AI TONG SCHOOL

2019 END-OF-YEAR EXAMINATION
PRIMARY FOUR SCIENCE

(BOOKLET A)

24 OCTOBER 2019

Total time for booklets A and B : 1 h 45 min

INSTRUCTIONS

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name : _____ ( )

Class : Primary 4 _____

Parent's Signature : _____

Booklet A	/56
Booklet B	/44
Total	/100

Project Work	/15
	/115

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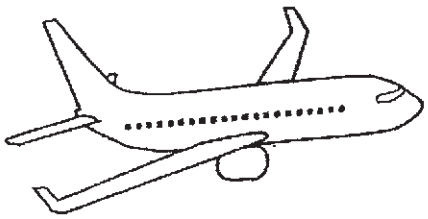
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Section A (28 x 2 marks)

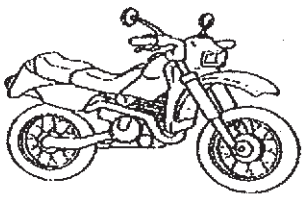
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which of the following is a living thing?

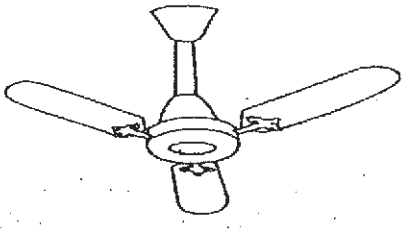
(1)



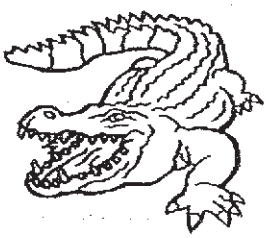
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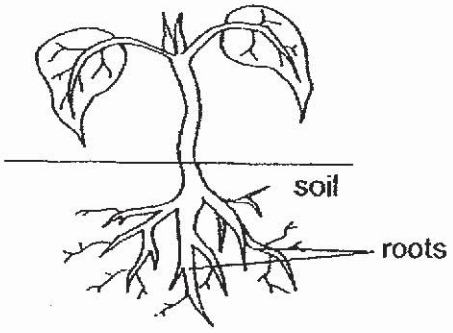
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2. The diagram below shows a young plant.



The roots help the plant to _____.

(1) make food
(2) grow upright
(3) absorb water
(4) take in gases

3. Danny made the following observations on the life cycle of an animal.

- There are three stages in the life cycle.
- The young looks like the adult.

Which animal was Danny observing?

(1) frog
(2) butterfly
(3) mosquito
(4) grasshopper

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4. Which one of the following shows the correct order when food moves through some parts of the digestive system?

(1)



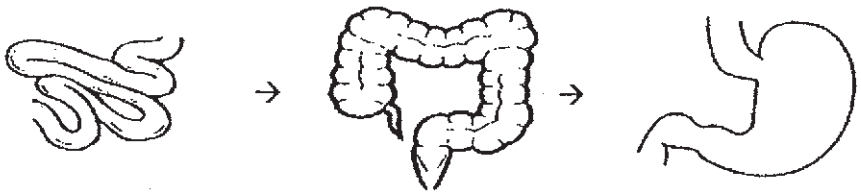
stomach → large intestine → small intestine

(2)



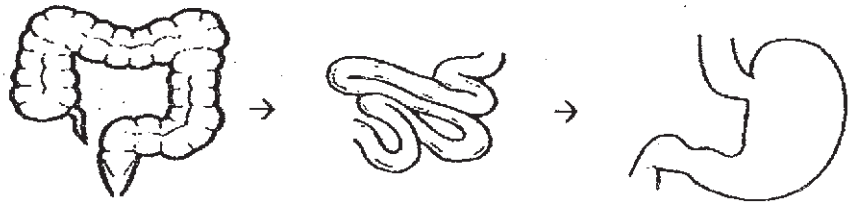
stomach → small intestine → large intestine

(3)



small intestine → large intestine → stomach

(4)



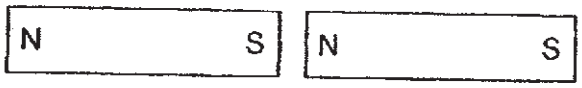
large intestine → small intestine → stomach

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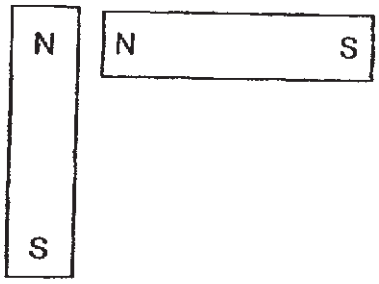
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5. In which one of the following will the two magnets push each other away?

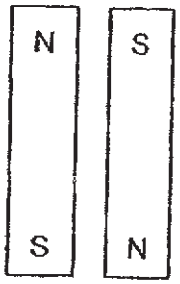
(1)



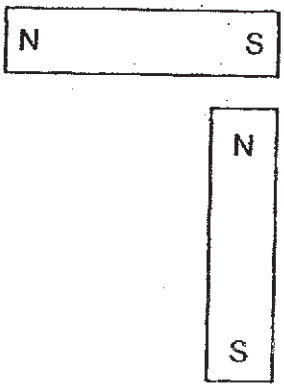
(2)



(3)



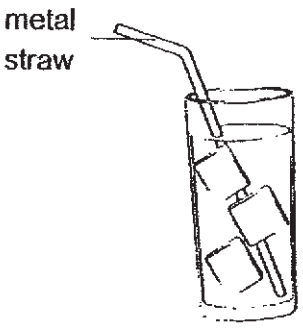
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6. Jenny places a metal straw in a cup of icy cold water.



a cup of icy cold water

The straw becomes colder after a while.

Which one of the following explains this?

(1) The cold water loses heat to the straw.
(2) The straw loses heat to the cold water.
(3) The cup gains heat from the cold water.
(4) The straw gains heat from the cold water.

7. Matter is anything that has mass and occupies space.

Which one of the following is **NOT** matter?

(1) soil
(2) water
(3) balloon
(4) shadow

8. Which one of the following properties is true for both air and a table?

(1) They have mass.
(2) They can be seen.
(3) They have fixed shapes.
(4) They have fixed volumes.

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9. Which one of the following is the best conductor of heat?

(1) A glass cup
(2) A metal cup
(3) A paper cup
(4) A plastic cup

10. Which one of the following is a source of light?

(1) The moon



(2) An apple



(3) A campfire



(4) A tree



11. The table below shows characteristics of plants P, Q and R.
A tick (✓) shows that the plant has the characteristic.

Characteristics	Plant P	Plant Q	Plant R
Has fruits	✓	✓	
Grows on land	✓		
Reproduces by spores			✓

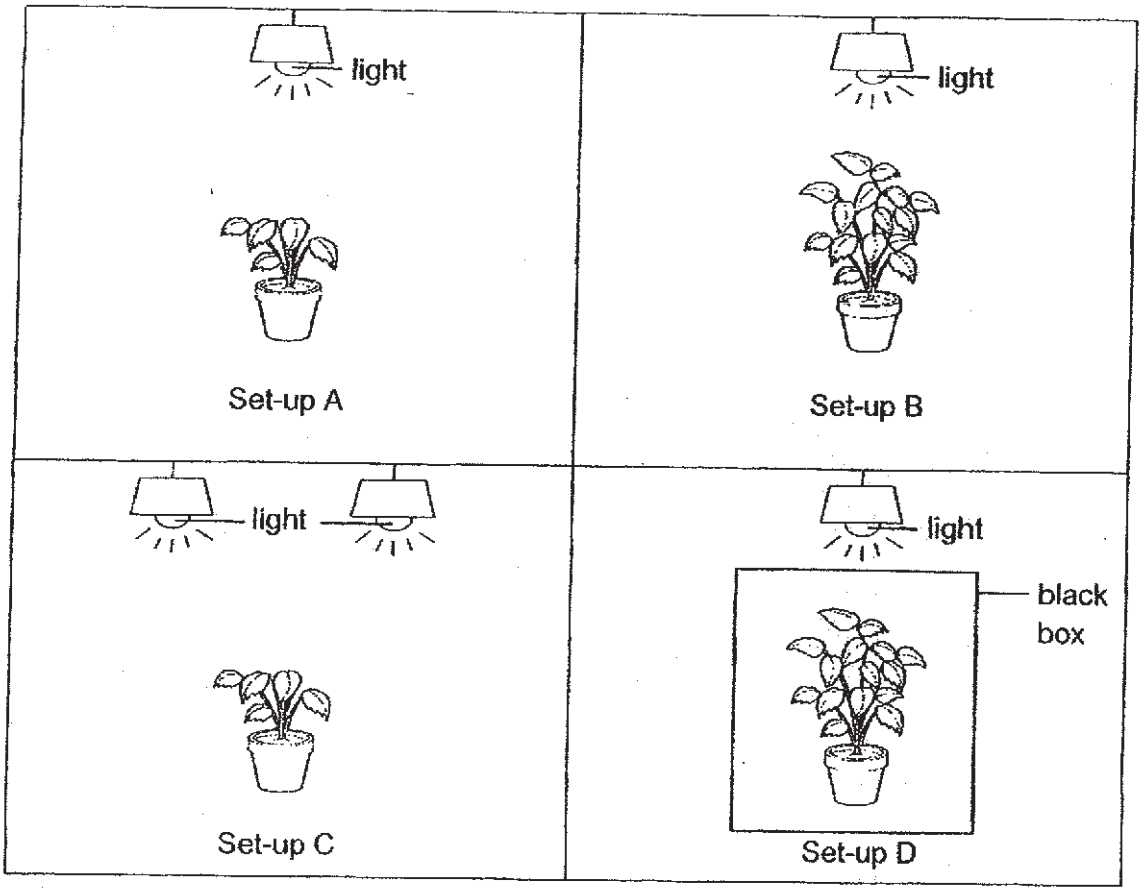
Based on the information above, which of the following is/are flowering plant(s)?

(1) P only
(2) R only
(3) P and Q only
(4) Q and R only

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12. Ella wants to find out if the presence of light affects the growth of a plant.

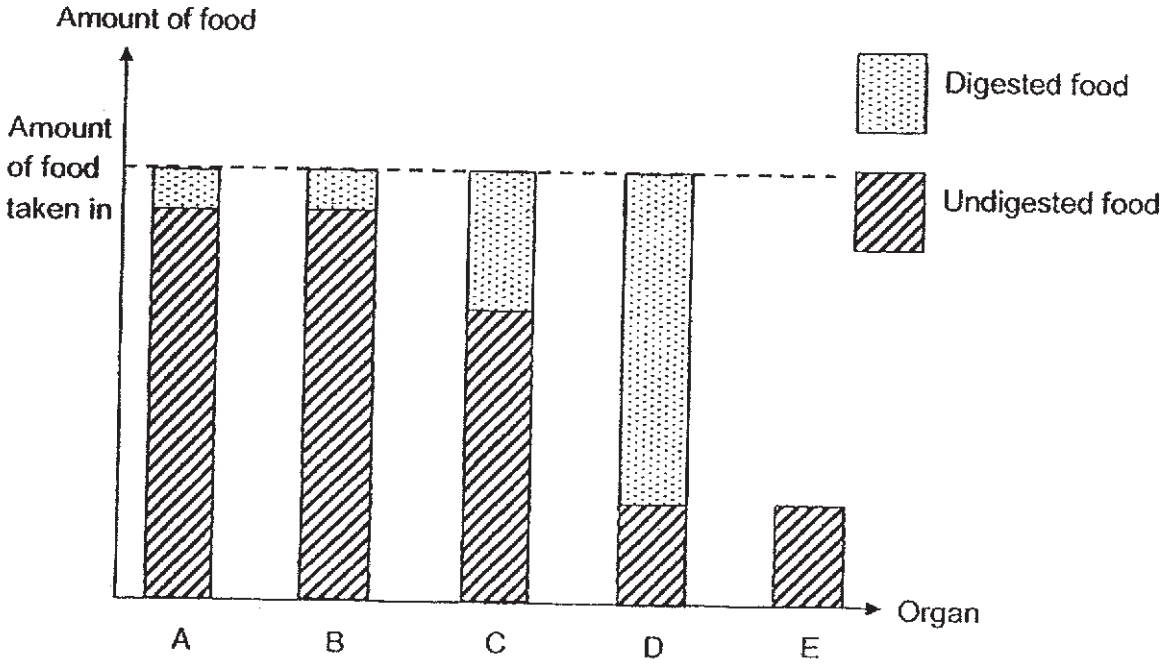


Which two set-ups should she use to carry out a fair test?

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

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13. Food taken into the human body moves through organs, A, B, C, D and E. The graph below shows the amount of digested and undigested food in the different organs just before the food leaves each organ.

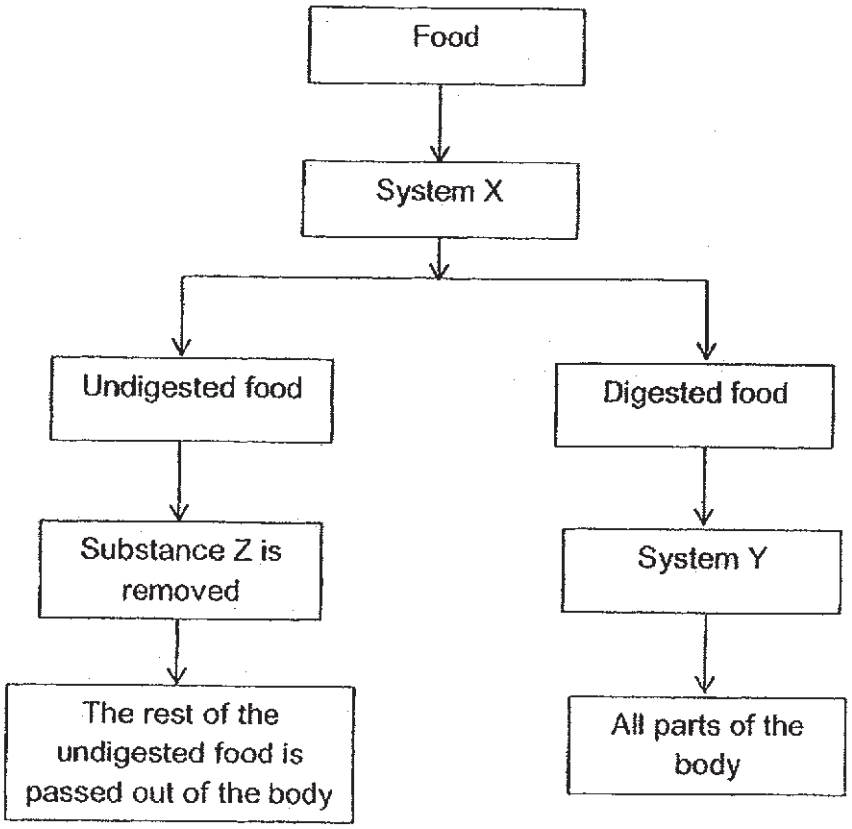


Which part(s) of the digestive system, A, B, C, D and/or E, contain(s) digestive juices?

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

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14. Study the diagram below. It shows what happens to the food we eat when it enters our body.



Based on the diagram above, which of the following is/are **false**?

A Substance Z represents the digested food.
B All the food that enter system X is digested.
C System Y transports digested food to all parts of our body.

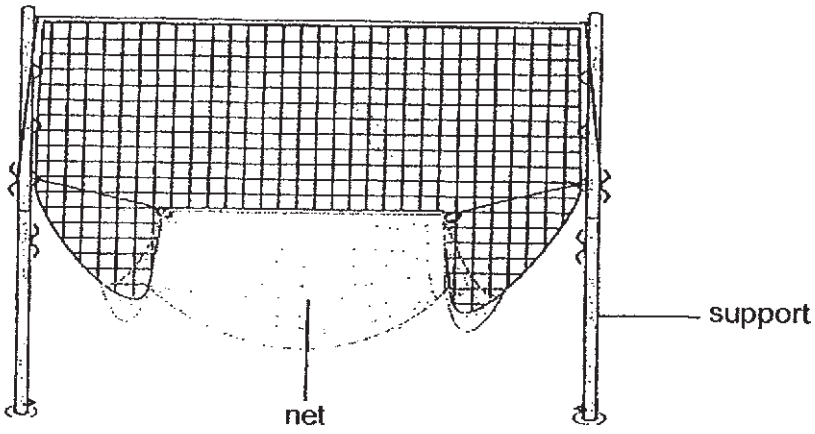
(1) A only
(2) C only
(3) A and B only
(4) A, B and C

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15. Peter observed the properties of four materials, A, B, C and D. He recorded his observations in the table below. A tick (✓) shows that the material has the property.

Material	Flexible	Transparent	Waterproof	Strong
A	✓		✓	✓
B		✓		✓
C	✓	✓	✓	✓
D			✓	✓

The diagram below shows part of the bouncing net in the newly opened Canopy Park in Jewel Changi Airport.



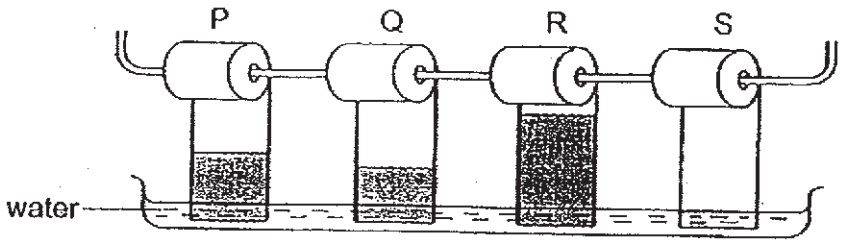
Based on the table above, which of the materials are suitable to make the following parts of the bouncing net?

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

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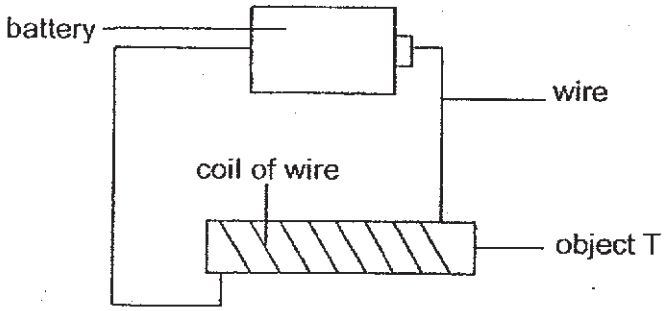
16. Cheryl conducted an experiment with four materials, P, Q, R and S, to see which is most suitable for making a bath towel used to dry ourselves most quickly. The diagram below shows what happens after 15 minutes.



Based on the results, which material is most suitable for making the bath towel?

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

17. Object T was placed in a coil of wire connected to a battery as shown in the diagram below. Object T did **not** become an electromagnet.



Which of the following are possible reasons why object T did **not** become an electromagnet?

A Object T was made of iron.
B Object T was made of aluminium.
C The number of batteries was not enough.
D The number of turns the wire was coiled around object T was too much.

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

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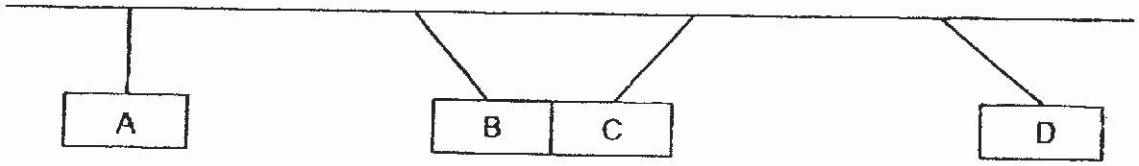
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18. Caroline wanted to find out whether the number of times an iron nail is stroked by a magnet affects the number of paper clips attracted by the iron nail.

Which of the following variables must she change to conduct her experiment?

(1) Type of magnet
(2) Number of magnets
(3) Number of paper clips attracted
(4) Number of strokes on the iron nail by the magnet

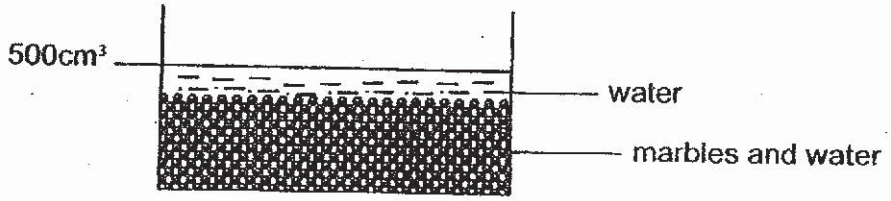
19. The diagram below shows what happens when four metal bars, A, B, C and D, are suspended on strings.



Based only on the diagram above, which of the following is **definitely** correct?

(1) D is a magnet.
(2) Both B and C are magnets.
(3) A is not made of a magnetic material.
(4) Both A and D are not magnetic materials.

20. Michelle poured 300cm^3 of water into a tank of marbles and observed the following.



She then poured another 100cm^3 of water into the same tank.

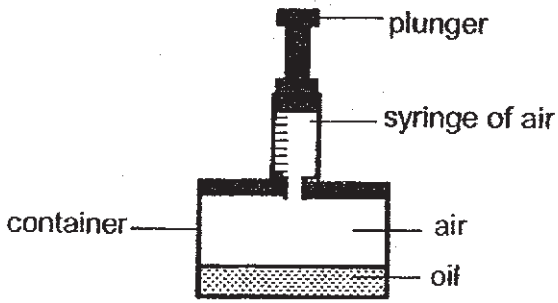
Which of the following gives the new water level in the tank?

(1) 300cm^3
(2) 400cm^3
(3) 500cm^3
(4) 600cm^3

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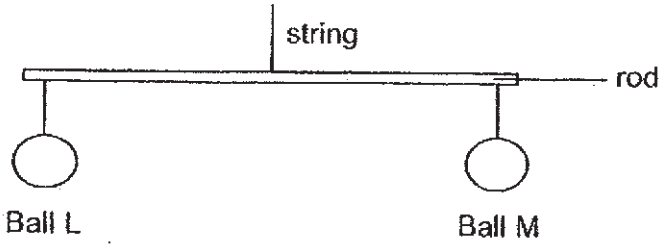
21. The diagram below shows a syringe filled with air attached to a container.



Which of the following is correct after the plunger is pushed into the syringe?

	volume of air in the container	volume of oil in the container	total volume of air and oil in the container
(1)	decreased	remained the same	increased
(2)	increased	increased	increased
(3)	remained the same	remained the same	remained the same
(4)	remained the same	increased	remained the same

22. Pierson hung two identical metal balls, L and M, to a rod which is also suspended on a string as shown in the diagram below.



Ball L was placed in a tub of ice cold water while Ball M was heated over a flame at the same time for 10 minutes.

Which of the following correctly describe(s) what would happen after 10 minutes?

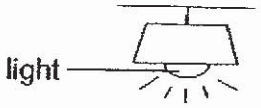
A Ball M increased in mass.
B Ball L decreased in volume.
C The rod will tilt downwards at the end where ball M is attached to.

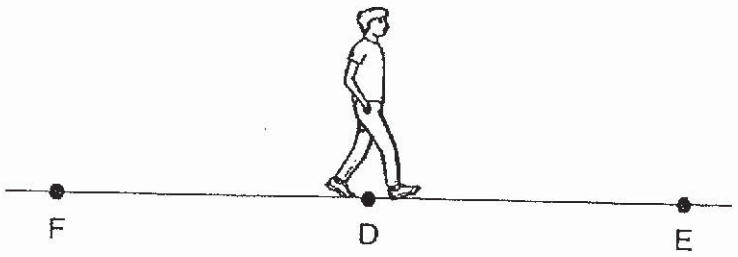
(1) B only
(2) B and C only
(3) A and C only
(4) A, B and C

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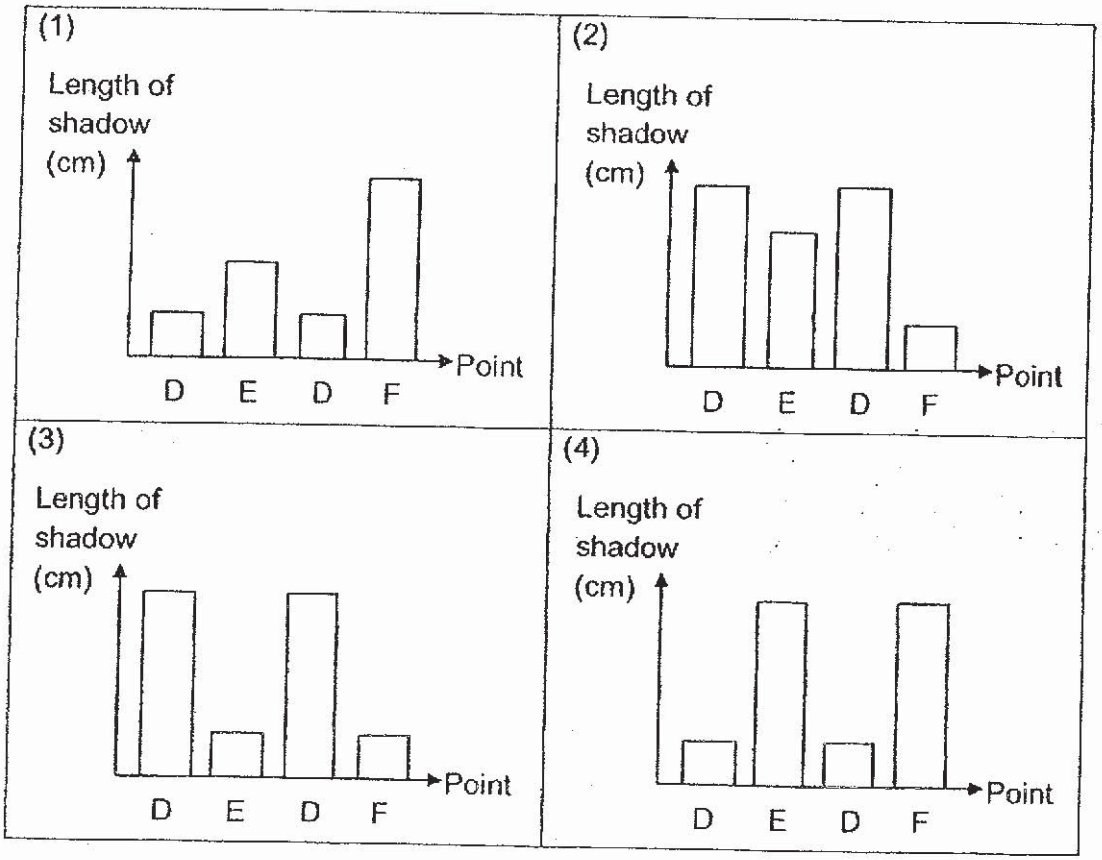
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23. Gerald walked in a straight line from point D to E and back to F. The distance between points D and E is the same as the distance between points D and F.





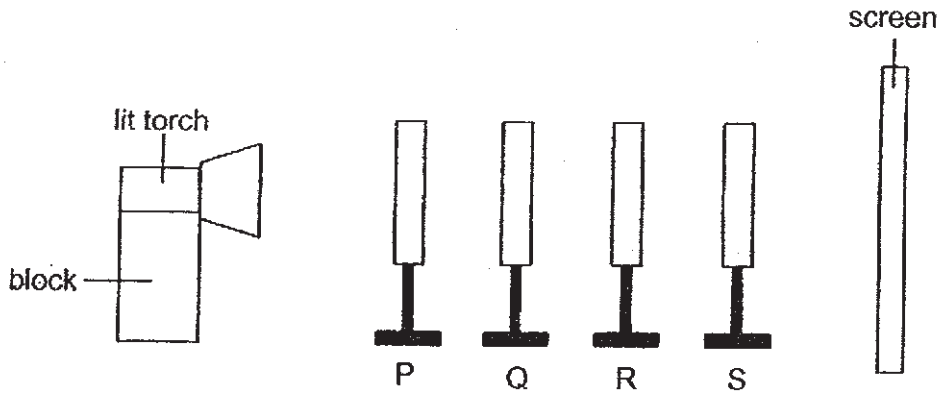
Based on the diagram above, which one of the following bar graphs shows how the length of his shadow would change during his walk?



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24. Four sheets of different materials, P, Q, R and S, were placed in a straight line in a dark room as shown in the diagram below.



When the torch was switched on, a patch of light was seen on sheet R only. Nothing was seen on the screen.

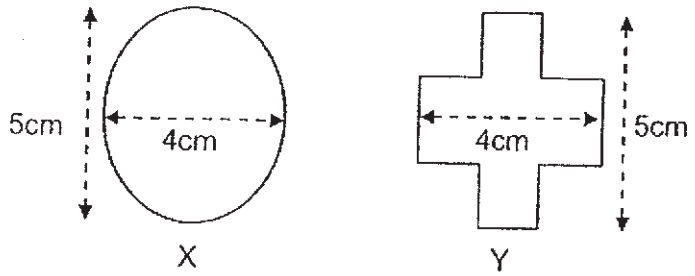
Which one of the following best describes the properties of the materials that sheets P, Q, R and S, are made of?

	allows light to pass through	**does not allow light to pass through**	**not possible to tell**
(1)	P and Q	R	S
(2)	P and Q	R and S	none
(3)	P, Q and R	none	S
(4)	P, Q and R	S	none

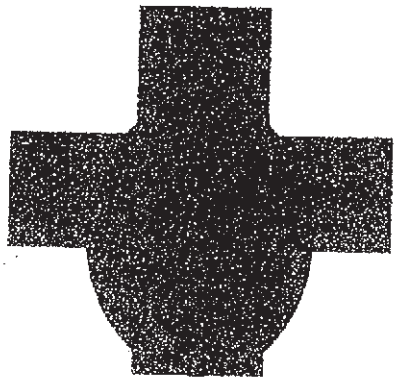
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25. The diagram below shows two objects, X and Y.

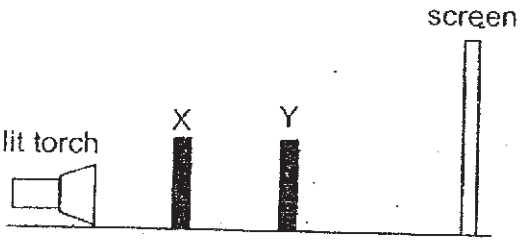


The two objects were arranged in a set-up such that the following shadow was seen on the screen.



Which one of the following correctly shows where X and Y were placed between the lit torch and the screen?

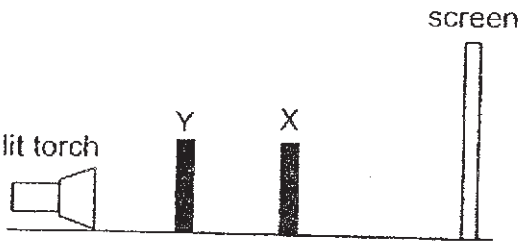
(1)



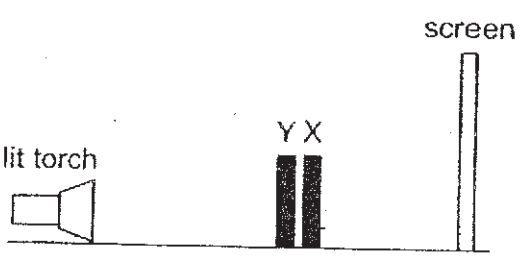
(2)



(3)



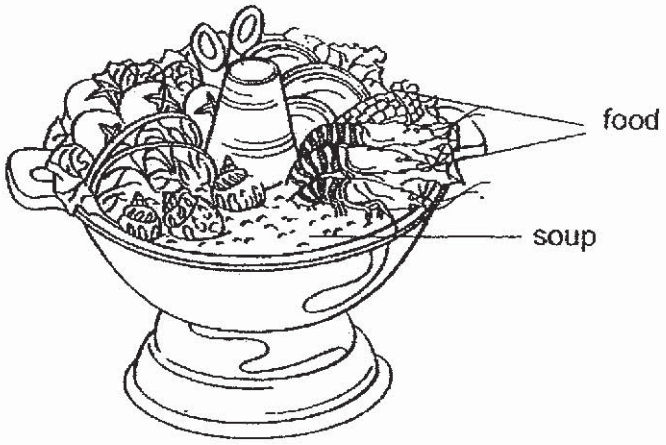
(4)



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26. The diagram below shows a hot pot. Food is only added when the soup starts to boil.



Ariel observed that the soup stopped boiling for a while when the frozen food was added in.

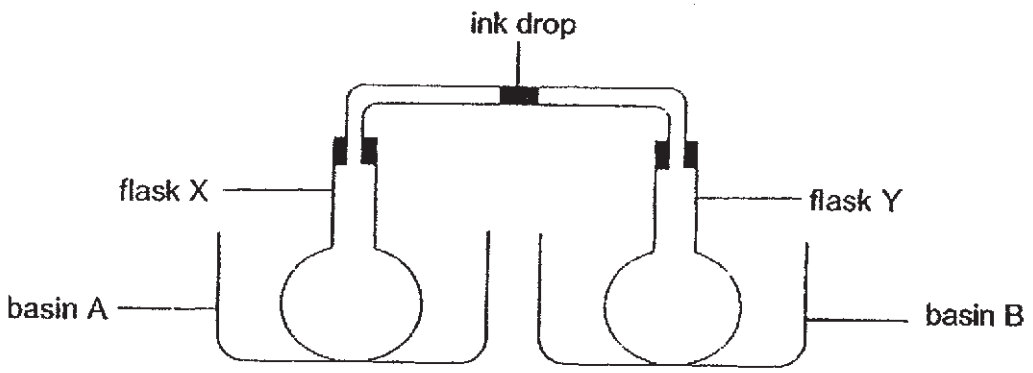
Which of the following best explains Ariel's observation?

(1) The temperature of the soup increased.
(2) The temperature of the soup decreased.
(3) The temperature of the soup remained the same.
(4) The temperature of the soup increased, then decreased.

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27. Rachel had two identical basins, A and B. She placed two identical empty flasks, X and Y, into the basins as shown in the diagram below.



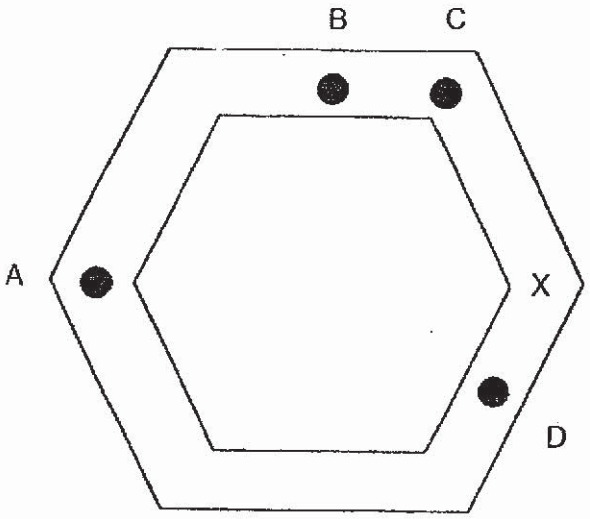
She poured water into each basin and the set-up was left in a room of temperature 30°C.
After 10 minutes, Rachel observed that the ink drop moved from the center of the tube towards flask Y.

Which of the following best represents the volume and temperature of water added into the two basins?

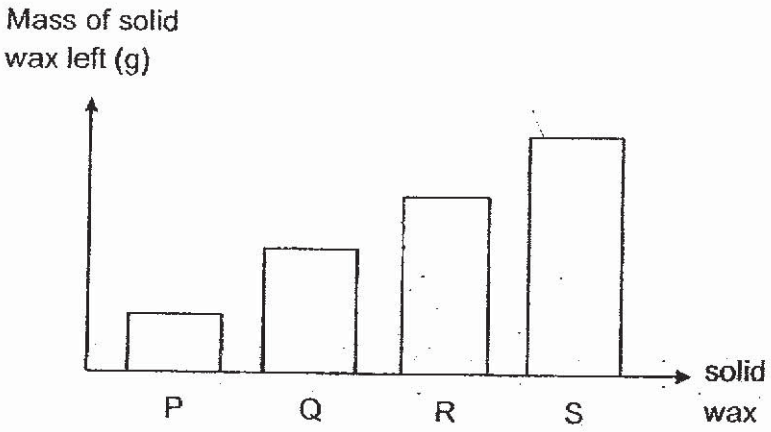
	volume of water in basin A (cm^3)	temperature of water in basin A (°C)	volume of water in basin B (cm^3)	temperature of water in basin B-(°C)
(1)	200	60	10	60
(2)	200	30	10	30
(3)	10	60	200	60
(4)	10	30	200	30

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28. Four pieces of wax of the same mass were placed at different positions, A, B, C and D, on a hexagonal metal frame as shown in the diagram below.



Henry heated the metal frame only at point X.
After heating for five minutes, he quickly separated the solid wax from the liquid wax for each of the four pieces of wax. He then measured the mass of solid wax left.
The results were shown in the graph below.



Which graph best represents the piece of wax placed at position B?

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

End of Booklet A

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AI TONG SCHOOL

2019 END-OF-YEAR EXAMINATION
PRIMARY FOUR SCIENCE

(BOOKLET B)

24 OCTOBER 2019

Total time for booklets A and B : 1 h 45 min

INSTRUCTIONS

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

Name : _____ ( )

Class : Primary 4 _____

Parent's Signature : _____

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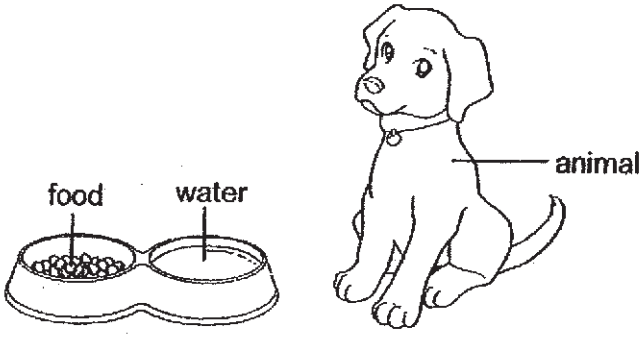
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Section B: 44 marks

Read the questions carefully and write down your answers in the spaces provided.

29. Study the diagram below.



(a) After a few days, will the amount of water in the bowl *increase, decrease* or *remain the same*? [1]

_____

(b) Based on the diagram above, name one substance this animal needs so that it remains alive. [1]

_____

(c) The animal becomes bigger after some time. This shows that it can

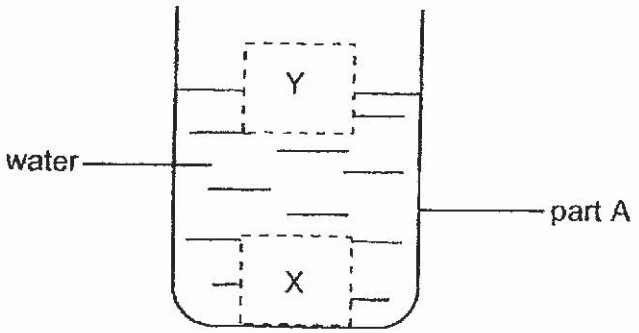
_____ [1]

3

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30. Andy placed two different blocks, P and Q, into a beaker of water as shown below.



(a) Part A of the beaker is made of glass because it allows _____ to pass through so that Andy can see what is inside the beaker. [1]

Block P was found at position Y, while block Q was found at position X.

Fill in the blanks using the correct words in the box.

contracts	expands	floats	sinks

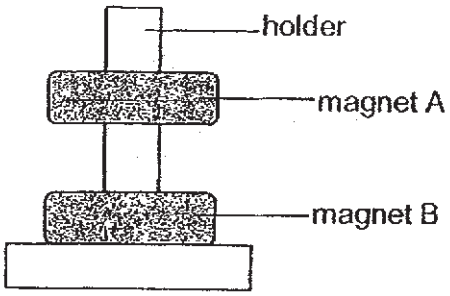
(b) This shows that block P _____ in water, and block Q _____ in water. [2]

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31. Marcus placed two ring magnets, A and B, through a holder as shown below.



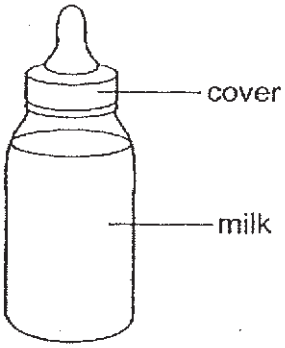
(a) The holder was made of wood and did not attract the magnets.

Wood is a _____ material. [1]

(b) Why was magnet A floating above magnet B?

Magnet B was _____ magnet A. [1]

32. The diagram below shows a bottle of milk.



Complete the sentences to state if the parts are solid, liquid or gas.

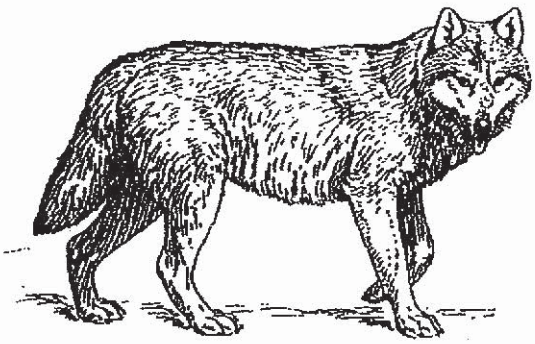
(a) The cover is a _____ [1]

(b) Milk is a _____ [1]

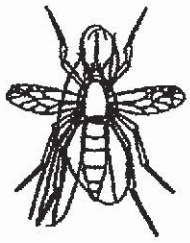
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33. Study the pictures of organisms X and Y below.



organism X



organism Y

(a) Write down one observable physical difference between the two organisms that makes organism Y able to move in a different way from organism X. [1]

_____

_____

(b) State one characteristic of organism Y that helps people classify it as an insect. [1]

_____

_____

(c) Organism X has a thick coat of fur to trap air. Explain how this would help the organism during winter. [2]

_____

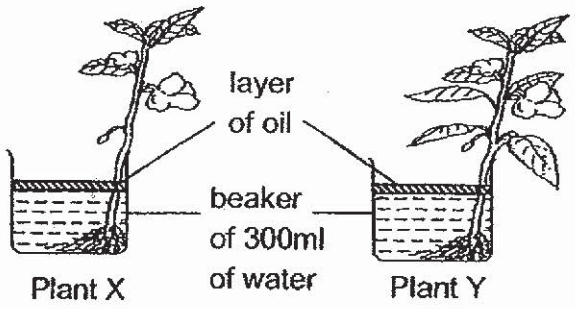
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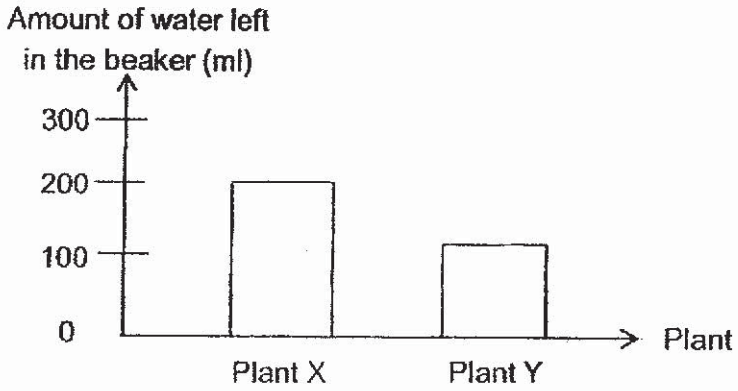
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34. Simon set up an experiment as shown below. Both plants had the same amount of water in the beaker at the start of the experiment. Some leaves were removed from plant X.



After two days, the amount of water left in each beaker was represented in the graph below.



(a) Simon wanted to find out more about plants through his experiment. From the information above, what is the aim of his experiment? [1]

(b) Based on the graph above, what can Simon conclude about plants? [1]

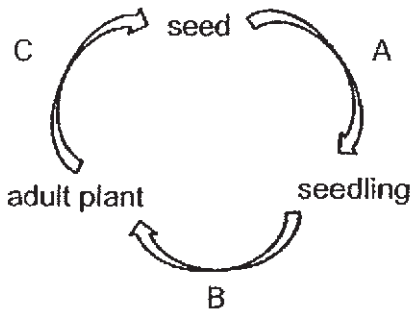
(c) State a function of the leaves of a plant. [1]

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35. The diagram below shows a life cycle of a plant.



(a) Merlin says that the above shows the life cycle of a fern. Do you agree with him? Explain your answer. [1]

(b) A, B and C are processes that happen in the life cycle above. Which process, A, B or C represents germination? [1]

(c) Some seeds were placed in a container of damp soil and kept in a dark cupboard for a few days. The soil was kept damp all the time. Explain why the seeds could still germinate despite being in a dark cupboard. [1]

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36. Emma wanted to find out how her mouth helps in digestion. She used the same amount of chocolate and biscuit for her experiment. She placed the piece of chocolate in her mouth and chewed on it for ten seconds before making her observations. She repeated the same procedure with the biscuit. Her observations were recorded in the table below.

Type of food	Amount of food (g)	Time taken to chew food (seconds)	Appearance before chewing	Appearance after chewing
Chocolate	10	10	Soft	Mushy
Biscuit	10	10	Dry, hard	Mushy

(a) Why is it important to use the same amount of chocolate and biscuit in the experiment? [1]

(b) Other than the amount of food, state one other variable that was kept the same in the experiment described above. [1]

(c) State the substance present in the mouth that caused the food to appear mushy after chewing. [1]

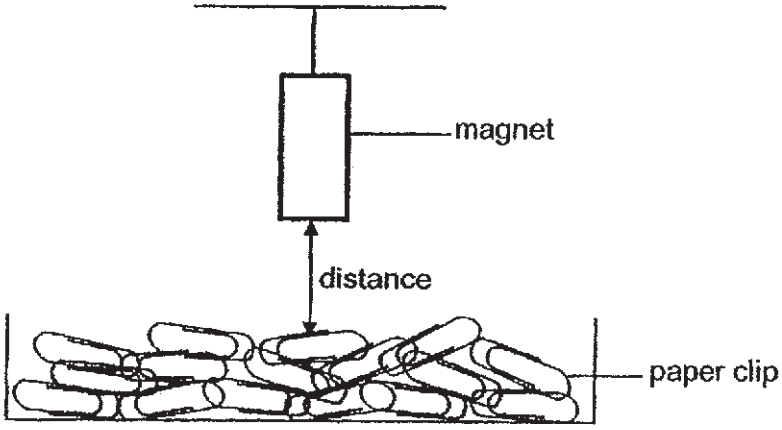
(d) Explain how chewing helps in speeding up the digestion process. [1]

4

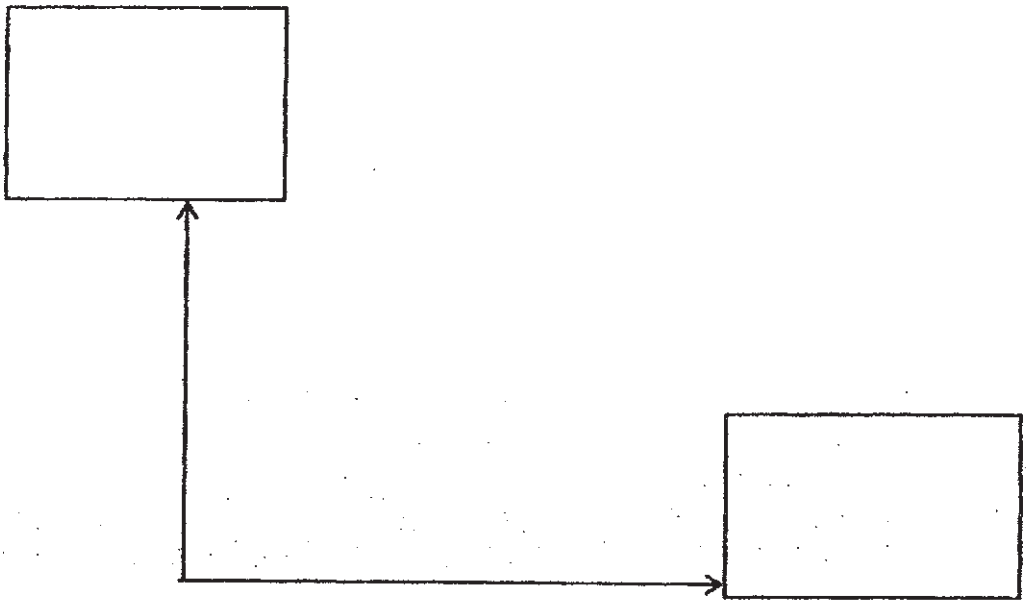
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37. Claudia set up the experiment below to find out how the distance between the magnet and paper clips affects the number of paper clips it attracts. It is observed that the number of paper clips attracted reduces when the distance between the magnet and paper clips increases.



(a) Label the axes and draw a line graph to show the relationship between the two variables stated. [2]



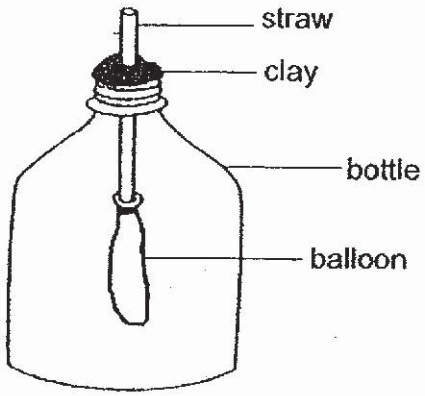
(b) Claudia found some paper clips that are made of copper. Would the magnet be able to attract the copper paper clips? Explain your answer. [2]

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38. The diagram below shows a balloon attached to a straw and placed inside an empty bottle. The opening of the bottle is sealed with clay.



(a) What will you observe when air is blown through the straw? Explain your answer. [2]

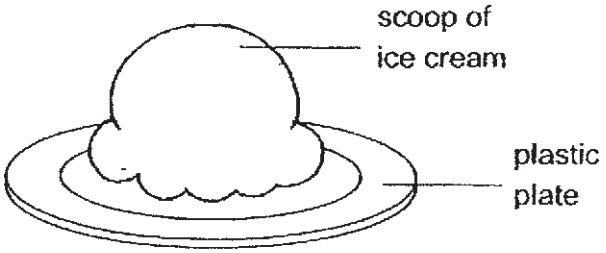
(b) If the bottle is completely filled with water, would the observation be the same as part (a) when air is blown through the straw again? Explain your answer. [2]

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39. Karen wanted to serve a scoop of ice cream on a paper plate. Her mother said that she should use a plastic plate instead of paper plate.



(a) State a difference in the property of paper and plastic and explain why that difference makes a plastic plate better for serving ice cream. [2]

_____

_____

_____

_____

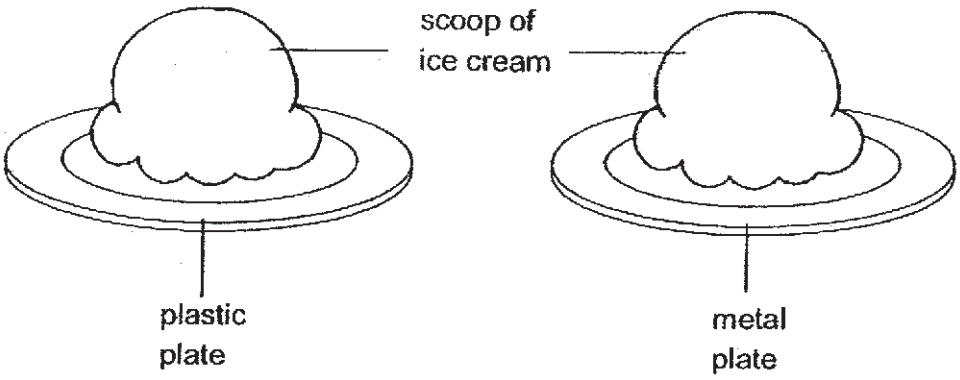
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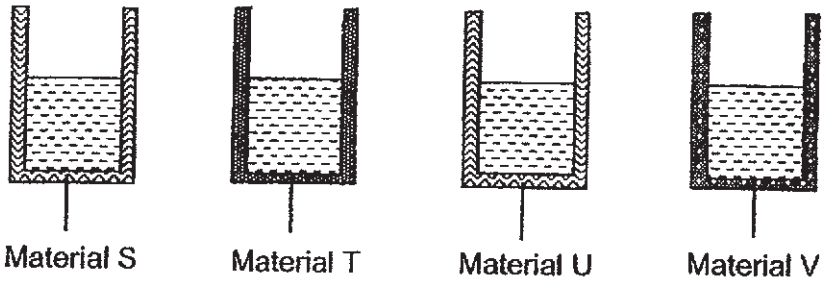
(b) If a similar scoop of ice cream was also placed on a metal plate, which scoop of ice cream, the one on the plastic plate or the one on the metal plate, would melt faster? Explain your answer. [2]

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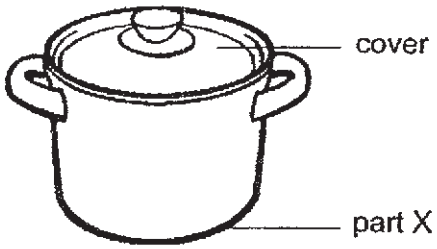
40. The diagram below shows four containers made of different materials. Each container contains the same volume of boiling water at 100 °C.



After twenty minutes, the temperature of the water in the four containers is recorded in the table below.

Material that container is made of	Temperature of water after twenty minutes (°C)
S	28
T	50
U	83
V	45

The diagram below shows a cooking pot. Part X is the base of the cooking pot.



(a) Based on the table above, which material, S, T, U or V, is best to make part X of the cooking pot so that food can be cooked the fastest? Explain your answer. [2]

_____

_____

_____

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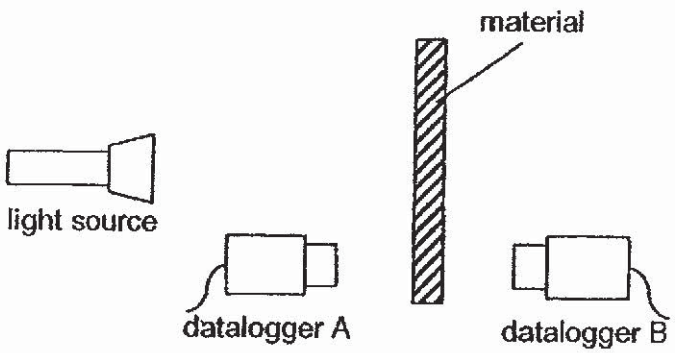
(b) The cover is made of glass so that you would be able to see the food inside the pot without opening the cover. Explain how light travels to enable us to see the food inside. [2]

2

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41. Mr Tan set up the following experiment in a dark room. He tested materials, X, Y and Z, one at a time.



He recorded his results in the table below.

Material	Amount of light detected by datalogger A (units)	Amount of light detected by datalogger B (units)
X	100	0
Y	2100	0
Z	30	800

(a) Based on the table above, what can you say about materials X and Y? [1]

(b) What property of light allows it to be detected by the sensor of datalogger A? [1]

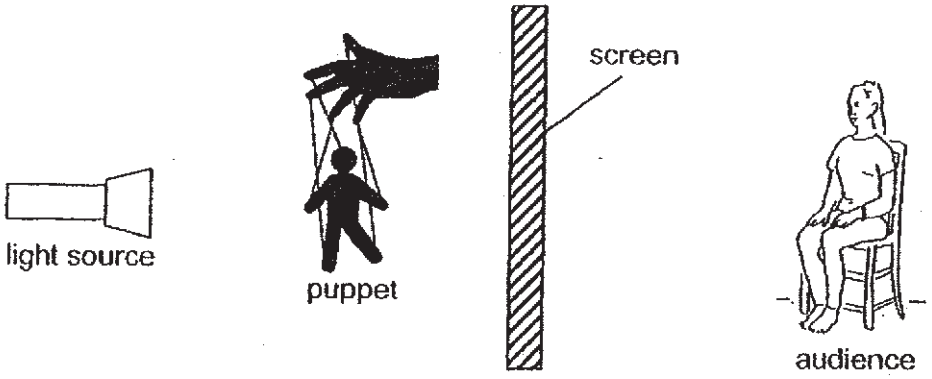
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Question 41 continues on this page.

The diagram below shows the set-up of a shadow puppet show.



(c) Which material, X, Y or Z, is most suitable for making the screen so that the audience can see the shadow of the puppets? Explain your answer. [1]

(d) Without moving the screen, how can we make the shadow of the same puppet formed on the screen bigger? [1]

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LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2019 SA2

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	4	2	2	1	4	1	2	3

Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	3	3	3	1	3	2	4	1	4

Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
3	1	4	1	3	2	1	3

SECTION B

Q29)	a)decrease b)water c)grow
Q30)	a)light b)floats / sinks
Q31)	a)non-magnetic b)repelling
Q32)	a)solid b)liquid

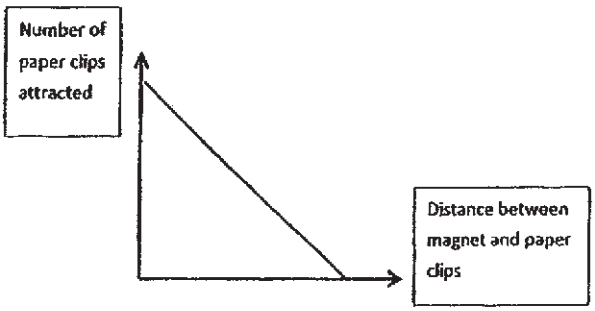
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P4 Science End of Year Examination 2019

	Answer	Common mistakes
33a)	X has **no wings** but Y **has**	• Only stating the number of legs. • X crawls but Y flies.
33b)	Y has **six** legs / **three** body parts.	
33c)	Point 1: Air is a **poor conductor** of **heat** Point 2: Air will **slow** down the **heat** **transfer** from **organisms X** to the **surroundings**	• Wrong direction of heat transfer. • Air traps heat.
34a)	To find out if the **number** of **leaves** affect the **amount** of **water** **absorbed** by the plant/roots.	• To find out if the roots of the plant absorb water. • To find out if the number of leaves affects the amount of water a plant needs.
34b)	The **more** the **number** of **leaves**, the more **water** the roots **absorb**.	• The more leaves a plant has, the lesser the amount of water left in the beaker.
34c)	To **make food** for the plant.	
35a)	No. Fern is a **non-flowering** plant and reproduce by **spores**.	
35b)	A	
35c)	Seeds do not need **light** to **germinate**	• Seeds only need water, air and warmth to germinate.
36a)	To ensure a **fair test**, only **one** variable was changed which is the **type** of **food** and not any other variables	
36b)	**Time taken** to chew food.	• Size of food

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36c)	Saliva	
36d)	Point 1: To **break up** the food into **smaller pieces**. Point 2: so as to **increase** the **exposed surface** area in contact with the **saliva / digestive juices**	• To break down into simpler substances.
37a)		• Wrong cause and effect. • Wrong trend for graph.
37b)	No. Copper is a **non-magnetic** material, and **cannot** be **attracted** by the **magnet**	• Copper will not be able to attract.
38a)	Point 1: The balloon will be **inflated**. Point 2: Air **takes up** space in the **balloon** because Point 3: air in the **bottle** can be **compressed**.	• Balloon expands. (Expansion is due to heat, for example, metal expands when heated or air expands when heated.)
38b)	Point 1: **No**, it will not **inflate**. Point 2: Water has a **definite volume** / cannot be **compressed**. Point 3: Hence, water has taken up **all** the space in the **bottle**. / Hence, there is **no more space** for air to enter the balloon.	• Bottle is filled with water. (Already given in the question) • Water takes up space. (without mentioning ***all space***)
39a)	Point 1: Paper is **not waterproof** but plastic is. Point 2: When ice cream melts, the paper plate would **absorb** the melted ice cream but the plastic would not.	• Ice cream will spill. • Plate will get wet. (Being wet does not imply it is absorbed.)

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39b)	The one on the metal plate. Point 1: Metal is a better conductor of heat than plastic. (Note: Must use comparative word here because you are comparing two materials) Point 2: It would transfer heat faster from the surrounding to the ice cream.	• Metal is a good conductor of heat. • Miss out the direction of heat transfer or wrong direction of heat transfer.
40a)	Point 1: Material S. The temperature of water in material S after twenty minutes is the lowest. Point 2: This shows that it is the best conductor of heat and it will transfer heat fastest from the heat source to the food.	• Material U. • Comparing more than 2 materials, so must use the superlatives, eg: lowest, highest, fastest, best, etc • Miss out the direction of heat transfer or wrong direction of heat transfer.
40b)	Point 1: Light can pass through the glass / glass is transparent. Point 2: Light shines on the food inside Point 3: and the food reflects the light to our eyes.	• Light shines on the cover and the cover reflects the light into our eyes.
41a)	Both materials X and Y are opaque /They do not allow any light to pass through	• X has less light detected by data logger than Y.
41b)	Light can be reflected.	• Light travels in a straight line. • The object reflects light.
41c)	Material Z. It is translucent /allows some light to pass through.	• It allows **most** light to pass through. (Definition for transparent object)
41d)	Move the puppet nearer to the light source.	• Move the puppet nearer to the screen.

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