慈学校

恭宽信敏

RED SWASTIKA SCHOOL

RED SWASTIKA SCHOOL

SCIENCE
2018 SEMESTRAL EXAMINATION 2
PRIMARY 5

Name : _____ ( )

Class : Primary 5/ _____

Date : 26 October 2018

BOOKLET A

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

Booklet A: 28 questions (56 marks)

Note:

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
   a. Page 1 to Page 20
   b. Questions 1 to 28

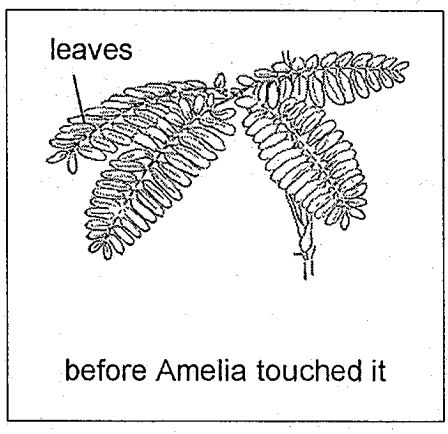
For Questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

1. Which of the following characteristic(s) is/are found in only birds, but not in other animals?

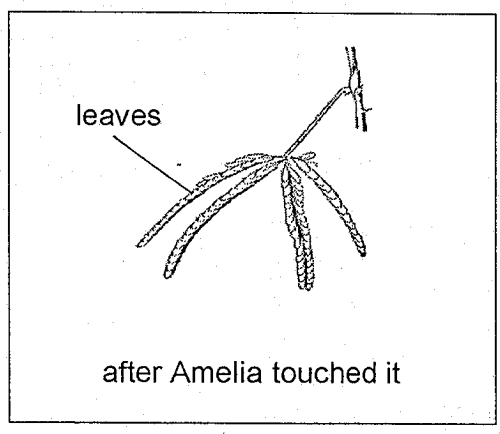
A: They lay eggs.
B: They have wings.
C: They have feathers as body covering.

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

2. Amelia found a plant shown below in the school garden. The leaves of the plant closed up immediately when she touched it.



before Amelia touched it



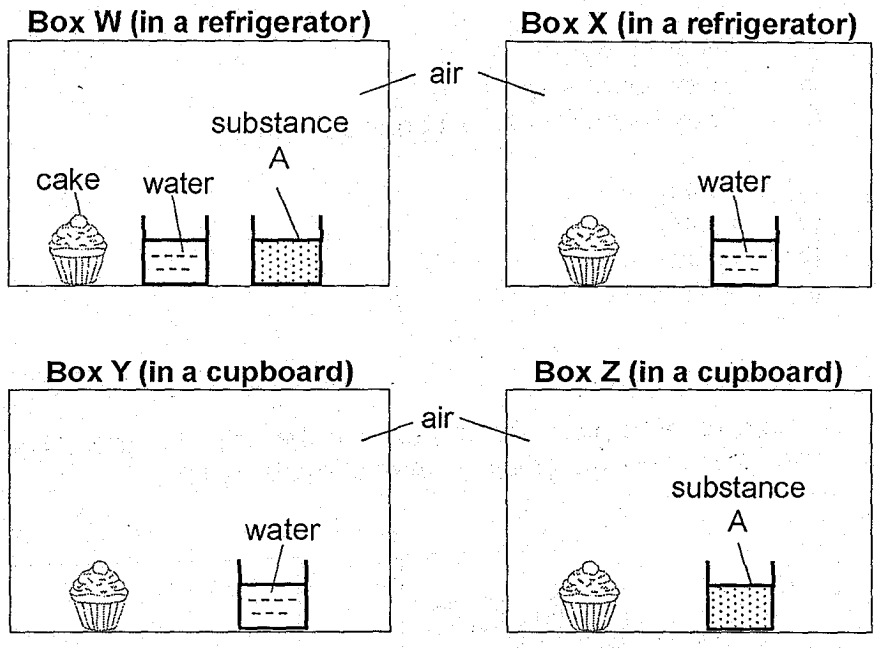
after Amelia touched it

Which of the following statements explain(s) her observations?

A: The plant can make its own food and grow.
B: The plant needs air, light and water to survive.
C: The plant can respond to changes around it.

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

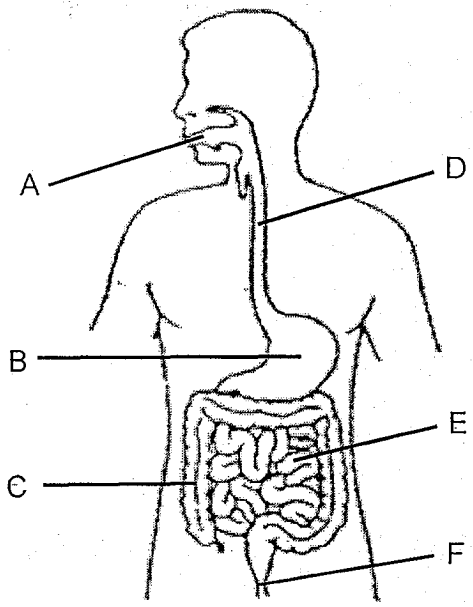
3. Max placed four similar cakes in four similar sealed boxes. He placed boxes W and X in a refrigerator and boxes Y and Z in a cupboard. Substance A absorbs water from the surrounding.



In which box, W, X, Y, or Z, would mould first appear on the cake?

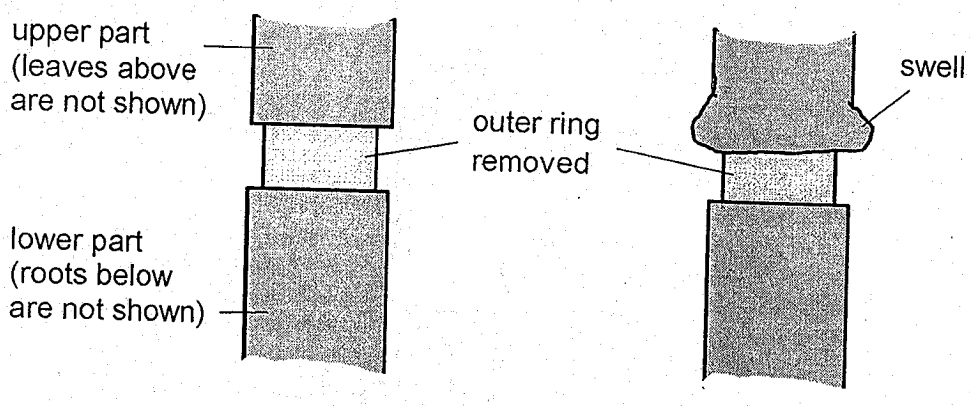
(1) W
(2) X
(3) Y
(4) Z

4. The diagram below shows parts of the human digestive system. Which of the following parts release digestive juice to digest food?



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

5. Ali conducted an investigation on the function of the stem of a plant. He removed an outer ring from the stem as shown below. After some time, he noticed that part of the stem started to swell.

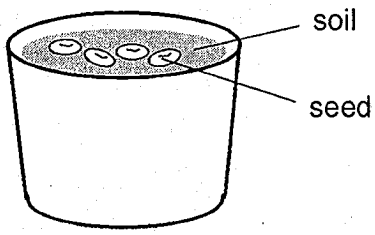


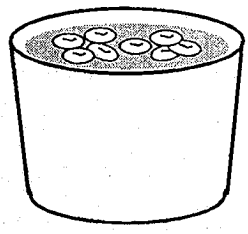
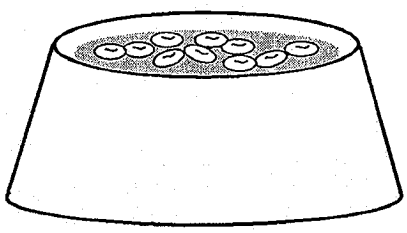
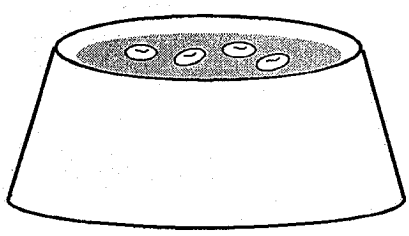
Which of the following substances had their pathways along the stem being removed, causing the stem to swell?

(1) food
(2) water
(3) oxygen
(4) mineral salts

6. Ahmad wants to find out the effect of overcrowding on the growth of green bean seeds.

Which two set-ups are most suitable to conduct a fair experiment?

<table>
<tr>
<td><u>Set-up A</u>
 

Number of seeds : 4
Amount of soil : 200 g
Capacity of pot : 300 cm^3
Temperature of surrounding : 15°C</td>
<td><u>Set-up B</u>
 
Number of seeds : 8
Amount of soil : 200 g
Capacity of pot : 300 cm^3
Temperature of surrounding : 25°C</td>
</tr>
<tr>
<td><u>Set-up C</u>
 
Number of seeds : 10
Amount of soil : 220 g
Capacity of pot : 400 cm^3
Temperature of surrounding : 30°C</td>
<td><u>Set-up D</u>
 
Number of seeds : 4
Amount of soil : 220 g
Capacity of pot : 400 cm^3
Temperature of surrounding : 30°C</td>
</tr>
</table>

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

7. A group of workers was trapped in a small enclosed underground cave. After four hours, they complained of giddy spells as the components of air in the cave changed.

Which of the following shows correctly the change in the amount of the components of air after they were trapped within the cave for four hours?

(1)

Components of Air	Amount of the components of air after four hours
oxygen	decrease
nitrogen	stays the same
carbon dioxide	decrease
water vapour	stays the same

(2)

Components of Air	Amount of the components of air after four hours
oxygen	increase
nitrogen	stays the same
carbon dioxide	increase
water vapour	increase

(3)

Components of Air	Amount of the components of air after four hours
oxygen	decrease
nitrogen	increase
carbon dioxide	decrease
water vapour	stay the same

(4)

Components of Air	Amount of the components of air after four hours
oxygen	decrease
nitrogen	stay the same
carbon dioxide	increase
water vapour	increase

8. Colin examined four different cell specimens under a microscope and recorded his observations in the table below.

	Cell A	Cell B	Cell C
Nucleus	present	present	present
Cell wall	present	absent	present
Cytoplasm	present	present	present
Chloroplast	absent	absent	present
Cell membrane	present	present	present

Which of the following correctly matches the cells that Colin was examining?

	Cell A	Cell B	Cell C
(1)	leaf cell	cheek cell	root cell
(2)	root cell	cheek cell	leaf cell
(3)	cheek cell	root cell	leaf cell
(4)	leaf cell	root cell	cheek cell

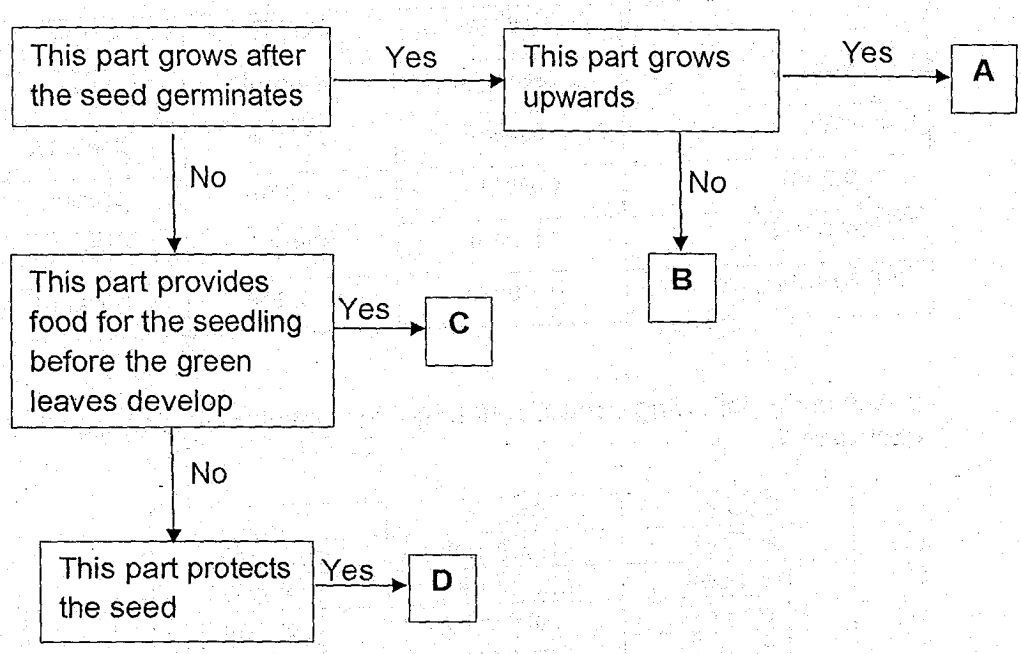
9. A student made three statements about sexual reproduction in plants and humans:

A: Reproductive cells are produced in the testes.
B: Fertilisation occurs in the female reproductive part.
C: The fertilised egg develops in a male reproductive part.

Which of the following is correct?

	Plants	Humans
(1)	A, B	A, C
(2)	B	A, B
(3)	B, C	A, B, C
(4)	A, C	B

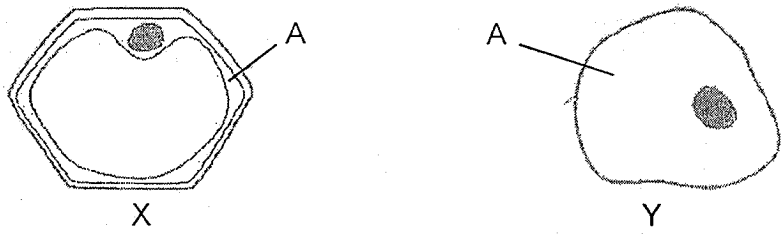
10. A, B, C and D represent various parts of a seed in the following flow chart.



Which of the following options correctly identifies the letters representing the shoot and the seed leaf?

	Shoot	Seed leaf
(1)	A	C
(2)	A	D
(3)	B	C
(4)	B	D

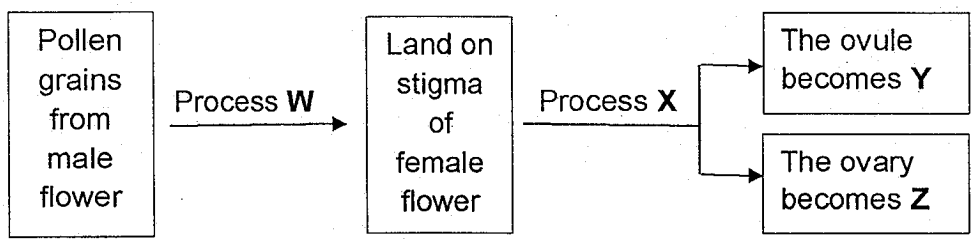
11. Two cells X and Y are shown below.



Which of the following gives the correct classification of the cells and the function of part A.

	Animal cell	Plant cell	Function of part A
(1)	X, Y	-	controls movement of substances in and out of the cell
(2)	Y	X	controls movement of substances in and out of the cell
(3)	Y	X	allows movement of substances within the cell
(4)	-	X, Y	allows movement of substances within the cell

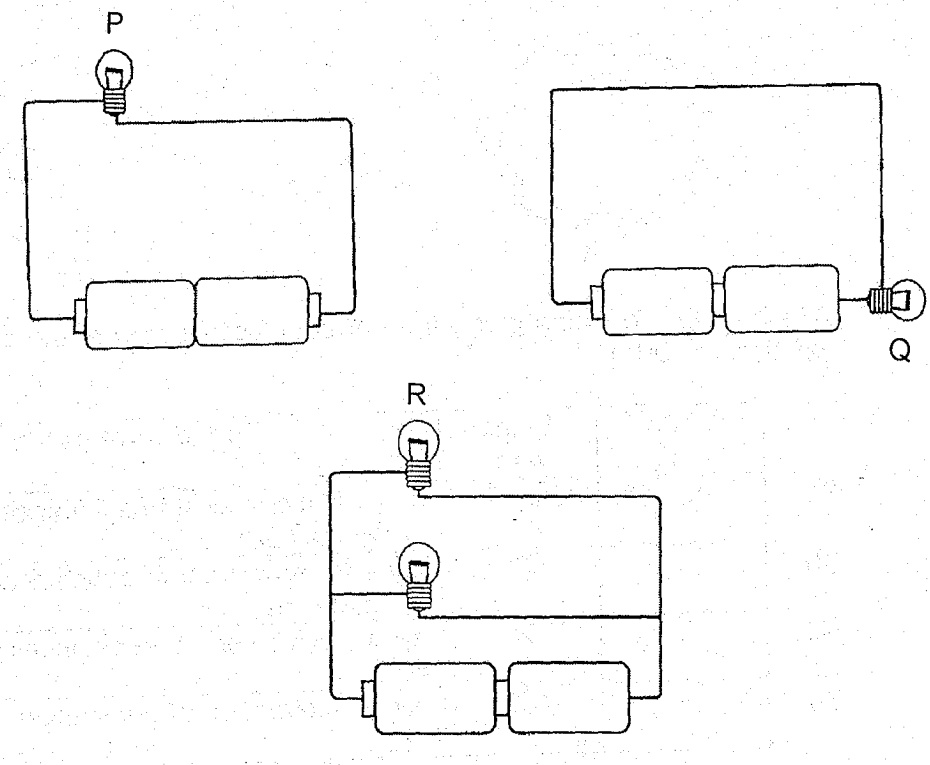
12. Study the diagram below.



Which one of the following correctly identifies W, X, Y and Z?

	Processes		Parts of the plant	
	W	X	Y	Z
(1)	pollination	fertilisation	fruit	seed
(2)	pollination	fertilisation	seed	fruit
(3)	fertilisation	pollination	fruit	seed
(4)	fertilisation	pollination	seed	fruit

13. Murphy created three circuits as shown. All the bulbs and batteries used are similar.

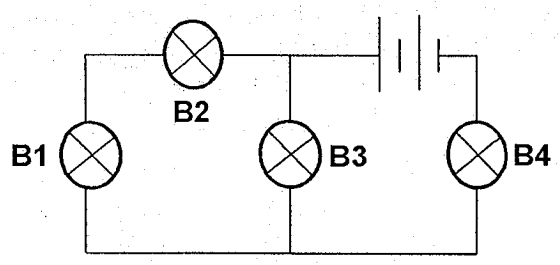


Which of the following statement(s) is/are true about the circuits?

A: Bulbs Q and R are of equal brightness.
B: Bulb R is dimmer than bulb Q.
C: Bulb P has the same brightness as bulb Q.

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

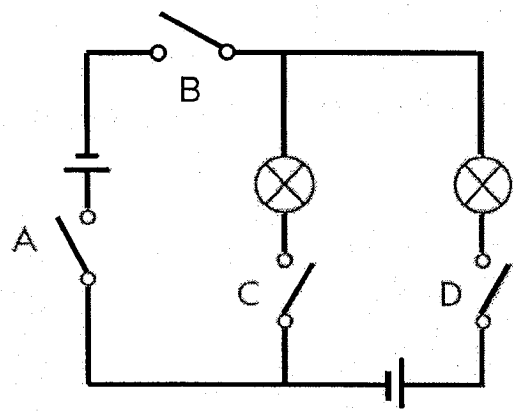
14. Look at the circuit diagram below.



When one of the bulbs is not working, the other three bulbs will not light up. Which is the bulb that is not working?

(1) B1
(2) B2
(3) B3
(4) B4

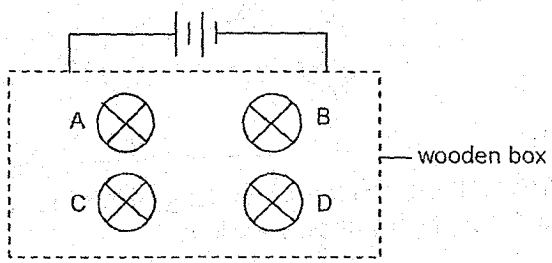
15. The diagram below shows a circuit with four open switches.



Which of the switches should be closed so that only one bulb in the circuit is able to light up most brightly?

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

16. Bulbs A, B, C and D were connected in a circuit hidden in a wooden box shown below. All the light bulbs lit when the circuit was closed. The position of the bulbs were not changed throughout the experiment.

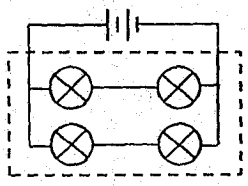


Zulfri removed one light bulb from the circuit each time and observed what happened to the rest of the light bulbs. His observations are recorded in the table below.

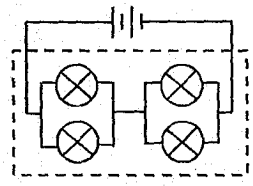
Bulb removed	Bulb(s) lit
A	None
B	A, C and D
C	None
D	A, B and C

Which of the following correctly shows the circuit hidden in the wooden box?

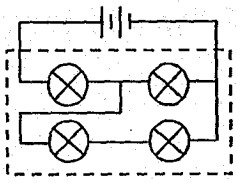
(1)



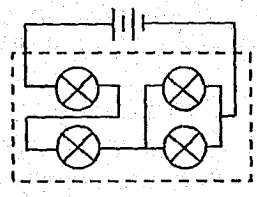
(3)



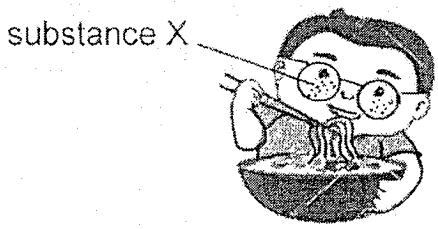
(2)



(4)



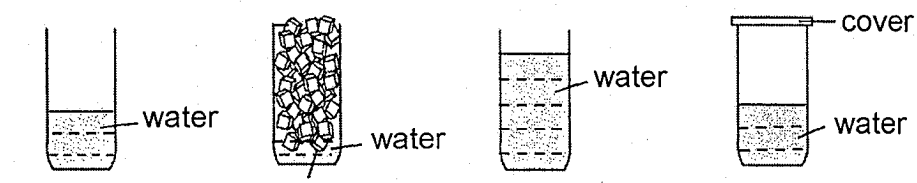
17. Hock Seng was eating a bowl of hot noodles soup. After a while, substance X formed on his glasses and caused his vision to become blurry.



What was substance X most likely to be?

(1) steam
(2) water vapour
(3) soup
(4) water droplets

18. Mei Yan set up four identical containers as shown below. She placed the containers together near a window sill on a sunny day.

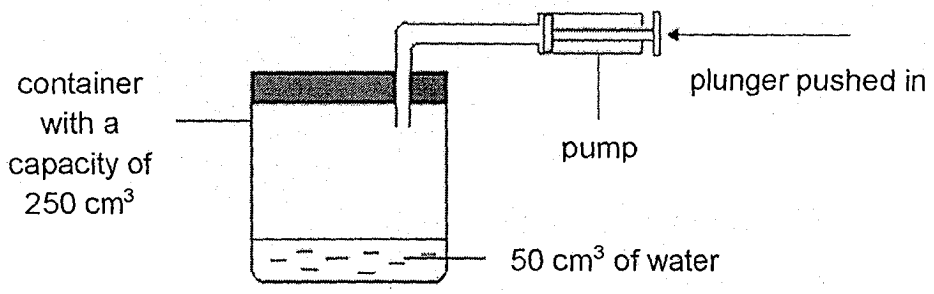


container A ice cubes container B container C container D

Which container will have the least amount of water left after one day?

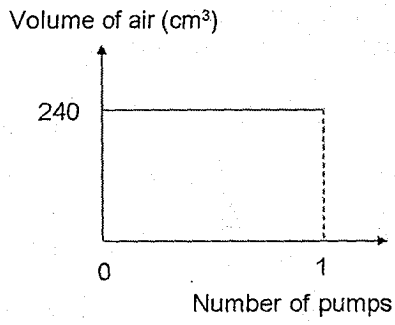
(1) A
(2) B
(3) C
(4) D

19. The diagram below shows a pump fitted to a container which has a capacity of 250 cm^3. Each time the plunger of the pump is pushed in completely, 40 cm^3 of air would be pumped into the container.

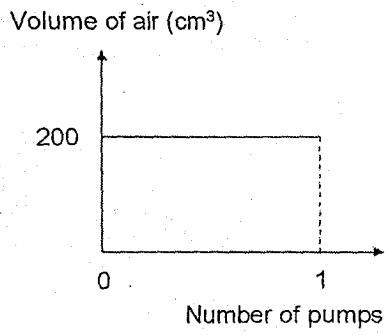


Which one of the following graphs represents correctly the changes in the volume of air inside the container after the plunger is pushed in completely once?

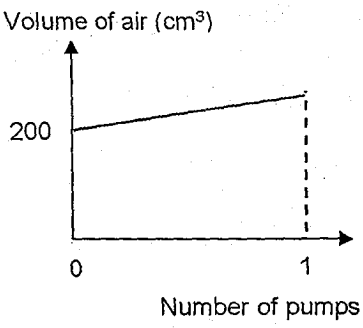
(1)



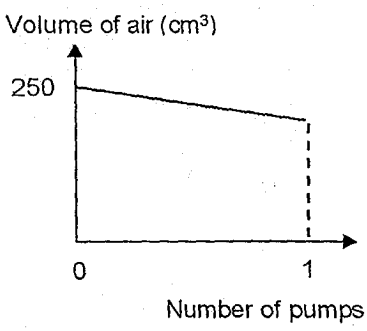
(2)



(3)



(4)



20. The table below shows the state of four different substances, A, B, C and D, at different temperatures.

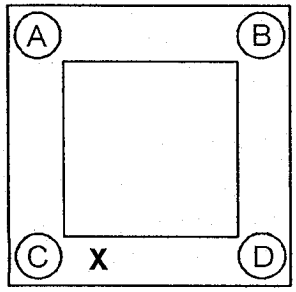
Substance	State at 0°C	State at 50°C	State at 100°C
A	liquid	gas	gas
B	solid	liquid	liquid
C	solid	liquid	gas
D	solid	solid	liquid

Which of the following statements is/ are correct?

A: The boiling point of substance A is 50°C.
B: Substance B has a lower freezing point than substance D.
C: Substance C is definitely water.
D: Substance D is a solid at 30°C.

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

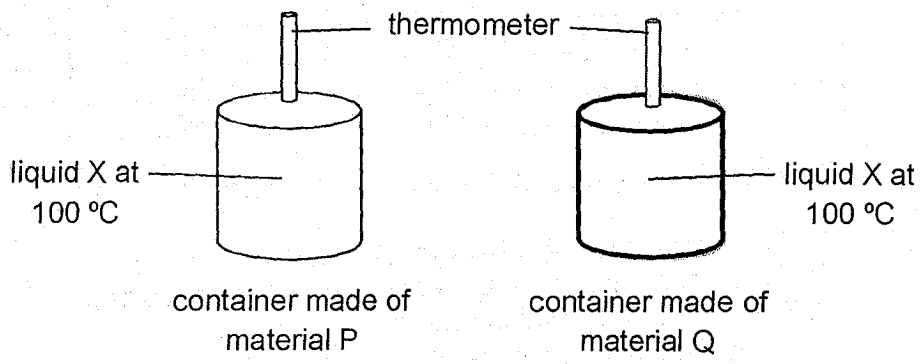
21. Paul placed four drops of wax at the corners, A, B, C and D, of a square metal frame as shown in the diagram.



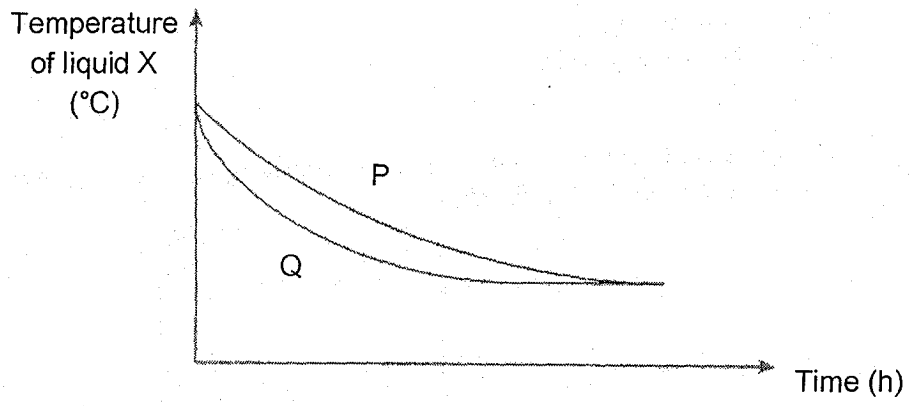
Paul heated the frame with a bunsen burner at position X. The drops of wax melted completely at different time. Which of the following shows the correct order of the melting wax, starting from the one which melted first?

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

22. Marie has two containers made of different materials. She filled the containers with the same amount of liquid X.



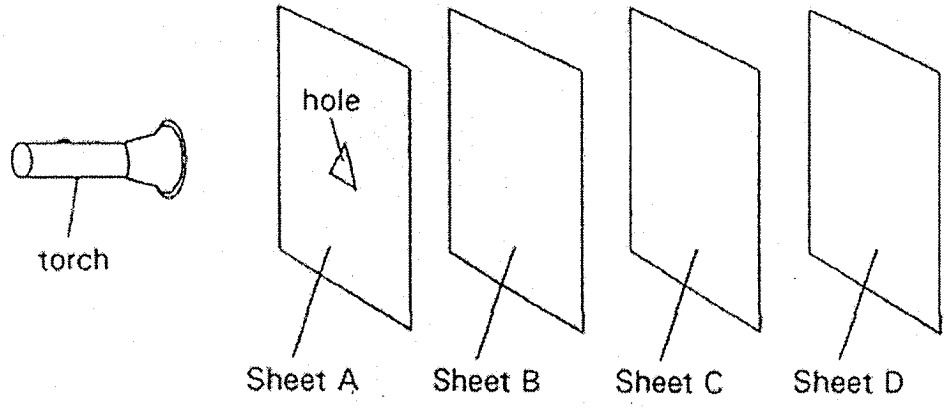
She measured the temperature of liquid X in the two containers over a period of time. She recorded her results in the graph below.



Marie wanted to bring some iced lemon tea and hot soup for a picnic with her family. She wanted to keep the iced lemon tea cold and the soup hot for as long as possible. Which type of material should she use for each container?

	Material of container containing	
	iced lemon tea	**hot soup**
(1)	P	Q
(2)	P	P
(3)	Q	P
(4)	Q	Q

23. Bala created the experiment shown below in a dark room.



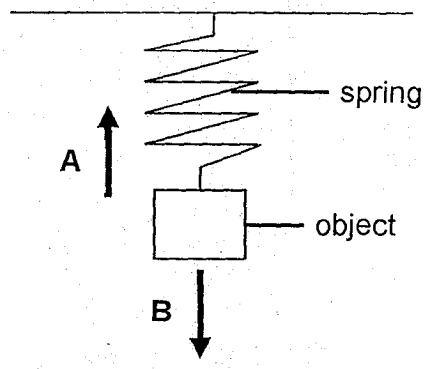
He arranged Sheets A, B, C and D in a straight line in front of a torch. The sheets are made of different materials but they are of the same size. The properties of the sheets are shown in the table below. A tick (✓) shows that the property is present.

	Does not allow any light to pass through	**Allows some light to pass through**	**Allows most light to pass through**
Sheet A	√		
Sheet B			√
Sheet C	√		
Sheet D		√	

Based on the properties given above, on which sheet will a bright triangular patch of light be formed when the torch is switched on?

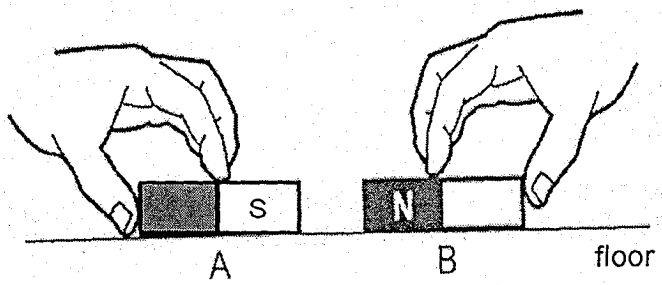
(1) A
(2) B
(3) C
(4) D

24. Name the two types of forces, A and B, acting on the object.



	A	B
(1)	magnetic	gravitational
(2)	elastic spring	gravitational
(3)	gravitational	frictional
(4)	frictional	elastic spring

25. Two magnets, A and B, were brought close together as shown below.



When A was released, it moved along the surface of the floor.
Which of the following shows the direction of magnetic force and the direction of frictional force acting on A?

	magnetic force acting on A	frictional force acting on A
(1)	→	←
(2)	→	→
(3)	←	←
(4)	←	→

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SCIENCE
2018 SEMESTRAL EXAMINATION 2
PRIMARY 5

Name : _____ ( )

Class : Primary 5/ _____

Date : 26 October 2018

BOOKLET B

12 Questions
44 Marks

In this booklet, you should have the following:
a. Page 21 to Page 38
b. Questions 29 to 40

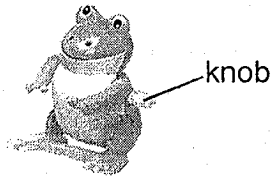
MARKS

	OBTAINED	POSSIBLE
BOOKLET A		56
BOOKLET B		44
TOTAL		100

Parent's Signature : _____

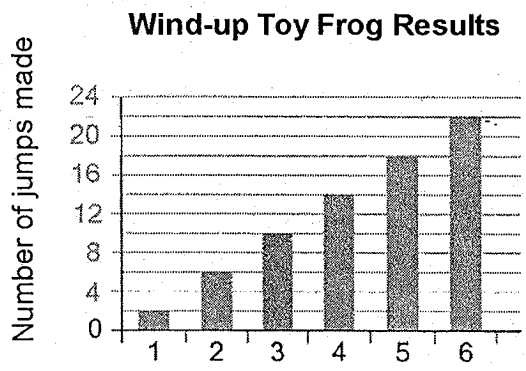
For questions 26 and 27, use the information below.

Freddie has a wind-up toy frog as shown.



The toy frog jumps forward when Freddie turns the knob and let it go. He carried out an experiment to find out if the number of times he turns the knob affects the number of jumps the toy frog makes.

The graph below shows his results.



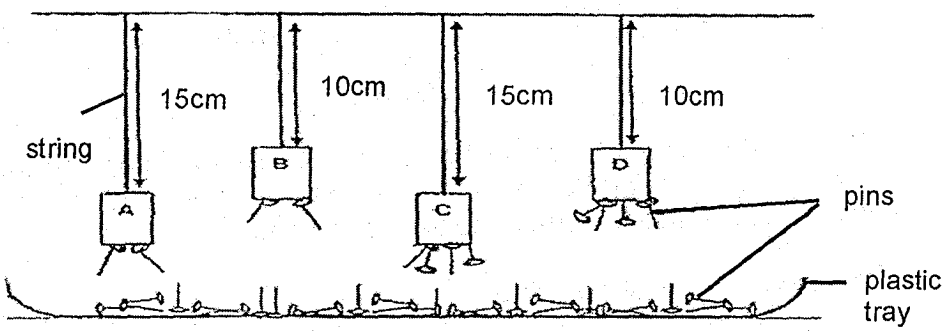
26. Based on the graph, what would be the least number of complete turns of the knob needed if Freddie wanted the toy frog to make 26 jumps?

(1) 5
(2) 6
(3) 7
(4) 8

27. Which two variables did Freddie have to keep the same to make his experiment a fair test?

	Variables to keep the same	
	Variable 1	**Variable 2**
(1)	the toy frog	number of jumps made by toy frog
(2)	number of turns of the knob	number of jumps made by toy frog
(3)	the toy frog	type of surface on which toy frog jumped
(4)	number of turns of the knob	type of surface on which toy frog jumped

28. Ben suspended four magnets, A, B, C and D, above a tray containing some pins. He observed the number of pins attracted to each magnet and concluded that magnet D had the greatest magnetic strength.



His teacher said that his experiment was not fair. What should he do to conduct a fair test?

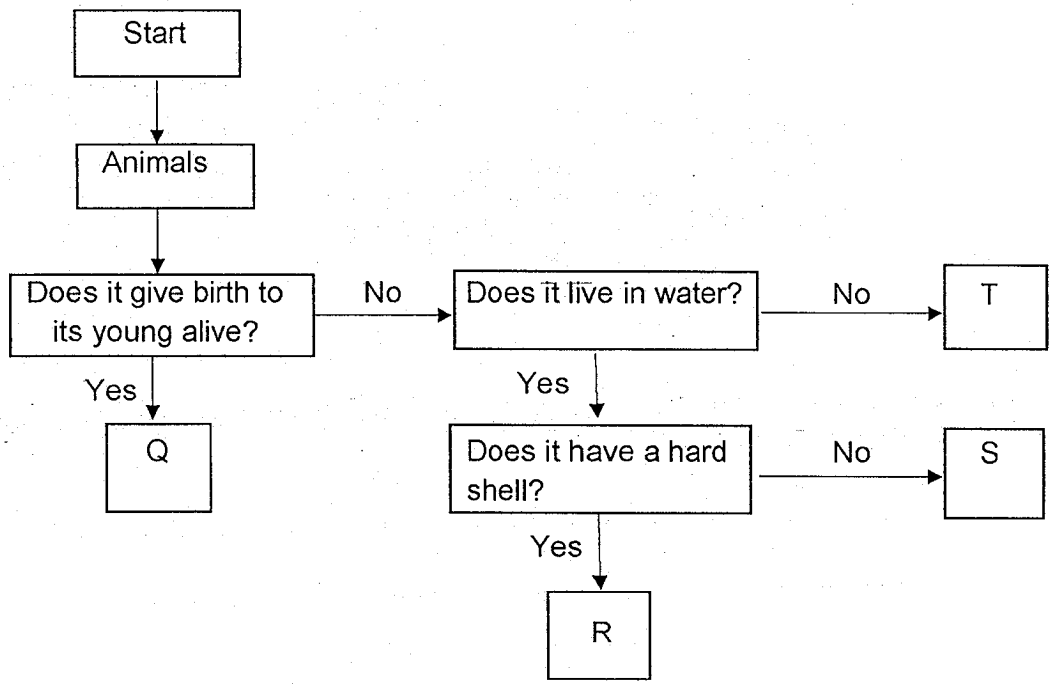
A: Use larger pins.
B: Use strings of the same length.
C: Change the plastic tray to a wooden tray.

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

END OF BOOKLET A

Answer all the questions in the spaces provided.

29. The flow chart shows the characteristics of four organisms represented by the letters Q, R, S and T.



(a) Based only on the flow chart, state two common characteristics between animal R and S. (2m)

_____

_____

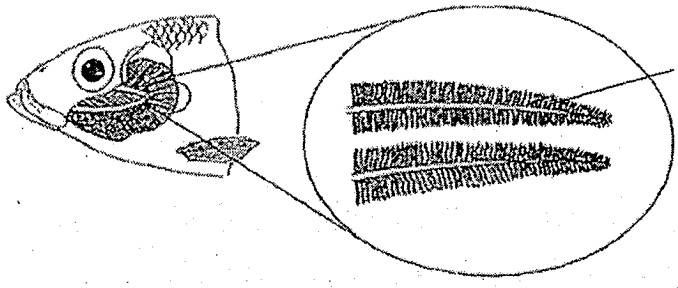
_____

(b) Which letter, Q, R, S or T, most likely represents a goldfish? (1m)

_____

3

29. The diagram below shows organ X which is part of the respiratory system of a fish.



Organ X (has many fine branches exposed to water)

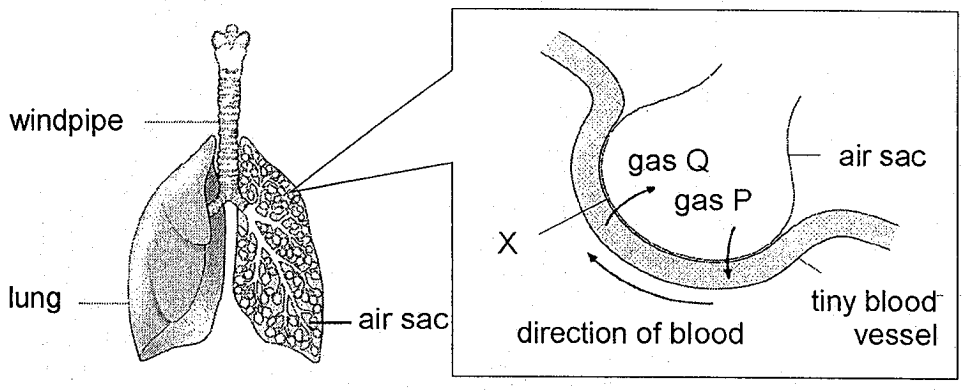
(c) Explain how the many fine branches in organ X that is exposed to water help the fish to breathe better. (1m)

_____

_____

1

30. The diagram below shows the human lungs, and an enlarged diagram of one air sac and its blood supply.



(a) Gas P enters the blood in the lungs from the air sac. Gas Q leaves the blood and enters the air sac. Name gas P and gas Q. (1m)

Gas P: _____

Gas Q: _____

(b) Part X of the air sac is a very thin layer. How does this affect the time needed for gaseous exchange to take place? (1m)

_____

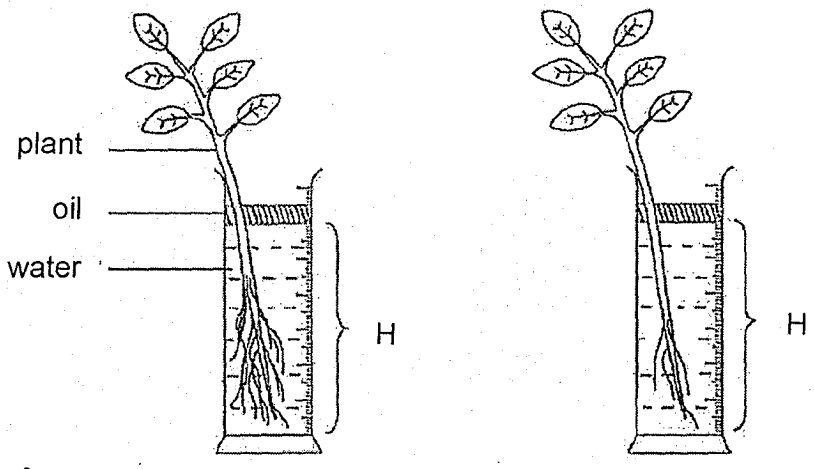
_____

(c) Name another gas not mentioned in part (a) that can be found in the air sac. (1m)

_____

3

31. Lina conducted the experiment in a classroom using the set-ups as shown. She removed most of the roots from one of the plants. She then recorded the water level, H, at regular time intervals.

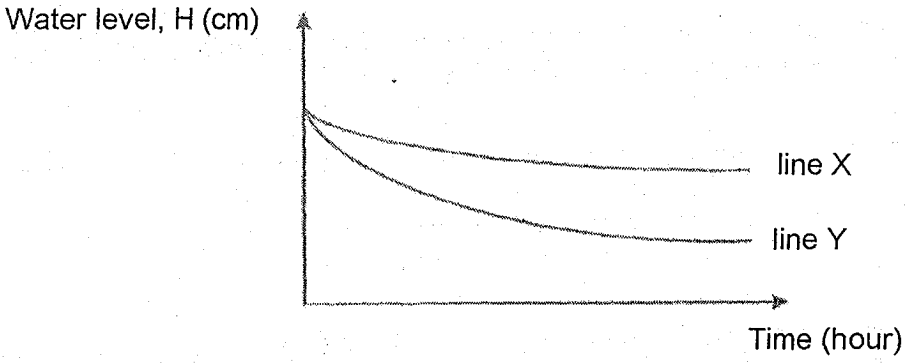


(a) How does the layer of oil help Lina to ensure that the decrease in water level, H, is due to the plant? (1m)

_____

_____

The results obtained are as shown.



(b) Which line, X or Y, represents the results obtained for the plant with fewer roots? Explain your answer. (2m)

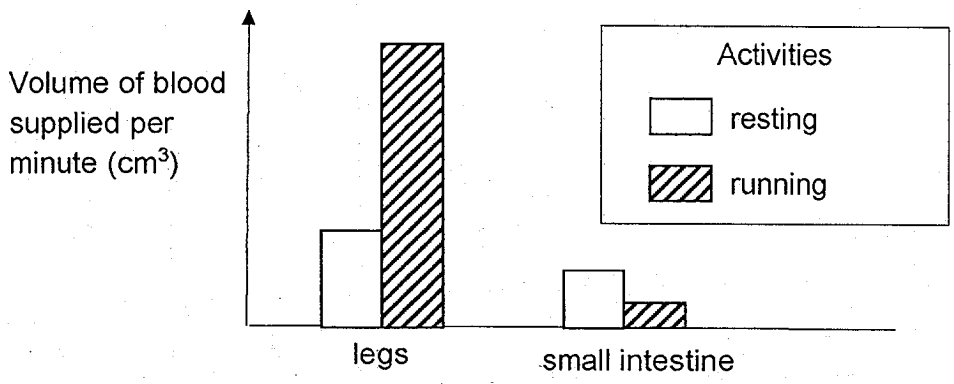
_____

_____

_____

3

32. A scientist carried out an experiment to measure the volume of blood supplied per minute to different parts of the human body during two activities: resting and running.



(a) Based on the graph above, how is the volume of blood supplied per minute to the small intestine different between resting and running? (1m)

_____

_____

(b) Describe how oxygen in the environment reaches the legs. (2m)

_____

_____

_____

3

33. Muthu observed how a green bean seed grew over a few days. His observations were recorded in the diagrams below.

				
Stages	A	B	C	D

(a) Give a reason why part X of the young plant grows first. (1m)

_____

_____

(b) Explain how the young plant in stage B and stage D differ in the way they obtain food. (2m)

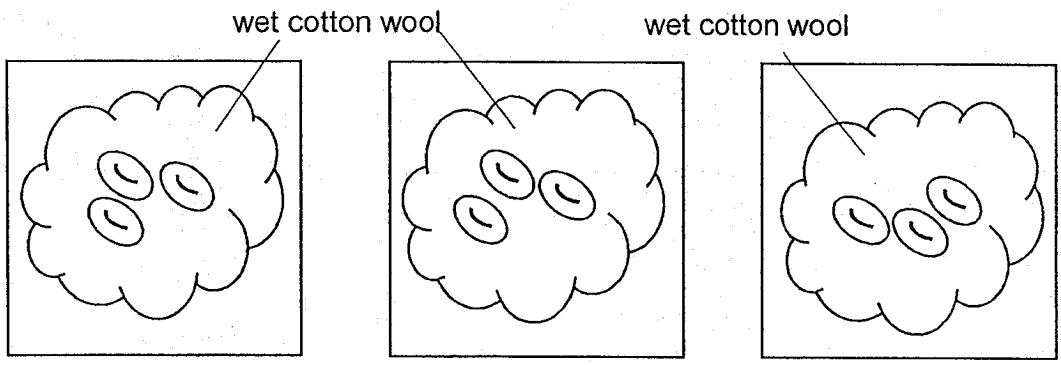
_____

_____

_____

3

33. Muthu conducted another experiment as shown below. He placed three similar seeds in containers made of different materials. He waters the cotton wool every day to keep it moist and placed the set-ups near the window.



Container A
(Cardboard)

Container B
(Frosted glass)

Container C
(Clear plastic)

(c) Which two of the containers, A, B and C, should Muthu compare if he wants to find out if the presence of light is needed for the seeds to germinate? (1m)

_____

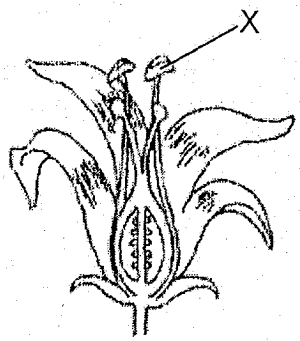
(d) Muthu wants to investigate if water is needed for seeds to germinate using container B and another control set-up.

Put a tick (√) for the item that is part of the control set-up to compare with container B (1m)

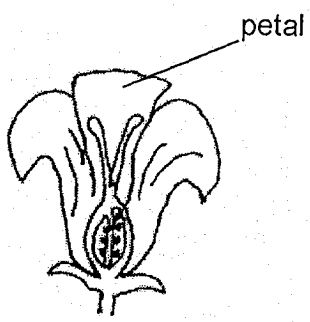
Items	Control set-up
clear glass container	
frosted glass container	
wet cotton wool	
dry cotton wool	

2

34. The diagrams below show the cross-section of two flowers, A and B, from different plants.



Flower A



Flower B

(a) Identify part X found in flower A. (1m)

_____

(b) The petal of flower B is brightly coloured. Explain how is this useful to flower B. (1m)

_____

_____

(c) After being pollinated, both flowers can be fertilised and produce fruits. From the diagrams of the ovaries of the flowers shown above, will the fruits of both flowers have many seeds or one seed? Explain why. (2m)

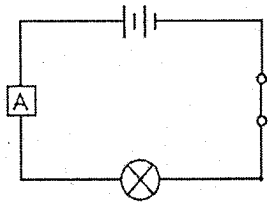
_____

_____

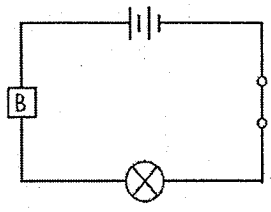
_____

4

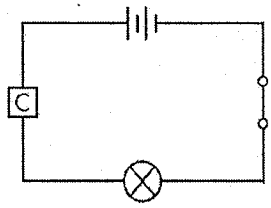
35. The following diagrams show what happens when different types of materials, A, B and C, are each connected in a circuit.



The bulb lights up.

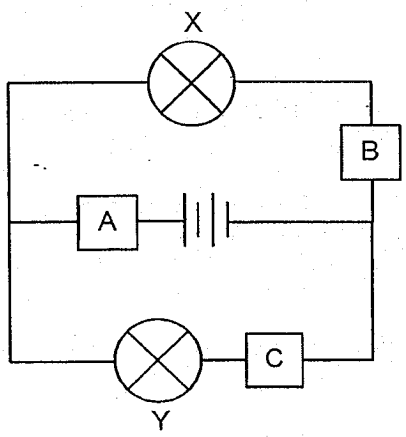


The bulb does not light up.



The bulb lights up.

Materials A, B and C are connected in another circuit as shown below.



(a) Which bulb, X or Y, will light up? Explain your answer. (2m)

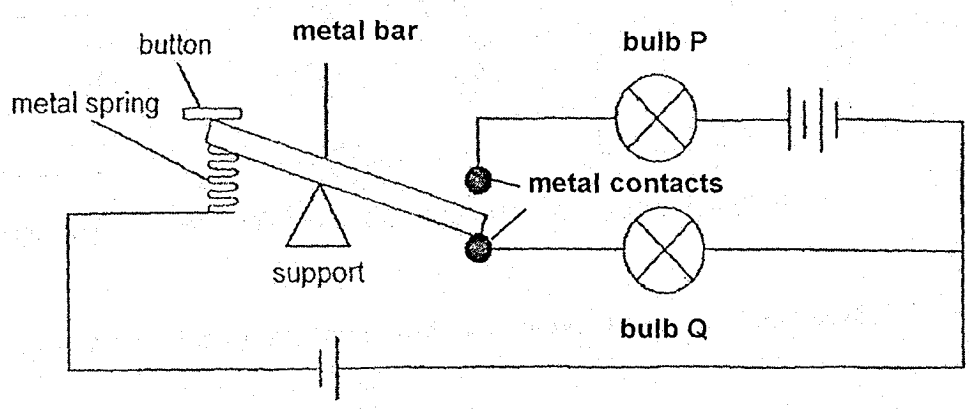
_____

_____

_____

2

35. Study the circuit below. Three identical batteries and two identical bulbs, P and Q, are used.



(b) Put a tick (✓) in the box to indicate which bulb will light up when the button is pushed downwards or released. (1m)

	Position of button	Bulb P lights up	Bulb Q lights up
(i)	pushed downwards		
(ii)	released		

(c) George compared the brightness of both bulbs as he pushed and released the button.

Which bulb, P or Q, will light up brighter than the other? Explain your answer. (2m)

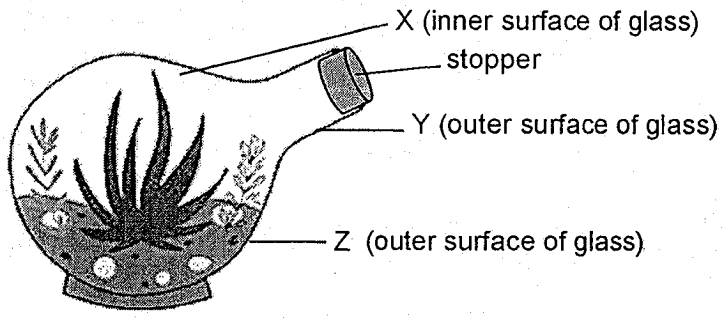
_____

_____

_____

3

36. Lynette set up a terrarium as shown below. First, she put some soil and plants into a glass container. Then she sprayed just a little water onto the soil to make it slightly damp. Next, she put a stopper to seal the container and placed the container in the Science room.



(a) The next day, Lynette noticed that some water droplets had formed on the glass of the container. On which part, X, Y or Z, were the water droplets formed? (1m)

_____

(b) Explain how the water droplets were formed in (a). (2m)

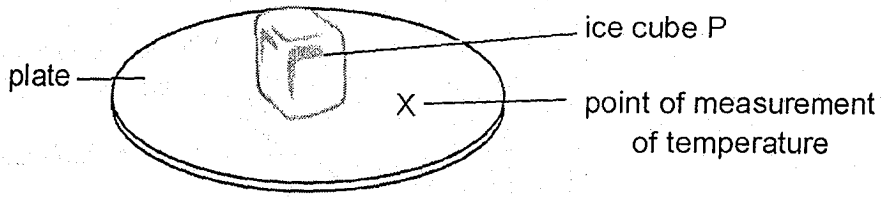
_____

_____

_____

3

37. Sanvi placed ice cube P on a plate as shown. The set-up is placed in the Science room.



She used a sensor to measure the temperature of the plate at point X and recorded the results below.

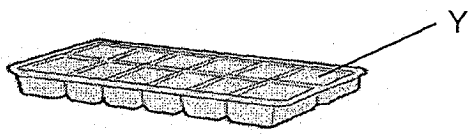
Time (minutes)	Temperature of plate (°C)
0	27
1	26
2	25
3	25

(a) Explain, in terms of heat, why the temperature of the plate at point X decreased. (1m)

_____

_____

(b) After ice cube P had melted completely, the water from the ice cube was left on the plate for one hour. The water was poured back into part Y of the same tray used to make ice cube P and refrozen into a new ice cube.



Would the mass of the new ice cube be less than, the same as or greater than ice cube P? Give a reason for your answer. (2m)

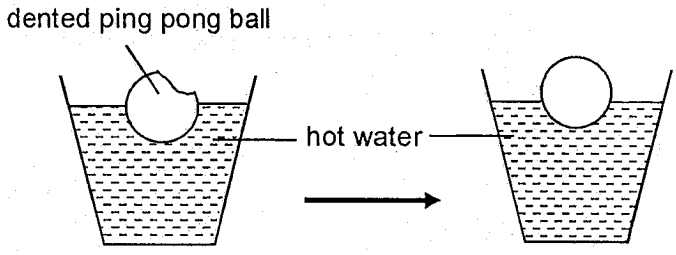
_____

_____

_____

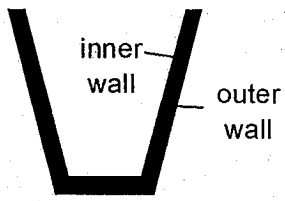
3

38. Joe placed a dented ping pong ball into a container of hot water. After a while, the ping pong ball became round again as shown below.



(a) Explain how the ping pong ball became round again after some time. (2m)

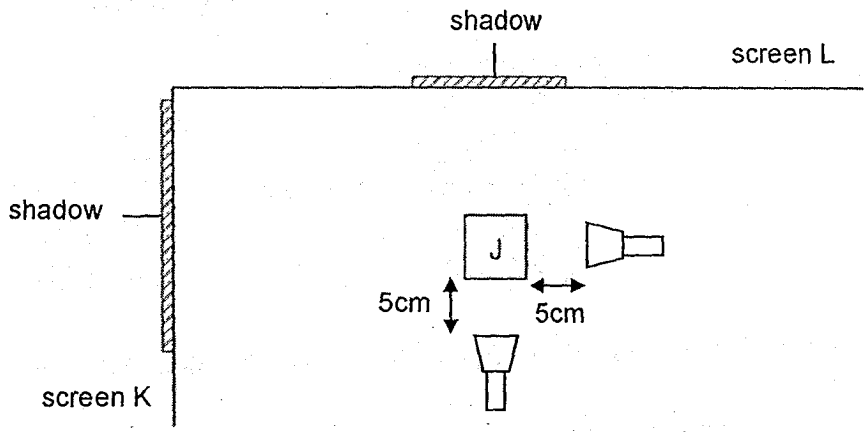
Joe had a thick glass as shown below.



(b) When he poured boiling water into the glass, the glass cracked. Explain why. (1m)

3

39. John carried out the experiment below by placing object J between two torches and two screens, K and L. When the torches were switched on, two shadows of object J were formed on the screens.



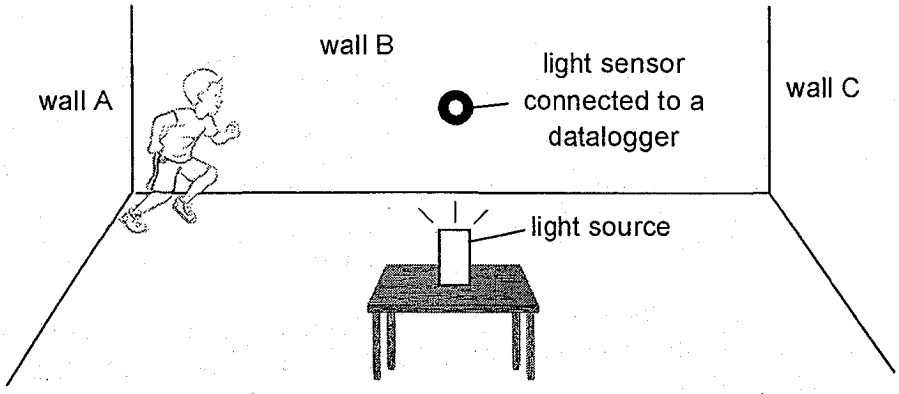
(a) John observed that the shadow formed on screen K was bigger than the shadow formed on screen L. Give a reason why. (1m)

_____

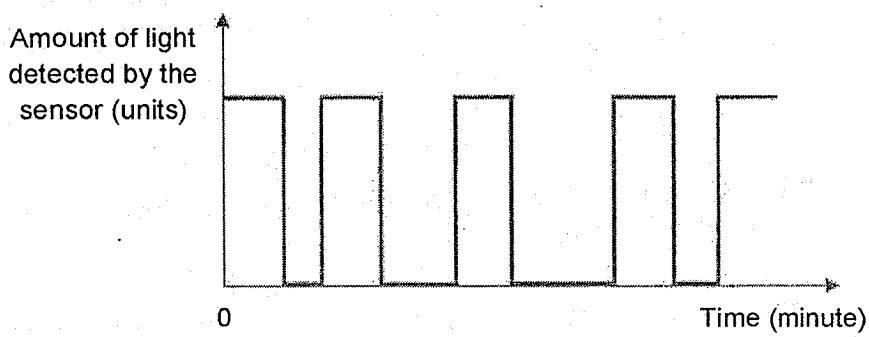
_____

1

39. John set up a light sensor and a light source in a dark room as shown below. The light sensor was pasted on wall B. John wanted to count how many times he could run across the length of the room from wall A to wall C, back and forth, in one minute.



The following results were recorded by the datalogger.



(b) Based on the results, his friend Peter estimated that John ran four times across the length of the room back and forth in one minute.

Explain clearly how Peter arrived at the number. (2m)

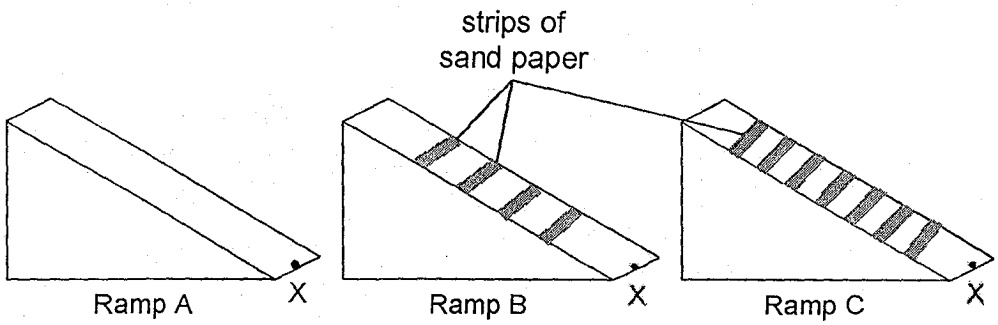
_____

_____

_____

2

40. Irene carried out an experiment using three identical ramps A, B and C. She pasted strips of sand paper on ramps B and C as shown below.



She placed a toy car on top of each ramp and let the toy car roll down the ramp. She recorded the time taken for the toy car to reach the end of each ramp at point X.

Ramp	Time taken for car to reach point X (seconds)
A	3
B	5
C	7

(a) What effect does the number of strips have on the time taken for the car to reach point X? (1m)

_____

_____

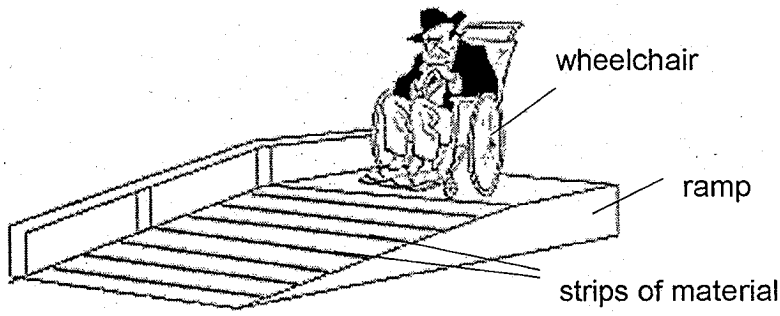
1

40(b) Besides using the same force to release the toy car, suggest one action that Irene has to carry out consistently throughout her experiment in order to get reliable results. (1m)

_____

_____

Irene saw that a ramp was constructed below her flat. She also noticed that there were strips of material on the ramp as shown below.



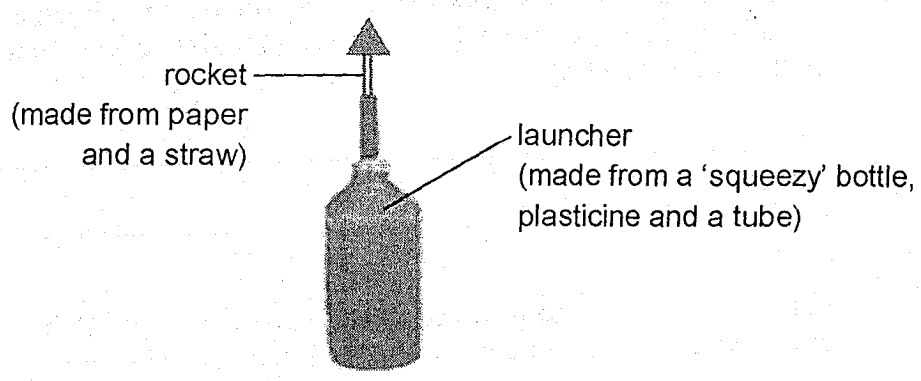
(c) Explain how the strips help a person, who is on a wheelchair, to move down the ramp safely. (1m)

_____

_____

2

40. Irene carried out another experiment. She made a rocket and a launcher as shown below.

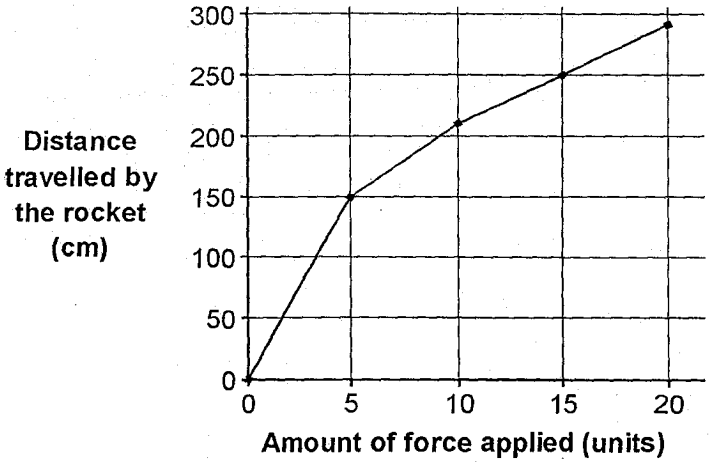


She put the rocket in the launcher and squeezed the launcher. A force made the rocket shoot up into the air.

(d) Tick one box below to show where the force that shot the rocket up into the air comes from. (1m)

the rocket	☐	the tube	☐
the air in the bottle	☐	the air outside the bottle	☐

The graph below shows the results of Irene's experiment.



(e) Based on the graph, what was the aim of Irene's experiment? (1m)

_____

_____

END OF BOOKLET B
PLEASE CHECK YOUR ANSWERS

2

SCHOOL : RED SWASTIKA PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2018 SA2

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	1	3	3	1	4	4	2	2	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	2	1	4	3	4	4	1	2	2
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	2	3	2	1	3	3	1		

Name: _____( )
2018 Science SA2 Corrections

Section B: Structured Questions

Qn	Answers
29a)	Both R and S do not give birth and they live in water.
b)	Letter S
c)	The fine branches help to increase surface area in order to take in more dissolved oxygen.
30a)	Gas P: Oxygen Gas Q: Carbon dioxide
b)	The time needed is shorter.
c)	Nitrogen
31a)	The oil prevents the water from evaporation.
b)	Line X. The plants with fewer roots absorb less water so the water left in the measuring cylinder is more.
32a)	The volume of blood supplied to small intestine during resting is more.
b)	When we breathe in, air in the environment enters the lungs. Oxygen is absorbed into the bloodstream. Blood then transports oxygen to the legs.
33a)	The young plant can absorb water.
bii)	The young plant in B can absorb food from the seed leaves but at stage D, the plant can trap light to make food using its green leaves.
c)	A and C
d)	Tick frosted glass container and dry cotton wool

34a)	Anther
b)	It can attract pollinators to help pollinate the flower.
c)	Both fruits will have many seeds. The fruits have many ovules hence they will be developed after fertilisation.
35a)	Bulb Y. Both A and C are conductors of electricity so they allowed electricity to go through. Bulb Y is in a closed circuit.
b)	Tick: (i) Pushed downwards (Bulb P lights up) (ii) Released (Bulb Q lights up)
c)	Bulb P. Bulb P has more electricity passing through the bulb as there are more batteries in the circuit.
36a)	X
b)	Water vapour from the plants came into contact with the cooler inner surface of the glass, lose heat and condenses into water droplets.
37a)	The plate lost heat to the ice cube.
b)	The mass will be less. While ice cube P was melting, some water gain heat and expanded hence there was less water left to freeze.
38a)	The air in the ping pong ball gain heat from the hot water and expanded pushing the ping pong ball to make it round again.
b)	The inner wall of the glass gained heat and ecpanded much faster than the outer wall.

39a)	Object J is further away from screen K than from screen L.
b)	He could count the number of times when the amount of light detected by the sensor dropped to 0 as the light would be blocked every time he ran past the light source.
40a)	The more the number of strips, the longer the time taken for car to reach X.
b)	Release the toy car from the same staring point of the ramp
c)	The strips increase the friction between the wheels of the wheelchair and the ramp hence slows down the movement of the wheelchair.
d)	Tick 'the air in the bottle'
e)	To find out how the amount of force applied affects the distance the rocket travels.