METHODIST GIRLS' SCHOOL
Founded in 1887

END-OF-YEAR EXAMINATION 2019
PRIMARY 3
SCIENCE

BOOKLET A

Total Time for Booklets A and B: 1 hour 30 minutes

<u>INSTRUCTIONS TO CANDIDATES</u>
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____ (   )

Class: Primary 3._____

Date : 22 October 2019

This booklet consists of 16 printed pages including this page.

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

[56 marks]

1 Kevin found three things, R, S and T, in his house. He observed them for a month and stated their characteristics as shown in the table below.

Characteristics	R	S	T
• Able to grow	No	Yes	Yes
• Able to make its own food	No	Yes	No
• Able to respond to changes	Yes	Yes	Yes
• Able to move from place to place	No	No	Yes

Based on the information given above, which of the following represents R, S and T correctly?

	R	S	T
(1)	remote control car	coconut tree	caterpillar
(2)	caterpillar	coconut tree	remote control car
(3)	remote control car	caterpillar	coconut tree
(4)	coconut tree	remote control car	caterpillar

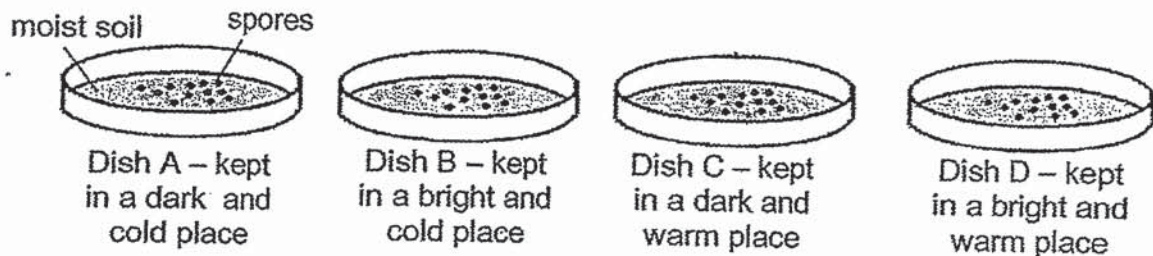2 Look at the objects in the two groups below.

Group A	Group B
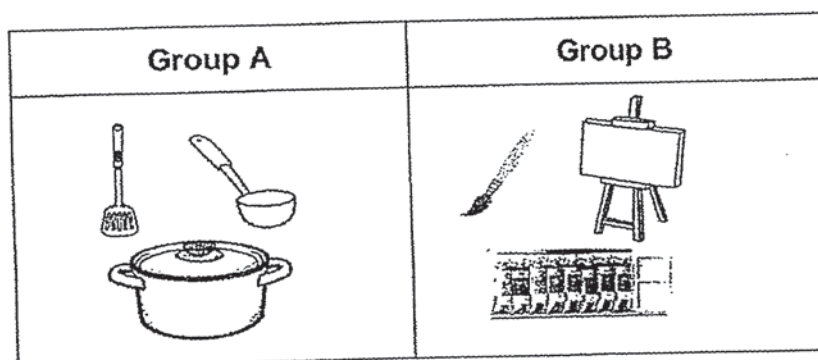
The above objects are classified according to their _____.

(1) uses
(2) sizes
(3) colours
(4) shapes

3   Siti wanted to investigate the suitable conditions required for spores to grow. She placed identical spores in four dishes, A, B, C and D, containing moist soil. She then placed the dishes in different locations as shown in the diagram below.

moist soil   spores

| Dish A – kept in a dark and cold place | Dish B – kept in a bright and cold place | Dish C – kept in a dark and warm place | Dish D – kept in a bright and warm place |

After three days, only the spores in dishes C and D developed into small green plants.

From this experiment, Siti found out that the spores _____.

(1)   need light to grow
(2)   need water to grow
(3)   grow in a dark place
(4)   grow in a warm place

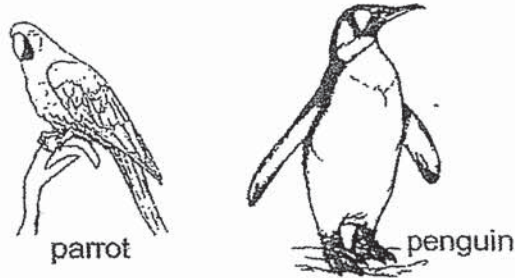4   Study the classification chart below.
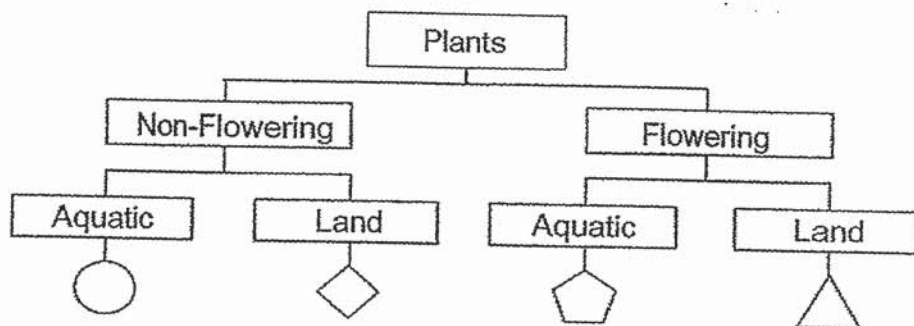
Plant S reproduces from spores and sometimes, grows on the branches of a tall tree.

Based on the characteristic of plant S, which one of the following symbols in the classification chart best represents plant S?

(1)   △
(2)   ◇
(3)   ○
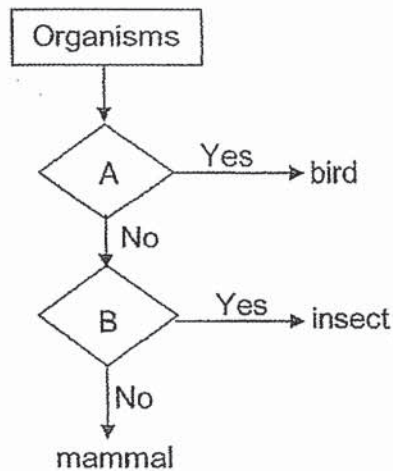(4)   ⬠

5   The diagrams below show a parrot and a penguin.

parrot   penguin

The parrot and the penguin are similar because they both _____.

(1)   can swim
(2)   have feathers
(3)   have a hard outer covering
(4)   give birth to their young alive

6   Study the chart below.
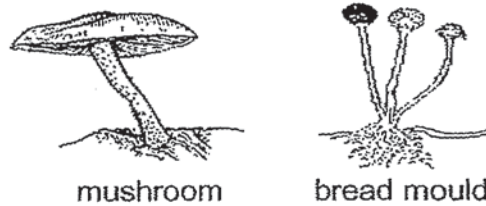

Which of the following shows the questions represented by A and B?

	Characteristics	
	A	B
(1)	Does it have a beak?	Does it give birth to young alive?
(2)	Does it have wings?	Does it have scales?
(3)	Does it have feathers?	Does it have three body parts?
(4)	Does it lay eggs?	Does it have fur?

(Go on to the next page)

7   The diagrams below show two organisms.
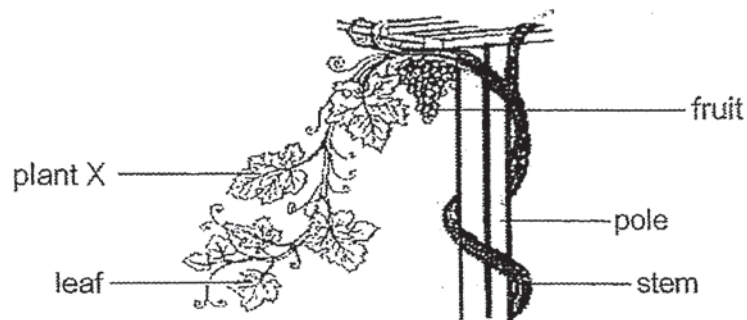

mushroom   bread mould

Which one of the statements is true?

(1)   They both reproduce from spores.
(2)   They both are non-flowering plants.
(3)   They both cannot be seen with the naked eye.
(4)   The mushroom is a fungi but the bread mould is a bacteria.

8   The diagram below shows plant X.
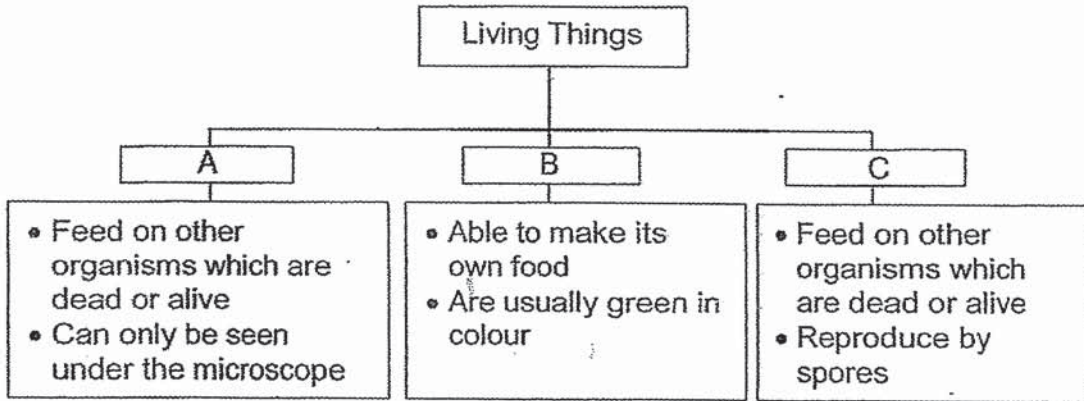

Which one of the following statements about plant X is true?

(1)   Plant X has no roots.
(2)   Plant X has a weak stem.
(3)   Plant X is a non-flowering plant.
(4)   Plant X is not able to make its own food.

(Go on to the next page)

9   Study the classification diagram below.

Which of the following represent groups A, B and C correctly?

	A	B	C
(1)	Plants	Fungi	Bacteria
(2)	Bacteria	Plants	Fungi
(3)	Fungi	Plants	Bacteria
(4)	Fungi	Bacteria	Plants

10   The diagram below shows the arrangement of leaves from the top view of a plant.

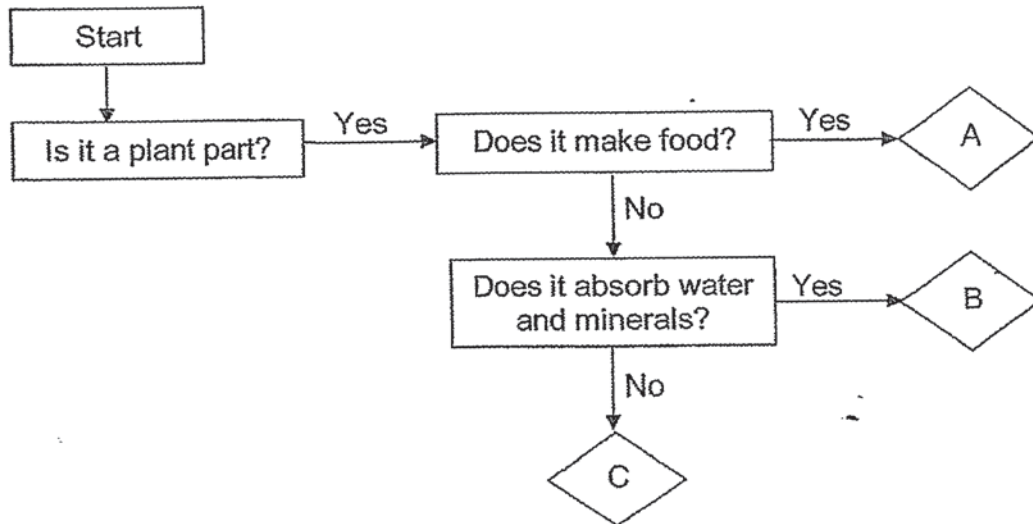
Which of the following best explains why the leaves of the plant are arranged in this way? The leaves are able to _____.

(1)   climb up on other plants for support
(2)   provide more shade for other living things
(3)   trap as much sunlight as possible to make more food
(4)   absorb as much water as possible to make more food

11 Study the chart below.
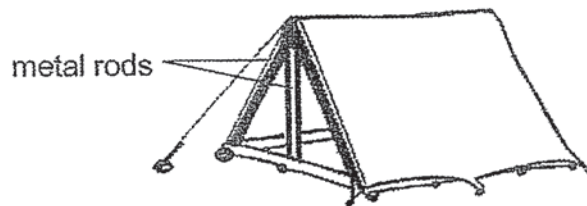
```
┌──────────┐
│  Start   │
└────┬─────┘
     │
     ▼
┌──────────────────┐  Yes   ┌──────────────────┐  Yes   ╱╲
│ Is it a plant part? ├──────▶│ Does it make food? ├──────▶ ◀ A ▶
└──────────────────┘        └────────┬─────────┘        ╲╱
                                     │ No
                                     ▼
                            ┌──────────────────┐  Yes   ╱╲
                            │ Does it absorb water ├──────▶ ◀ B ▶
                            │  and minerals?    │        ╲╱
                            └────────┬─────────┘
                                     │ No
                                     ▼
                                    ╱╲
                                   ◀ C ▶
                                    ╲╱
```

Which parts of a plant do A, B and C represent?

|	A	B	C
(1)	leaves	roots	stems
(2)	leaves	stems	roots
(3)	stems	roots	leaves
(4)	roots	stems	leaves

12 The picture below shows a camping tent.

metal rods

Which one of the following systems in our body provides similar function as the metal rods used in the tent?

(1) Skeletal system
(2) Digestive system
(3) Muscular system
(4) Circulatory system

13   The diagrams below show three human body systems.


System A   System B   System C
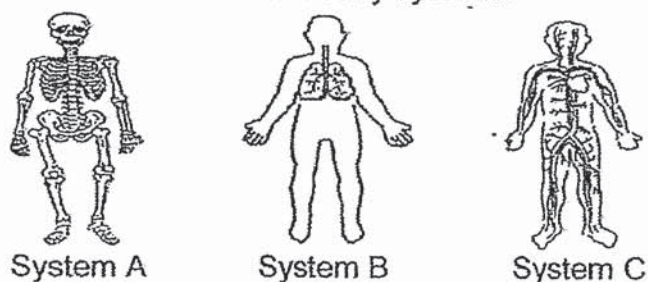
Which of the following statements about the systems are true?

A	System B takes air into the body and removes air from the body.
B	System A helps in movement and protects the organs in the body.
C	Systems A and C work together to transport food to all parts of the body.
D	System C carries useful substances to all parts of the body and carries waste materials away from different parts of the body.

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

14   Mary wanted to find out if breaking a whole piece of biscuit into many smaller pieces would affect the time taken for the biscuit to be completely digested. She prepared two set ups, A and B, as shown in the diagram below.
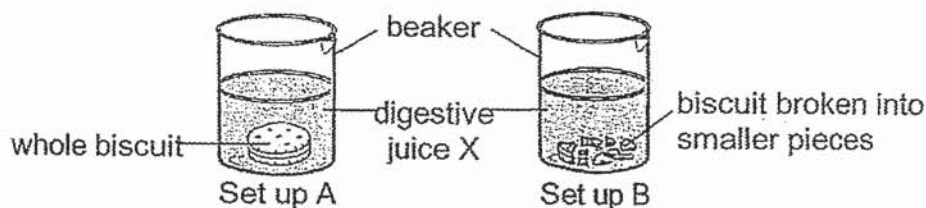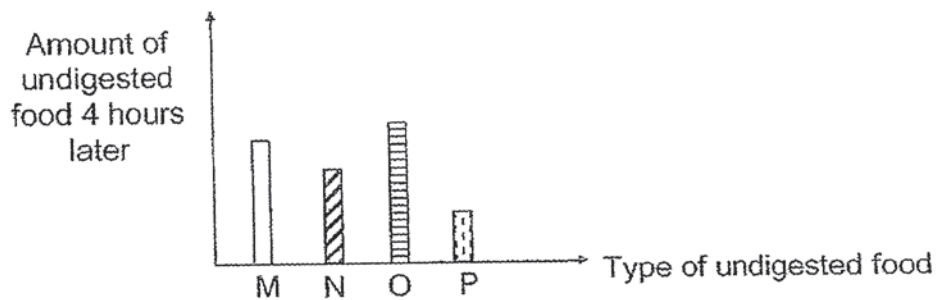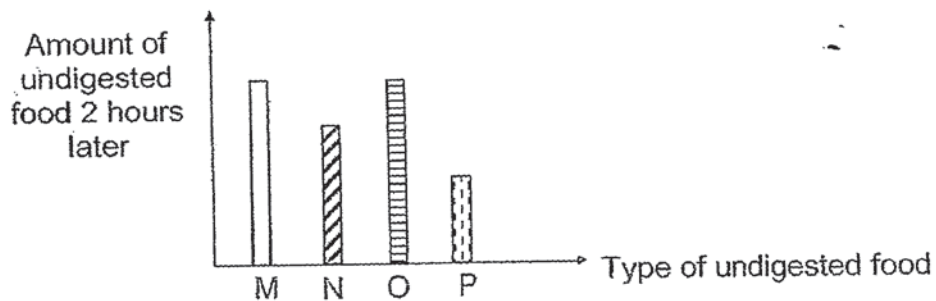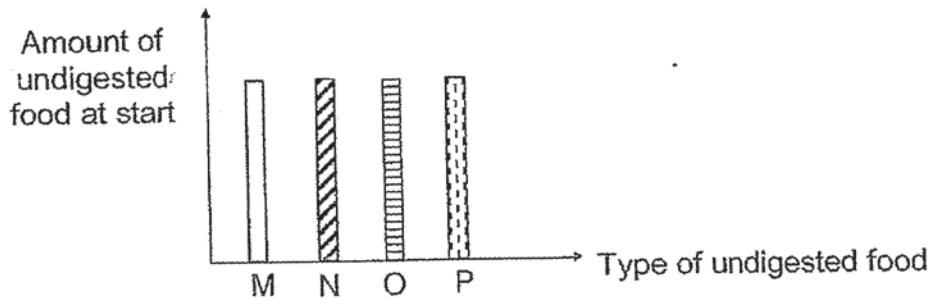

Which variables should she keep the same to ensure a fair test?

A   Type of biscuit
B   Type of beaker
C   Amount of digestive juice X
D   Size of the biscuit before breaking it

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

15   The graphs below show the changes in the amount of four different types of undigested food, M, N, O and P in our digestive system over time.
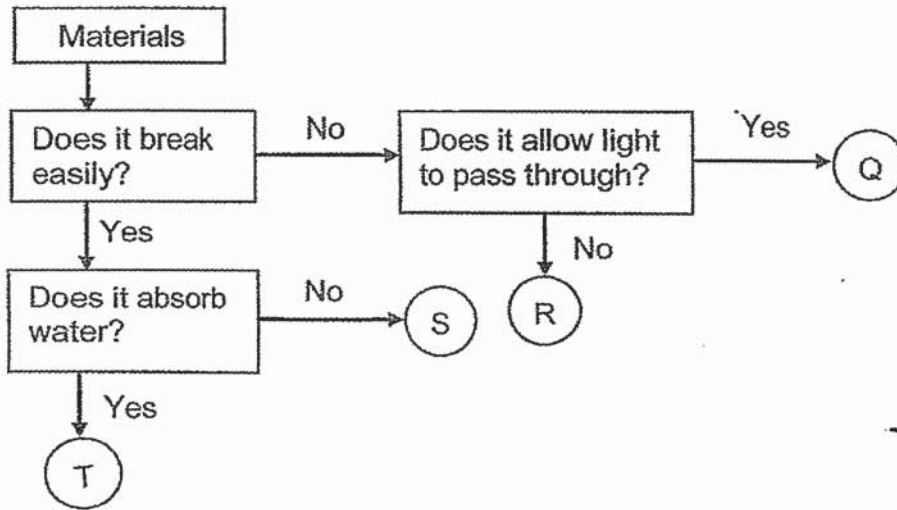

Based on the information given in the graph, which type of food, M, N, O or P, is digested most easily?

(1)   M
(2)   N
(3)   O
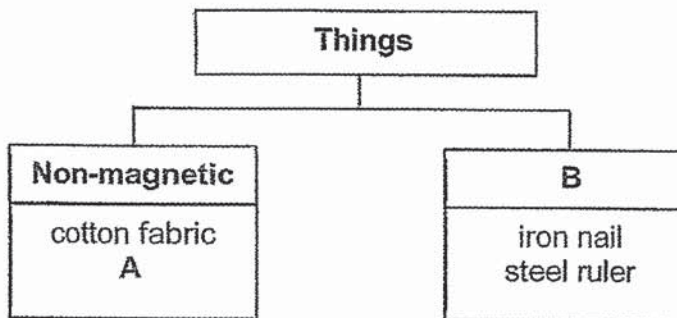(4)   P

16   Study the chart as shown below.

Which material is likely to be clear glass?

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

17   Study the classification diagram below.

Which one of the following options correctly represent A and B?

	A	B
(1)	aluminum foil	Flexible
(2)	aluminum foil	Magnetic
(3)	iron ring	Magnetic
(4)	glass lens	Absorbent

18   Daniel lies down on a swimming float made of material X as shown below.
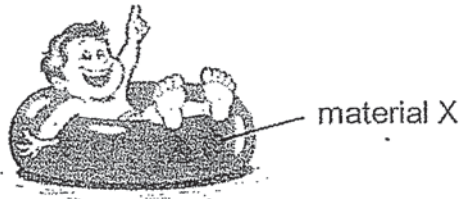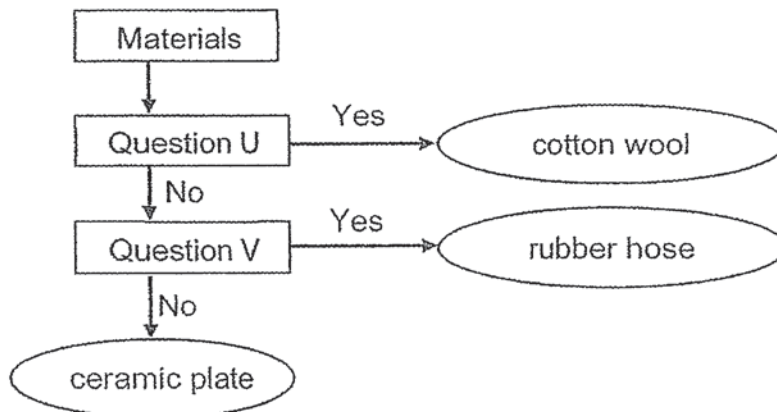

material X

Which of the following properties make material X suitable for making the swimming float?

A   It is stiff
B   It is waterproof
C   It is transparent
D   It can float on water

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

19   Study the chart as shown below.

Which one of the following correctly represent questions U and V?

|	Question U	Question V
(1)	Does it allow light to pass through?	Is it absorbent?
(2)	Is it waterproof?	Is it able to bend?
(3)	Is it absorbent?	Is it flexible?
(4)	Is it flexible?	Is it waterproof?

20   Yu Qing set up an experiment as shown below to compare the flexibility between the
     two materials, P and Q. She added different amount of water into the beaker that was
     placed on top of each material, of similar size and thickness, until each material
     bends by 2 cm.
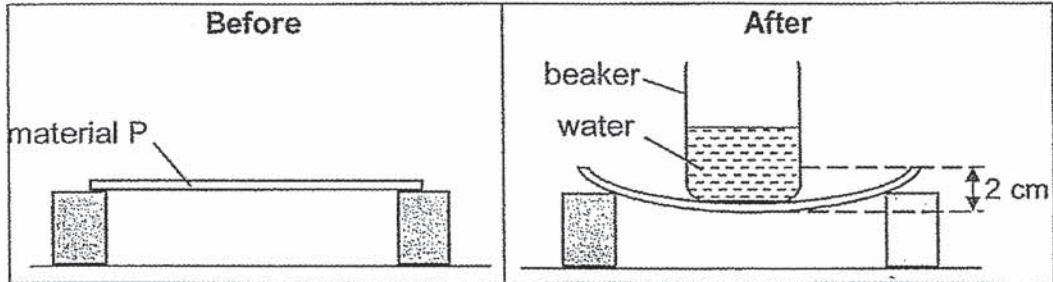
Based on her results, Yu Qing concluded that material P was more flexible than
material Q. Which of the following results could she have observed in order to make
her conclusion?

	Amount of water in beaker (ml) for distance D to reach 2 cm	
	Material P	Material Q
(1)	35	35
(2)	95	65
(3)	35	65
(4)	95	95

21   Sharon set up an experiment with two toy cars, E and F. Two similar rod magnets, K
     and L, were placed on top of each car. When Sharon moved car E towards car F,
     she observed that car F moved forward in the direction as shown below.
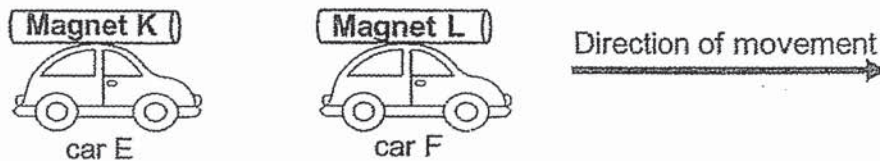
Which the following statements best explain Sharon's observation?

A   Magnet L was attracting car E towards it.
B   Magnet K was repelling car F away from it.
C   Like poles of magnet L and magnet K are facing each other.
D   Unlike poles of magnet L and magnet K are facing each other.

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

(Go on to the next page)

22   The diagram below shows the interaction between two magnets when they are
      placed near each other.

      Direction of movement   Direction of movement

      | K   L | | N   S |

      Based on the interaction between two magnets observed above, which of the
      following diagrams shows the possible arrangement of the two magnets?

(1)   (2)
      | N   S |
      | L | | N   S |
                                               | K   L |
      | K |

(3)   (4)
      | N   S |
              | K | | N   S | K   L |
              | L |

23   Lucas hung three bars, E, F and G on a pole. The diagram below shows the
      interaction of the bars when they are brought near one another.

                                              ——— pole
                                              ——— string

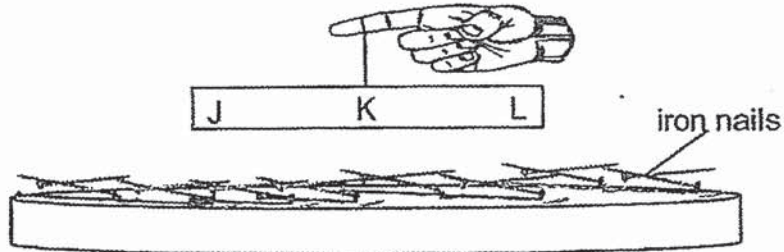 | E | | F | G |
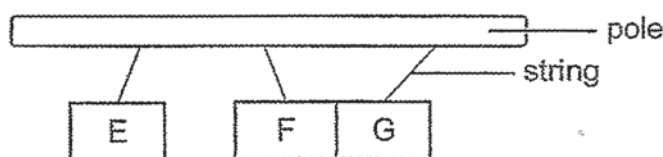
      Which of the statements are true?

      A   Bar F is a magnet
      B   Bar E is made of copper
      C   Bars F and G are magnetic
      D   Bar G is a non-magnetic material

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

24   Jasmine brought a bar magnet close to a small tray of iron nails as shown in the diagram below.

Which one of the following represent the number of iron nails attracted by the different parts J, K and L of the bar magnet correctly?

	Number of iron nails attracted		
	Part J	Part K	Part L
(1)	9	4	8
(2)	3	9	4
(3)	4	5	9
(4)	9	4	5

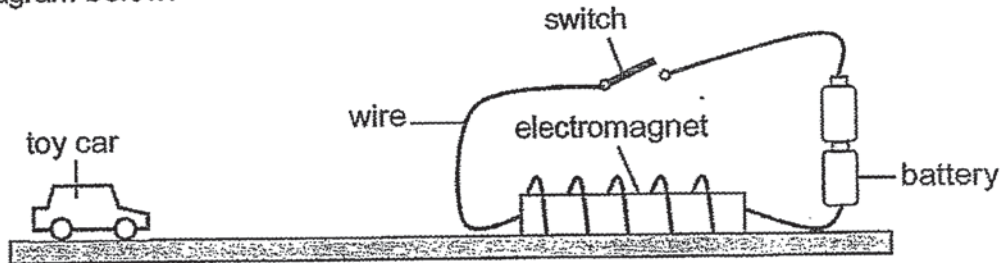25   Viki conducted an experiment using four set-ups J, K, L and M as shown below.
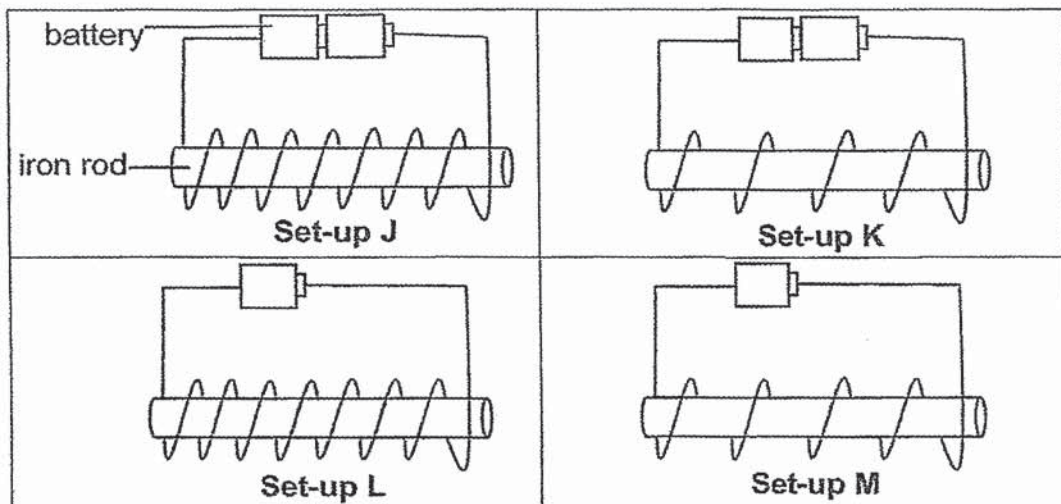
Which two set-ups should Viki use if she wants to find out whether the number of coils of wire affects the magnetic strength of the electromagnet?

(1)   J and L
(2)   K and L
(3)   K and M
(4)   L and M

26 Alex carried out an experiment with an electromagnet and a toy car as shown in the diagram below.

When Alex closed the switch, he observed that the toy car moved towards the electromagnet.

Which one of the following statements is true?

(1) The toy car will move towards the electromagnet slower when the number of batteries decreases.

(2) The toy car will move towards the electromagnet more quickly when the number of batteries decreases.

(3) The toy car will move towards the electromagnet slower when the coils of wire around the electromagnet increases.

(4) The toy car will move towards the electromagnet more quickly when the coils of wire around the electromagnet decreases.

27 Sarah placed three ring magnets, S, T and U through a wooden rod as shown in the diagram below.
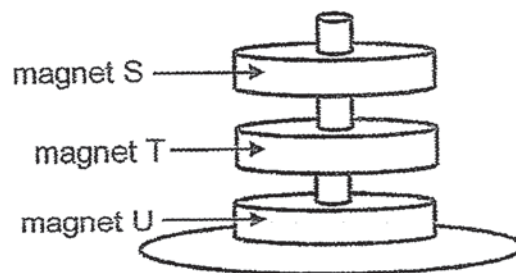
What could Sarah do to allow all the three magnets to attract one another?

(1) Flip magnet T
(2) Flip magnet S
(3) Flip magnets S and T
(4) Flip magnets T and U

(Go on to the next page)

28 Josh carried out an experiment on four magnets, W, X, Y and Z. He placed magnet W and an iron nail at both ends of a ruler as shown in diagram 1.
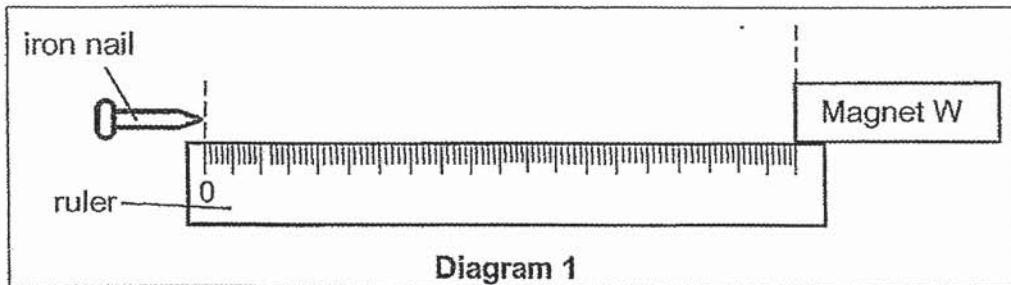
Diagram 1

He then moved magnet W towards the iron nail and measured the distance D at which the iron nail was attracted as shown in diagram 2.

Diagram 2
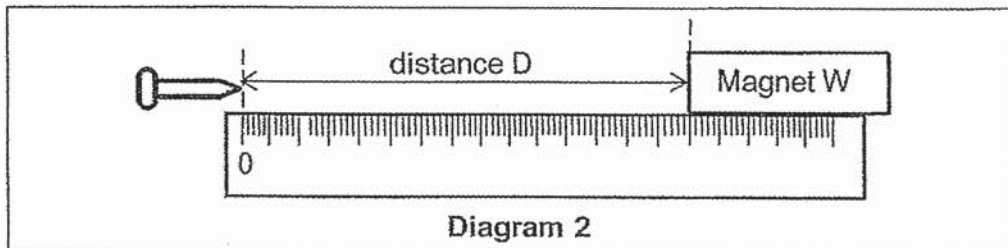
He repeated the experiment with magnets X, Y and Z and recorded his results in the graph shown below.
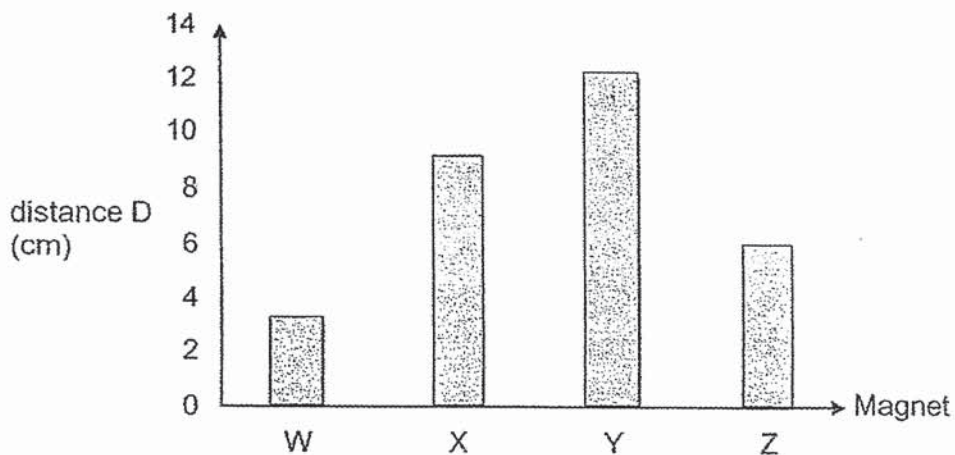
Based on the graph, which magnet has the weakest magnetic strength?

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

End of Booklet A

METHODIST GIRLS' SCHOOL
Founded in 1887

END-OF-YEAR EXAMINATION 2019
PRIMARY 3
SCIENCE

BOOKLET B

Total Time for Booklets A and B: 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Name: _____ ( )

Class: Primary 3. _____

Date : 22 October 2019

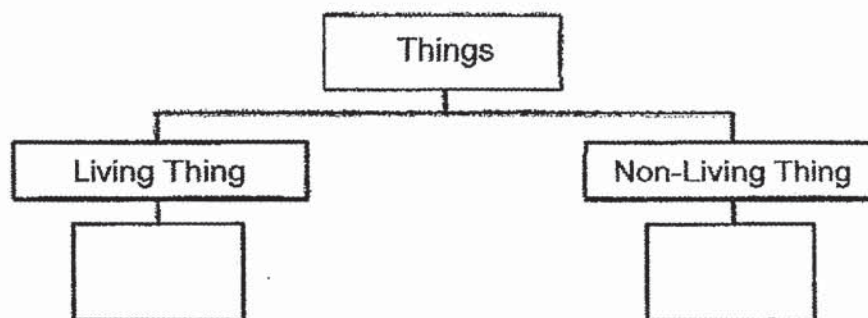| Booklet A	56
Booklet B	34
Total	90
Parent's Signature	

This booklet consists of 13 printed pages including this page.

For questions 29 to 38, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question. [34 marks]

29. John carried out an experiment using two things, W and X. He observed and recorded the heights of W and X for the next four weeks in the table below.

	Height of W (cm)	Height of X (cm)
Week 1	5	18
Week 2	10	18
Week 3	15	18
Week 4	20	18

(a) Based on the information above, identify W and X in the chart below. **Write** the letter, **W** and **X**, in the correct boxes. [1]

```
                    ┌──────────┐
                    │  Things  │
                    └──────────┘
              ┌───────────┴───────────┐
    ┌──────────────┐          ┌──────────────────┐
    │ Living Thing │          │ Non-Living Thing │
    └──────────────┘          └──────────────────┘
         ┌────┐                      ┌────┐
         │    │                      │    │
         └────┘                      └────┘
```

(b) Based on the results of John's experiment, state the characteristic of W which explains your answer in (a). [1]

_____

_____

(c) State a characteristic of X that is not observed in John's experiment. [1]

_____

_____
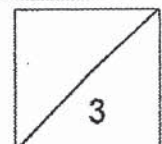
30   The table below shows the characteristics of three different animals; X, Y and Z.
      A tick (✓) indicates that the animal has the characteristic.

Characteristic	Animal		
	X	Y	Z
Has wings	✓		
Has hair		✓	
Gives birth to young alive		✓	
Reproduces by laying eggs	✓		✓
Breathes through lungs and moist skin			✓

(a)   Based on the table above, what is the similarity between animals X and Z?
                                                                              [1]

      _____

      _____

(b)   Which animal, X, Y or Z, could be a dolphin? Give a reason for your answer.
                                                                              [1]

      _____

      _____

(c)   Which group of animals does animal Z belong to? Give an example of
      animal Z.   [1]

      _____

      _____

3
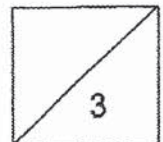
31 Siva conducted an experiment using four identical pieces of bread, A, B, C and D. He added different amount of water on the four slices of bread and kept them in a dark room. After three days, he observed some black patches growing on bread B, C and D. The results of his observation are shown in the table below.

|	Bread A	Bread B	Bread C	Bread D
Amount of water added to the bread (ml)	0	12	6	18
Size of black patches grew on bread (if any)				

black patches

(a) Explain how the black patches grew on the bread. [1]

_____

_____

(b) Based on Siva's results, how does adding more water affect the size of the black patches growing on the bread?
Circle your answer below. [1]

Adding more water (increases / decreases) the size of the black patches growing on the bread.
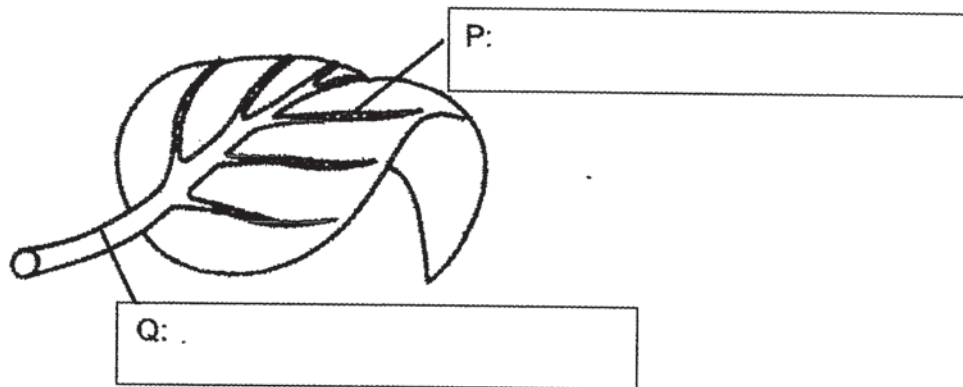
(c) Which variables must be kept the same for the experiment to be a fair test? Put ticks (✓) in the correct boxes. [1]

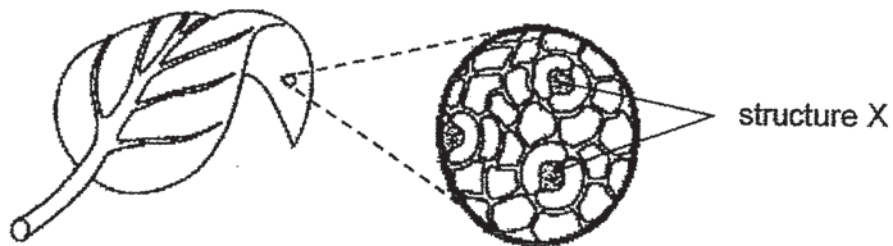| Variables	Tick (✓)
Location of experiment	
Size of bread	
Amount of water added to the bread	
Size of black patches	

3
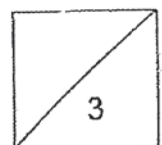
(Go on to the next page)

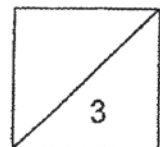**32** The diagram below shows a leaf.

P:

Q:

(a) **Label** the parts of the leaf, P and Q in the boxes provided above. [1]

Sam placed a leaf under a microscope. The diagram below shows what he saw on the underside of the leaf.
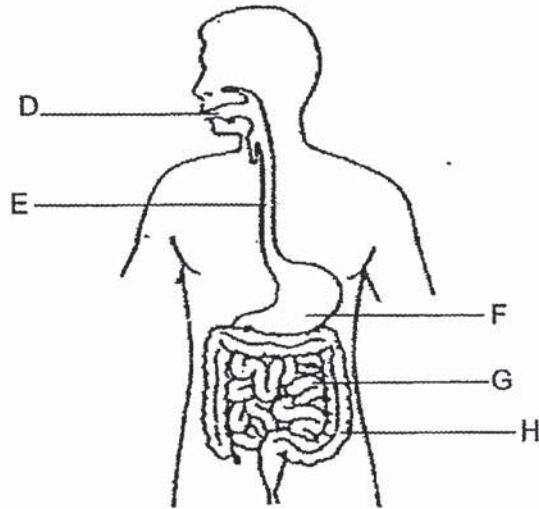

structure X

Sam observed that there were many structure X on the underside of the leaf.

(b) Name structure X and state its function. [2]

_____

_____

3

(Go on to the next page)

33   Study the diagram of the human digestive system as shown below.

(a)   Name organs E and F.   [1]
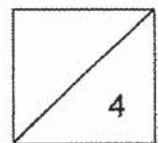
(i)   _____

(ii)   _____

(b)   What happens at organ D? Fill in the blanks below.   [1]
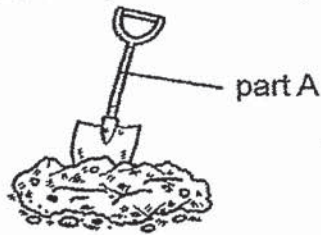
The teeth chew the food into (i) _____ pieces.

The (ii) _____ softens the food.

(c)   At which organ, D, E, F, G or H, is food completely digested and what
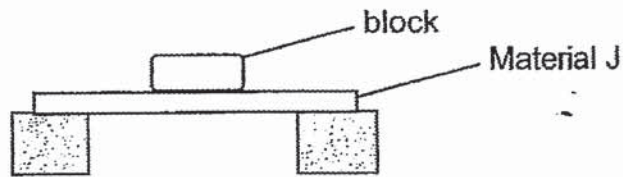happens to the digested food?   [2]

_____

_____

4

(Go on to the next page)

34 Mr Ling conducted an experiment on four different materials to find out which material is the most suitable to make part A of the spade.

— part A

He placed blocks of the same mass on each material, one at a time, until they broke and recorded his results in the table below.

| Material	Number of blocks it can hold before it breaks
J	4
K	12
L	6
M	1

(a) What property of the material was Mr Ling testing in his experiment?   [1]

_____

(b) Based on Mr Ling's results above, which one of the materials, J, K, L or M, is most suitable for making part A of the spade. Explain your answer.   [2]

_____

_____

(c) Why is it important for part A of the spade to have the property stated in (a) in order for Mr Ling to dig the soil?   [1]
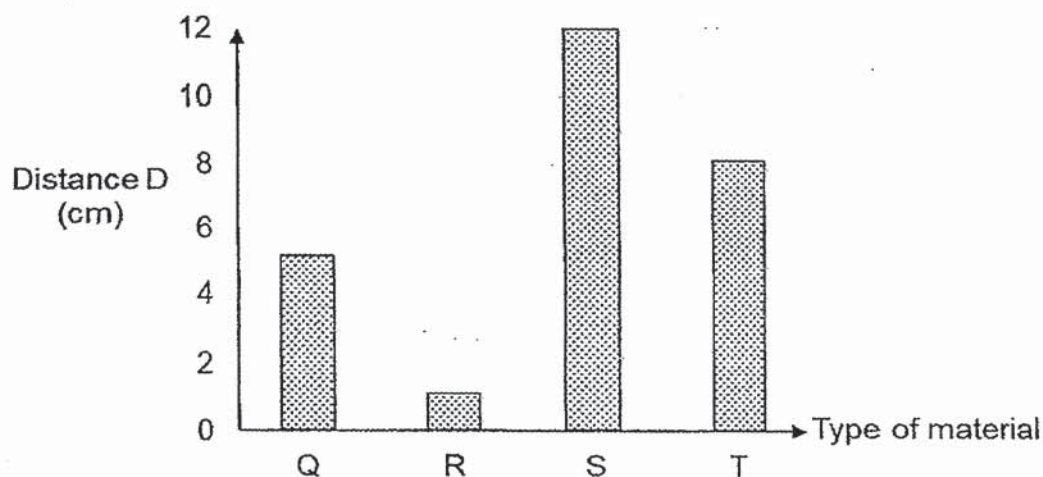
_____

_____

4
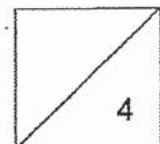
(Go on to the next page)

35   Kate set up an experiment as shown below. She hung a 100g mass on four materials, Q, R, S and T, one at a time, and measured distance D, as shown in the diagram below. The materials are of the same thickness and length.

Before	After
material Q	distance D 100g — mass
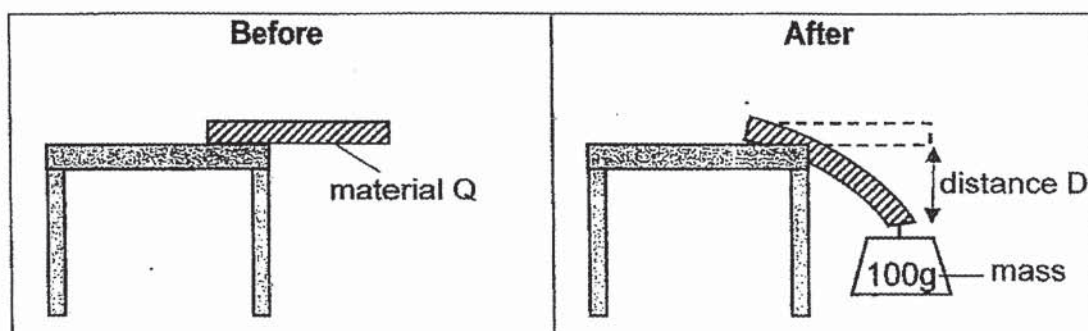
She recorded her readings in the graph below.

Distance D (cm) vs Type of material
Q, R, S, T

(a)   Put a tick (√) in the box next to the variable that must be changed in order for the experiment to be a fair one.   [1]

Variable	Changed
Type of material	
Mass of the weight	
Thickness of material	

(b)   What could Kate conclude about the property of material R from this experiment? Fill in the blanks below.   [2]

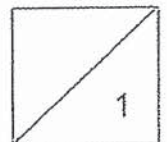Material R is the least (i) _____ because

distance D is the (ii) _____ .

3
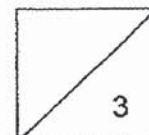
(Go on to the next page)
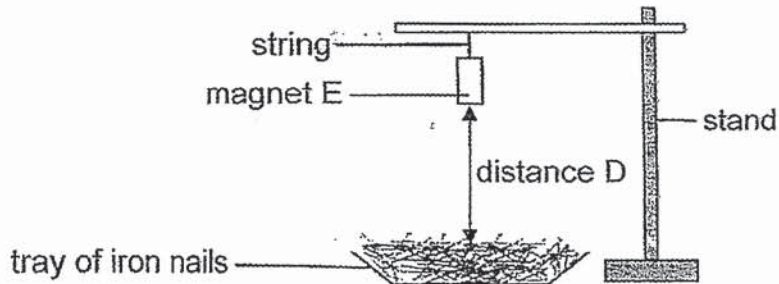
The diagram below shows a pair of swimming goggles.

part X

(c) Which material Q, R, S or T is most suitable for making part X? Give a reason for your answer. [1]

_____

_____

1

(Go on to the next page)

36   Michelle set up an experiment as shown below.

She placed magnets E and F at different distances from the tray of iron nails and recorded the number of iron nails attracted in the table below.

Distance D (cm)	Number of iron nails attracted	
	Magnet E	Magnet F
2	10	20
4	8	18
6	6	15
8	2	12

(a)   Based on the results, show the relationship between distance D and the number of iron nails attracted by magnet E. **Circle** the correct answers below.   [1]
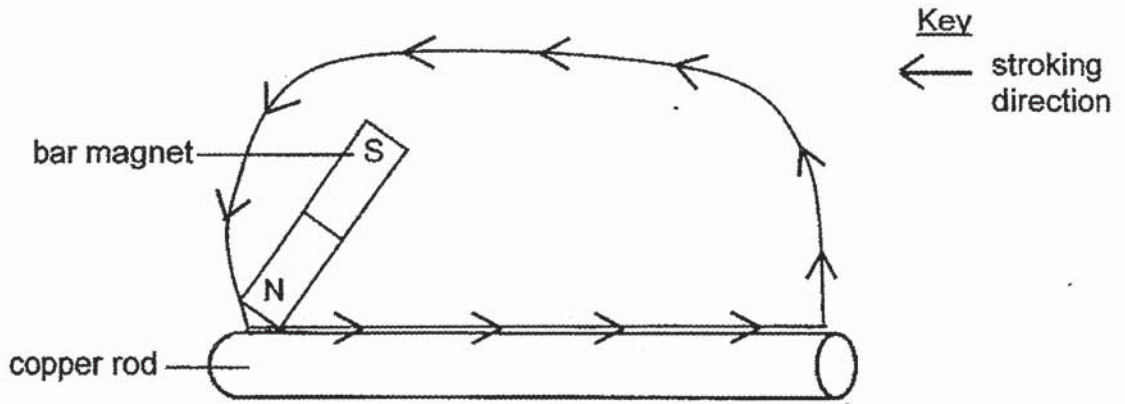
As distance D (increases / decreases), the number of iron nails attracted

by magnet E (increases / decreases).

(b)   Do magnet E and F have the same magnetic strength? Explain your answer.   [2]

_____

_____
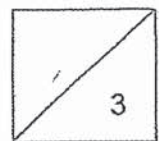
37 Alice used a bar magnet to stroke a copper rod 40 times as shown in the diagram below.

(a) After stroking it, Alice brought the copper rod near some steel nails. She observed that none of the steel nails was attracted to the copper rod. Explain her observation. [2]

_____

_____

(b) What must Alice replace in her set-up above so that she could make a temporary magnet by the stroke method? [1]

_____

_____

3
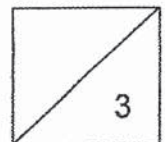
38 Albert carried out an experiment with two batteries. The two ends of the steel rod were labelled S and T as shown in the diagram below. He then placed the steel rod near some steel paper clips.
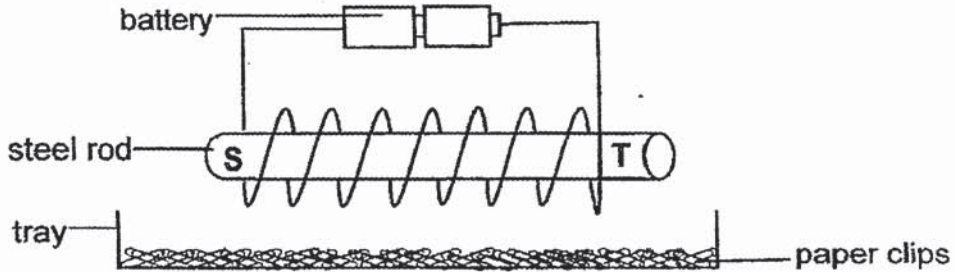

(a) Albert observed that part S and T of the steel rod attracted the most number of paper clips. Give a reason for his observation. [1]

_____

_____

Albert tied object X to a string and placed it near the end T of the steel rod. He observed that object X moved towards the steel rod as shown in the diagram below.
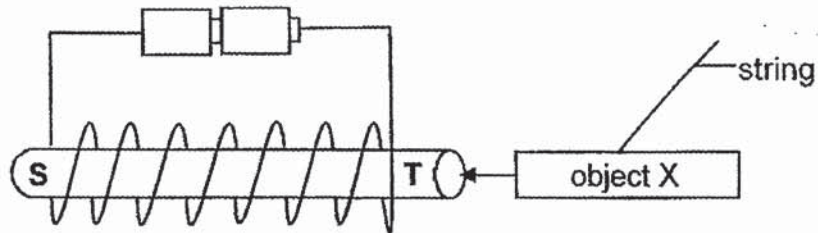
(b) Based on Albert's observation, is object X definitely a magnet? Explain your answer. [1]

_____

_____

(c) What could Albert do to the set-up above if he wants to increase the distance that object X moved towards from the steel rod? [1]

_____

_____

3
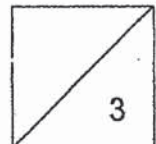
(Go on to the next page)

Albert's friend Daniel then created a similar set-up as shown in the diagram below. He then placed the steel rod near some steel paper clips.
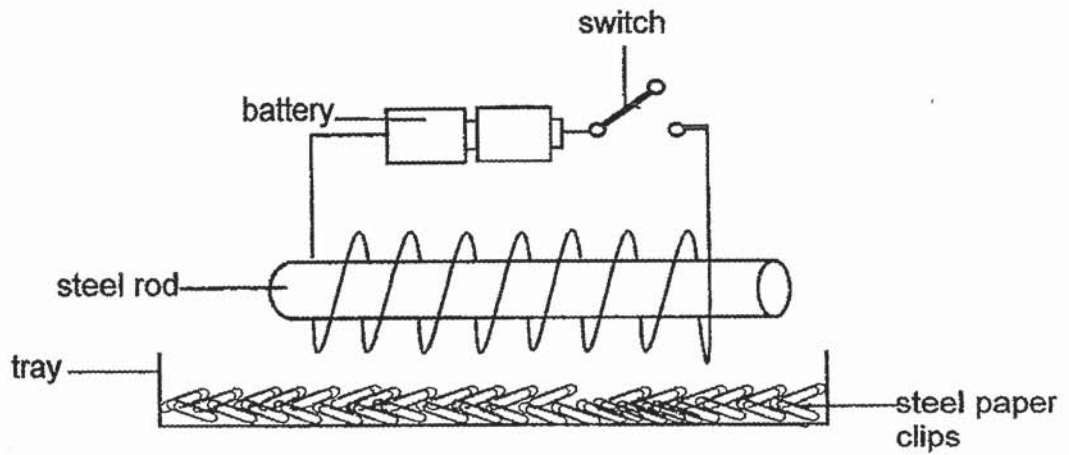
(d) Daniel observed that none of the steel paper clips was attracted to the steel rod. Give a reason for his observation. [1]

_____

_____

End of Booklet B

YEAR   : 2019
LEVEL   : PRIMARY
SCHOOL   : .Methodist Girls
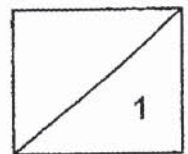SUBJECT   :
TERM   : END-OF-YEAR EXAMINATION 2019
Q8

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

BOOKLET B

(29a) Living Thing: W
      Non-living thing: X
(29b) W can grow, just like how living things do. Hence, W is a living thing.
(29c) X cannot repond to changes around it.
(30a) Both animals X and Z reproduce by laying eggs.
(30b) Animal Y, as it has hair and gives birth to its youngalive, just like a dolphinas it is a mammal and has hair and also gives birth to its young alive.
(30c) Animal Z belongs to the group amphibians. An example of an amphibian like Animal Z is a frog.
(31a) The spores in the air landed on the bread and grew as there were air, food and water.
(31b) increases.
(31c)

Variables	Tick [✓]
location of experiment	✓
size of bread	✓
Amount of water added	
size of black patches	

(32a) P:Leaf vein
      Q: Leafstalk
(32b) Structure X is stomata. The stomata allows the exchange of gases between the plant and its surroundings.
(33a)(i) Gullet
      (ii) Stomach
(33b)(i) smaller
      (ii) saliva
(33c) Part G. The digested food is absorbed into the blood.
(34a) strength

1

(34b) Material K, as it was able to hold the most number of blocks before it broke, showing that it is the strongest showing that it is able to support the spade.

(34c) It would not be easily broken and could support the spade and hold it upright.

(35a)

Variable	changed
Type of material	✓
Mass of the weight	
Thickness of material	

(35b)(i) flexible

(ii) shortest

(35c) Material S, as it would be able to flex to fit the user's head, making it comfortable for the user as it is the most flexible and could fit the user if the user's head is bigger.

(36a) increases, decreases

(36b) No, as magnet F was able to attract more iron nails than Magnet E, showing it has a stronger magnetic strength.

(37a) Copper is not a magnetic material. Hence, no steel nails were attracted as only magnetic materials can be magnetised into temporary magnet and be able to attract the steel nails.

(37b) She could replace the copper rod with magnetic materials such as iron, cobalt or steel in order to make a temporary magnet by the stroking method.

(38a) A magnet is strongest at its poles and weakest at its centre.

(38b) No, as object X did not repel the magnet.

(38c) The could either increase the number of batteries.

(38d) It is because the switch was not closed so electricity cannot flow through to magnetise the rod.

2