recorded the readings recorded by the light sensor. She then repeated the experiment with materials X, Y and Z. The results are shown in the table below.

Material	Amount of Light (units)		
	First Reading	Second Reading	Average Reading
W	57	65	61
X	23	29	26
Y	234	222	228
Z	87	91	89

a) Why was the light sensor able to detect light from the torch even though the torch was placed behind it? [1]

_____

_____

(b) Based on the results of the experiment, which material, W, X, Y or Z, should be used to make road signs to enable drivers to see them clearly at night? Give a reason for your answer. [1]

_____

_____

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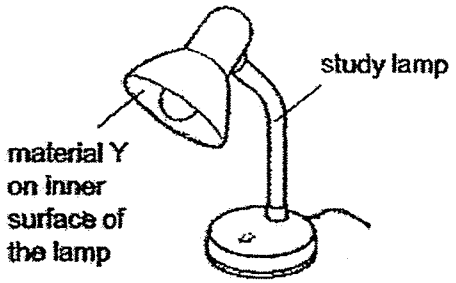
(c) Siti's teacher said that the experiment should have been conducted in a dark room. Explain how this suggestion would improve Siti's experiment. [1]

_____

_____

(d) Siti noticed that Material Y was used on the inner surface of her study lamp as shown below.



Based on the results of the earlier experiment, explain why material Y was used. [1]

_____

_____

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36 Tom conducted an experiment using a wooden block P and a flat wooden plank placed on the floor as shown in the diagram below.

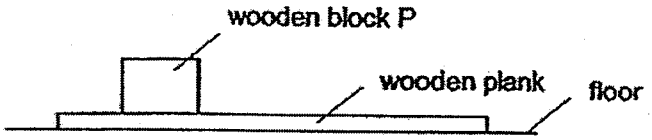

Figure 1

(a) In Figure 1 above, what force(s) was/were acting on wooden block P as it rested on the wooden plank? [1]

_____

_____

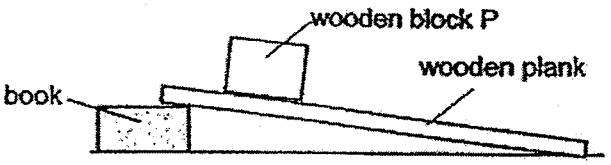

Figure 2

Tom placed one end of the wooden plank on a book as shown in Figure 2 above but the wooden block P did not slide down.

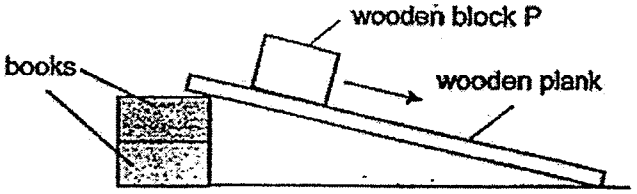

Figure 3

(b) However, when another book was placed as seen in Figure 3, the wooden block P slid down the wooden plank. Give a reason for this. [1]

_____

_____

(c) Without raising the wooden plank or changing wooden block P, suggest another way to make wooden block P slide down the wooden plank over a longer distance. Explain your answer. [1]

_____

_____

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3

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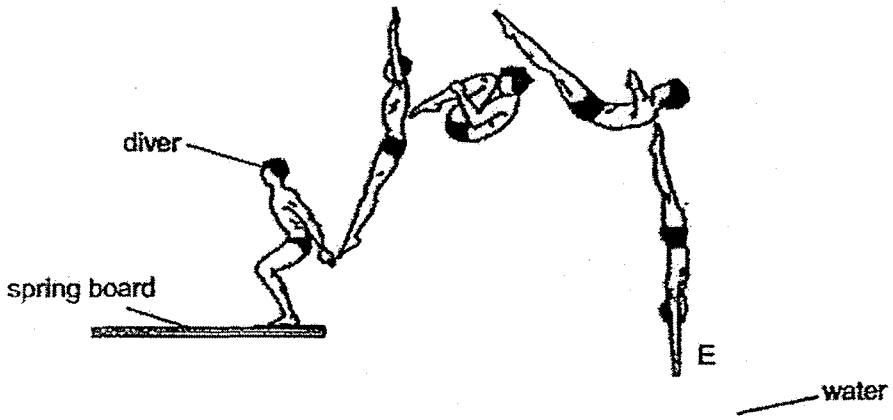
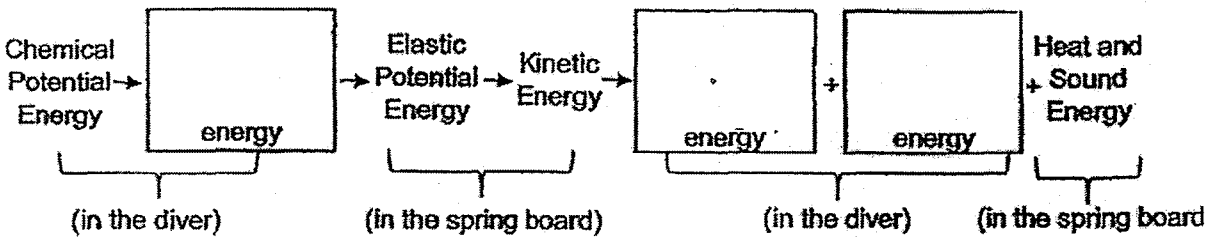
37 Neil noticed that divers tend to jump on the spring board to help propel them upwards before jumping off the board. The diver will make a few turns before eventually diving into the water as shown in the diagram below.



(a) Fill in the blanks below to show the energy conversion of the diver from the point when he jumped on the spring board to the point he was about to enter the water as seen in the diagram above. [1]



(b) Why is it important for the diver to jump a few times on the spring board before jumping off the spring board? [1]

_____

_____

_____

(c) Less splashes can be seen in the water when the diver enters the water at point E with his hand stretched straight out as seen in the diagram. Explain the reason why. [1]

_____

_____

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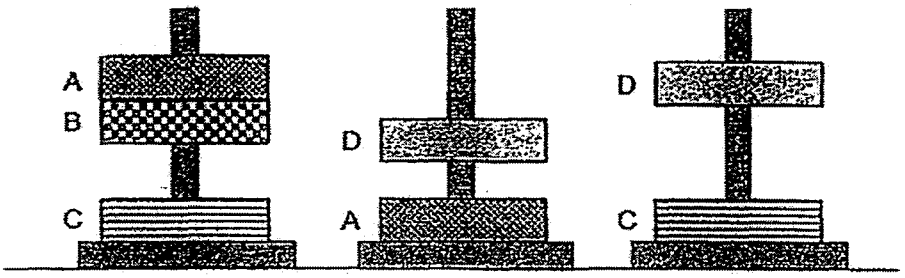
38 The following set-ups show different ways four ring magnets, A, B, C and D, of the same mass and size, can be arranged.



Based on the above set-ups, Mary made the following conclusions. Put a tick (✓) in the columns provided, whether Mary's conclusions are 'True', 'False' or 'Not Possible to Tell'. [2]

Conclusion	True	False	Not Possible to Tell
The like poles of all the magnets are facing each other.			
The unlike poles of all the magnets are facing each other.			
Magnet A has a stronger magnetic strength than Magnet B.			
Magnet C has a stronger magnetic strength than Magnet A.			

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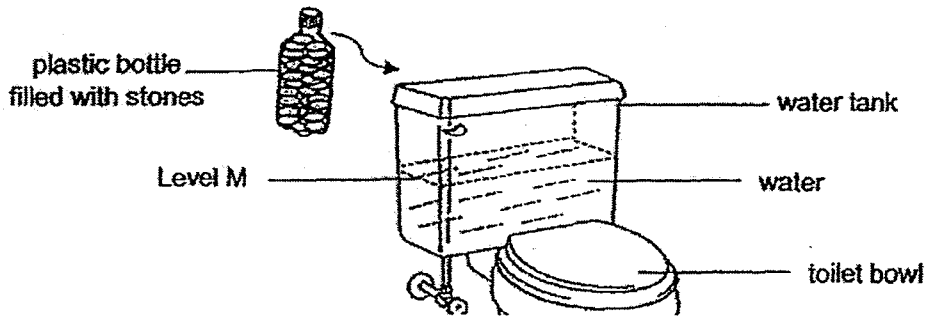
39 The diagram below shows a water tank used for flushing a toilet bowl. The flushing and re-filling system is not shown in the diagram.



After flushing, water enters and re-fills the tank. Water will stop flowing into the tank when it reaches Level M.

Keagan wanted to use less water to flush the toilet bowl. Laura suggested putting a plastic bottle filled with stones into the water tank, as shown in the diagram above.

(a) Laura's method is based on a property of matter. State this property. [1]

_____

_____

(b) Explain how Laura's suggestion would help Keagan use less water to flush the toilet bowl. [1]

_____

_____

(c) Keagan placed an empty plastic bottle into the water tank to try and see if it would reduce the amount of water used to flush the toilet bowl. Explain why Keagan's method will not work. [1]

_____

_____

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(d) Keagan wanted to put a different object instead of the plastic bottle filled with stones into the water tank to help reduce the amount of water used to flush the toilet bowl.

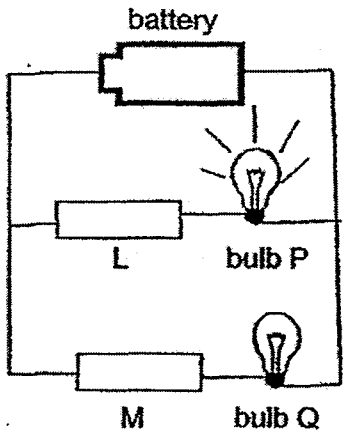
State a property of the material of that object that is necessary to ensure that the experiment will work. [1]

_____

_____

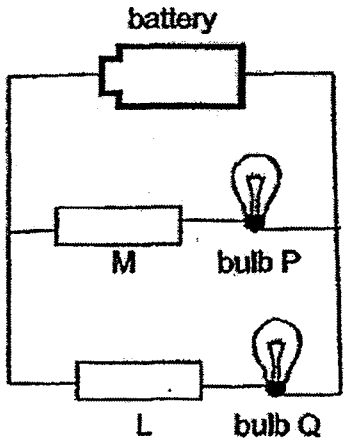
40 Gary prepared the circuit in Set-up 1 as shown below. He observed that only bulb P lit up.

Set-up 1



He then exchanged L with M in Set-up 2 and observed that **none** of the light bulbs lit up.

Set-up 2



1

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(a) State whether L and M are conductors of electricity. Give a reason for your answer. [2]

	Is it a conductor of electricity? (Yes / No)	Reason
L	_____	_____ _____ _____
M	_____	_____ _____ _____

(b) Based on his observations, Bulb P lit up in Set-up 1 but both bulbs did not light up in Set-up 2. Explain the reason why. [1]

_____

_____

3

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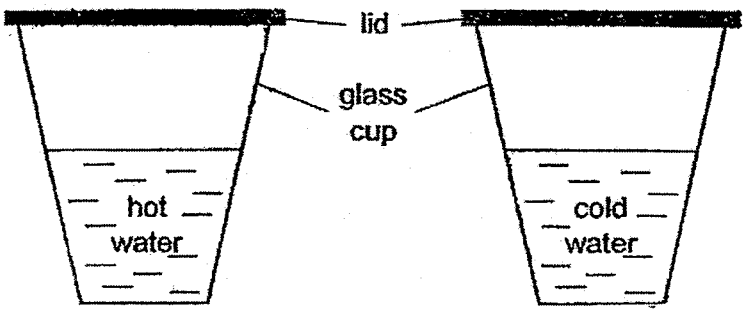
41 An experiment was set up to investigate condensation of water vapour on two glass cups. The same amount of hot water at 90°C and cold water at 10°C was poured into the glass cups. The glass cups were of the same thickness, size and shape. The glass cups were placed in the Science Laboratory at a room temperature of 25°C.



(a) Draw water droplets on the diagrams of both glass cups above to correctly show where they would form after 5 minutes. [1]

(b) Based on your answer in Part (a), explain why water droplets will form at that area of the glass cups containing hot water and cold water. [2]

(i) **Glass cup containing hot water at 90°C:**

_____

_____

(ii) **Glass cup containing cold water at 10°C:**

_____

_____

(c) Nurul filled up another identical glass cup with water at 25°C. What observation would she make in the 3rd glass cup after 5 minutes? Explain why. [1]

_____

_____

End of Booklet B

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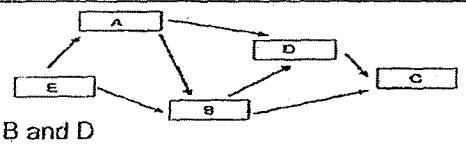
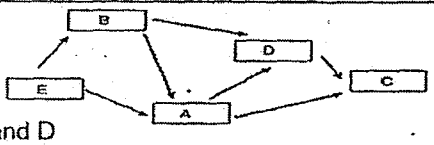
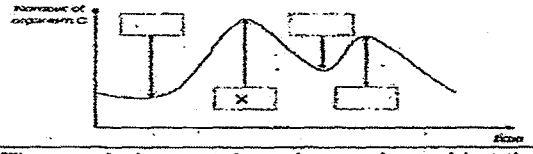
PRIMARY 6 PRELIM EXAM, 2017

Simplified Answer Key

Booklet A

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

Booklet B

No		Answer	Remarks
29	a	As the area of contact with the sand decreases/increases, the depth of depression formed increases/decreases.	
	b	The **depression caused by D is less than C**..D has **less gravitational potential energy** which is then **converted to less kinetic energy** when dropped and caused the depression to be less than C.	
	c	Having larger feet, the **surface area in contact with the sand is bigger**, the camel will **sink in lesser** and has no difficulty walking.	
	d	**Hump retains stored fat so can go without food over a longer period of time.** **Large surface area to enable greater loss of body heat.** **Long eyelashes to prevent sand from entering its eyes.** **Small ears to reduce heat gain.** **Long legs** so that it is **further away from the sand and will reduce heat gain.** **Thick pads on knees/feet** so that it **will not burn itself when in contact with the hot sand.**	Any one.
30	a	The higher the amount of carbon dioxide in the air (cause), the higher the average global temperature (effect).	
	b	With lesser trees, there is **more carbon dioxide in the air** as **the trees can no longer absorb the carbon dioxide in the air for photosynthesis / as burning releases a lot of carbon dioxide thus trapping more heat** and causing the global temperature to increase.	
31	a	 OR 	A and B are interchangeable
	b	B and D / A and D	
	c		
32	a	The **seeds in container A germinated** but the **seeds in container B did not germinate.**	
	b	The **seeds in container A germinated as air (oxygen), warmth and moisture were present. The seeds in container B did not germinate** because even though there was water and warmth, **the layer of oil prevented air from reaching the seeds.**	
33	a	**Both** are plant cells as they have **cell walls**.	
	b	Cell A has **chloroplast** but cell B does not have chloroplasts.	
	c	Cell A has chloroplast which can absorb light **to make food** but Cell B is **not able to make food.**	
34	a	The water will be used by the leaves to **make food for the plant** during photosynthesis. OR There will be **transpiration of water vapour out of the leaves / evaporation of water from the leaves.**	
	b	**Blood in W is poor in oxygen** but **blood in Y is rich in oxygen. OR** **Blood in W is rich in carbon dioxide** but **blood in Y is poor in carbon dioxide.**	
	c	Based on the results, the **balloon bursts when the balloon was thinnest. Therefore the** wall of the artery has to be thicker to **withstand the greater pressure of the blood being pumped by the heart.**	

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35

a The light from the **torch reflected off the material and into the light sensor.**

b Y. Material Y **reflected the most light.** Road signs need to be **able to reflect light to make it easier for drivers to see it.**

c To ensure that the only light sensed by the sensor is the light from the torch.

d Material Y is the best reflector of light. When used on the inner surface of the lamp, **more light will be reflected** and the **light produced will be even brighter.**

36

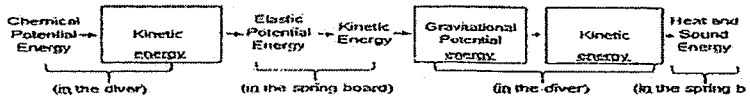
a Gravitational force

b **Gravitational force is more than frictional force** and as such the block slid down.

c **Lubricating the wooden plank** which reduces **friction between wooden block P and the plank.**

37

a



b **More elastic potential energy** could be converted to **more gravitational potential/kinetic energy**

c Body is **more streamlined** therefore **less water resistance** when entering the water hence lesser splashes.

38

Conclusion	True	False	Not Possible to Tell
The like poles of all the magnets are facing each other.		√	
The unlike poles of all the magnets are facing each other.		√	
Magnet A has a stronger magnetic strength than Magnet B.			√
Magnet C has a stronger magnetic strength than Magnet A.	√		

39

a Matter occupies space.

b The plastic bottle filled with stones will **take up space in the water tank.** Thus, **less water will be able to fill the tank** for the water level to reach level M.

c The empty plastic bottle will **float on the water.** Therefore, the bottle **will not displace the water.**

d The material of the object has to be **able to sink in water.**

40

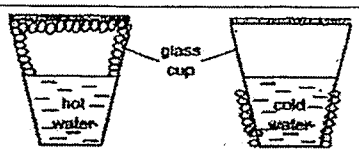
a

	Is it a conductor of electricity? (yes / no)	Reason
L	yes	L formed a closed circuit and electricity was able to pass through L to light up bulb P.
M	no	M formed an open circuit and electricity was not able to pass through M to light up bulb P.

b **M is a non-conductor of electricity** but **L is a conductor of electricity.**

41

a



bi Hot water **evaporates** into water vapour. The warm water vapour **touches the cooler (inner) surface of the glass cup,** loses heat and **condenses** into water droplets.

bii **(Warmer) water vapour** from the surrounding air **touches the cooler (outer) surface of the cup,** loses heat and **condenses** into water droplets.

c She will observe that **no water droplets** formed on the glass cup. There will be **no heat transfer.**

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