PEI HWA PRESBYTERIAN PRIMARY SCHOOL

SEMESTRAL ASSESSMENT 1

PRIMARY 4
SCIENCE
12th May 2017

(BOOKLET A)

Name: _____ ( )

Class: Primary 4 Teamwork _____

Additional Material(s): Optical Answer Sheet (OAS)

Total time for Booklets A and B: 1 h 30 mins

INSTRUCTIONS TO CANDIDATES

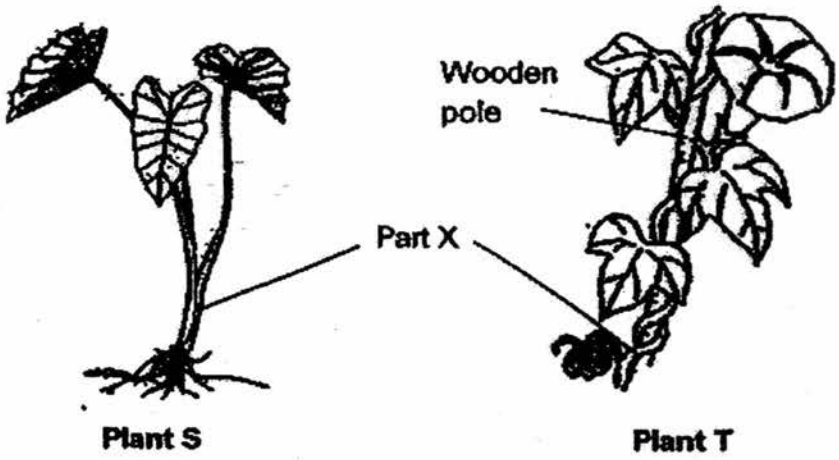
1. Write your Name, Class and Index No. at the spaces provided above.
2. DO NOT turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

There are a total of 11 pages in this booklet, excluding the cover page.

For each question from 1 to 22, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(44 marks)

1 Study the diagrams below.



Which one of the following describes the function of Part X in Plants S and T?

It _____.

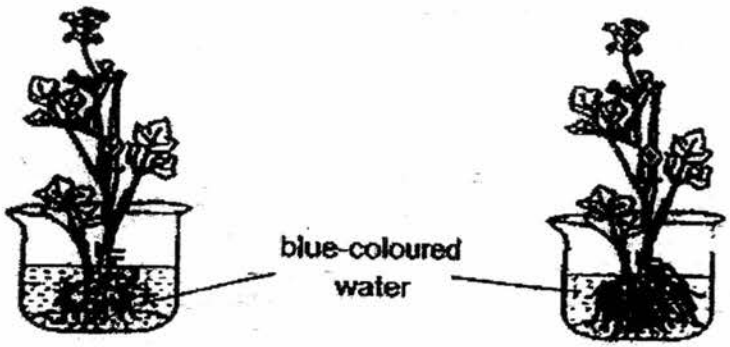
(1) produces leaves
(2) supports the plants
(3) anchors the plant to the ground
(4) absorbs water and nutrients from the ground

2 The heart pumps blood throughout the body.
The small intestines move to allow the digested food to move along in the small intestines.

These two organs belong to different systems that work together so as to _____.

(1) take in oxygen for the body
(2) protect the important organs in the body
(3) allow digested food to be absorbed into the body
(4) support the body and help different parts of the body to move

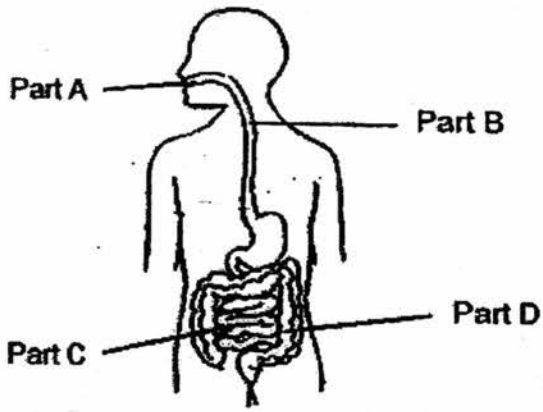
3 Anita placed two plants of similar size and height into two beakers filled with blue-coloured water.



After one day, she noticed that all the leaves of Plant B had turned blue while only some of the leaves of Plant A turned blue. What could be the reason for this observation?

(1) Plant A has less roots than plant B.
(2) Plant A did not absorb the blue water.
(3) Plant A is a water plant but not plant B.
(4) The leaves of Plant B turned blue when they trapped sunlight.

4 Study the human digestive system below.



Digestion takes place where digestive juices are produced. These juices are added to food in the parts of the digestive system labelled _____.

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

5 Study the diagrams below.

Young of a frog

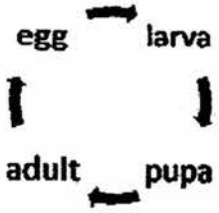
Young of a mosquito

Which of the following statements are true about the similarities between the young of a frog and the young of a mosquito at this stage?

A Both will moult.
B Both live in water.
C Both eat to grow bigger.
D Both are at the larva stage of the animal's life cycle.

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

6 The following diagram shows the different stages of an animal life cycle.



Which of the following animals go through a similar life cycle as shown above?

A lizard
B beetle
C butterfly
D cockroach

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

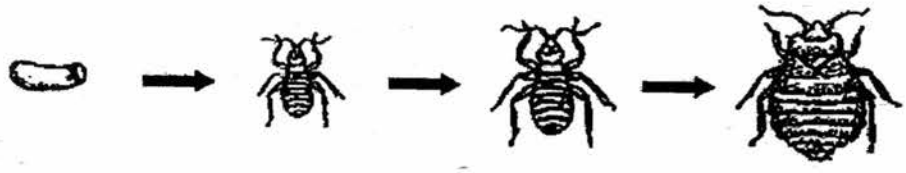
7 The following are some of the characteristics of the young of Animal X.

- It hatches from an egg.
- It goes through three stages in its life cycle.
- It does not resemble its parent at the young stage.

Which of the following is Animal X likely to be?

(1) Frog
(2) Chicken
(3) Ladybird
(4) Grasshopper

8 Study the growth of the common bed bug as shown below.



Egg
Week 0

Week 2

Week 5

Adult
Week 12

Which of the following animals has a similar life cycle to the bed bug?

(1) Beetle
(2) Butterfly
(3) Mosquito
(4) Cockroach

9 Which of the following statements explains how a young plant is different from an adult plant?

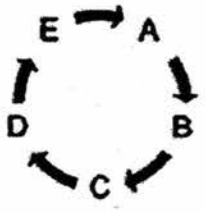
The adult plant _____ but the young plant does not.

(1) has roots
(2) needs air
(3) needs water
(4) bears flowers

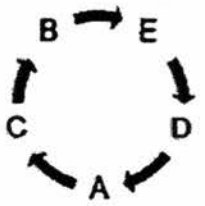
10 The following diagram shows how a tomato plant looks like as it grows.

Which of the following shows the correct order of development for the plant?

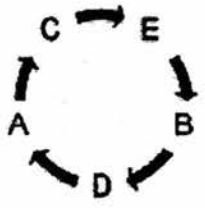
(1)



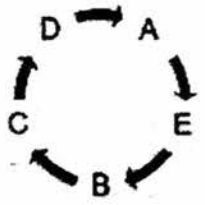
(2)



(3)

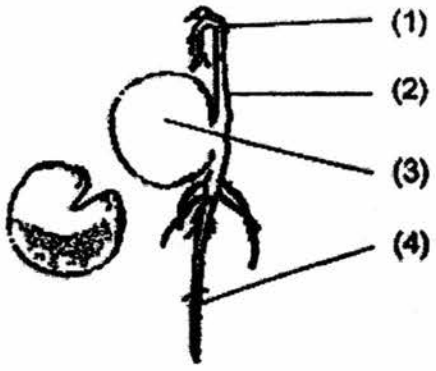


(4)

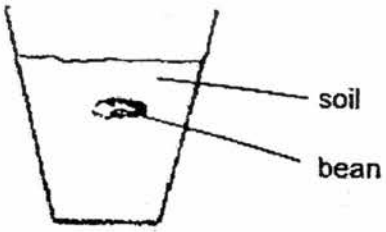


11 The diagram below shows a seedling with a part dropped off.

Which part of the seed does it get its food from <u>before</u> its leaves start making its own food?

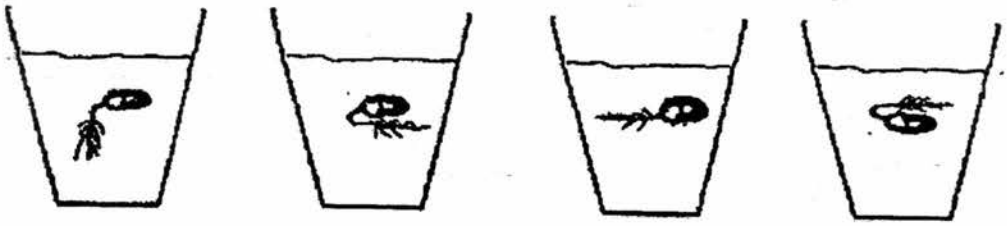


12 Theodore planted a bean in a pot filled with soil as shown in the diagram below.

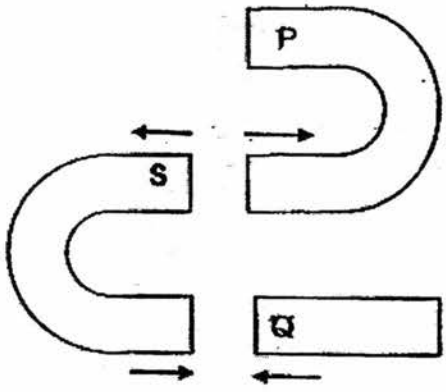


Which of the following diagrams below shows the correct direction of the root when it first emerges from the seed?

(1) (2) (3) (4)



13 Study the arrangements of three magnets below and their interactions with one another. The pole of one magnet is indicated as south (S).



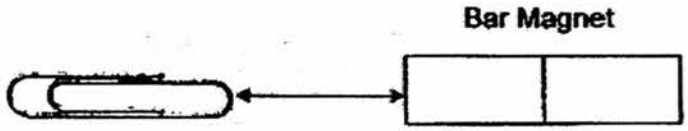
What could the poles at P and Q be?

	Pole P	Pole Q
(1)	N	N
(2)	N	S
(3)	S	N
(4)	S	S

14 A freely suspended magnet will come to rest in the _____ direction.

(1) east - west
(2) north - south
(3) southwest - northeast
(4) northwest - southeast

15 Elise carried out an experiment using three different bar magnets, X, Y and Z and a steel paper clip. She moved each magnet nearer towards the paper clip and recorded if the magnets can attract the paper clip at various distances. A tick (✓) indicates that the magnet can attract.

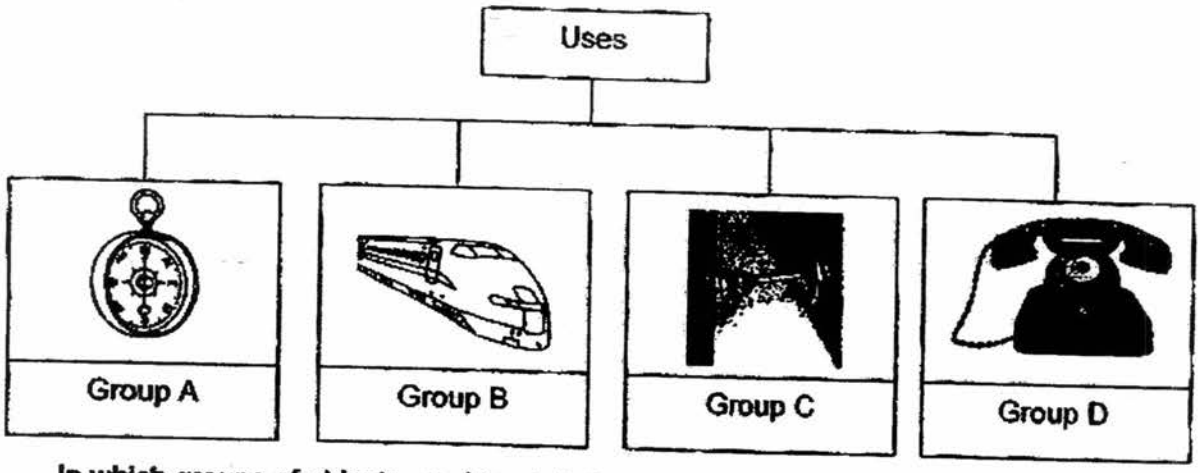


	Attraction at distance S (cm)			
	1 cm	2 cm	3 cm	4 cm
Magnet X	✓	✓	✓	✓
Magnet Y	✓	✓	x	x
Magnet Z	✓	x	x	x

In this experiment, Elise wanted to know the _____.

(1) material of the paper clip
(2) poles of Magnets X, Y and Z
(3) magnet with the strongest magnetic pull
(4) number of paper clips that can be attracted

16 The things in the classification chart below are examples of the uses of magnets.



In which groups of objects would you find electromagnets being used?

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

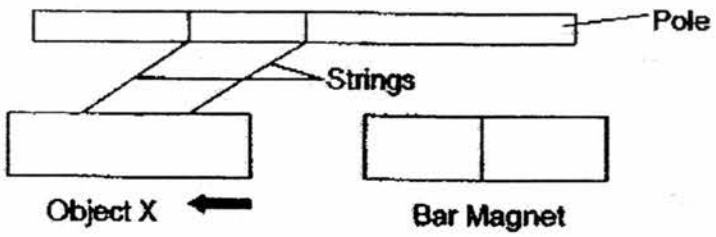
17 Franny lists the following properties of material M.

- It sinks in water
- It is shiny and strong
- It can be attracted to a magnet

What is material M likely to be?

(1) Wood
(2) Nickel
(3) Plastic
(4) Aluminium

18 Billy ties Object X to a pole with 2 strings. When he brings a bar magnet near Object X, he notices that Object X moves away from the magnet as shown in the diagram below.



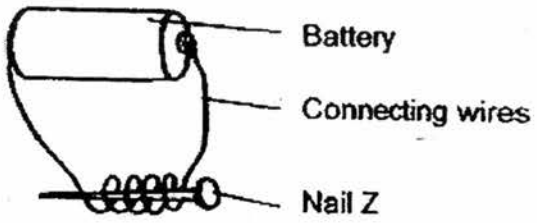
Which of the following statement(s) about Object X would be true?

A It is a magnet.
B It is made of plastic.
C It can attract iron pins.

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

Study the following experiment and answer questions 19 and 20.

19 Hannah set up the following experiment.



She tried to use Nail Z to pick up some paper clips but it was not able to do so. What could be the reason(s) for this?

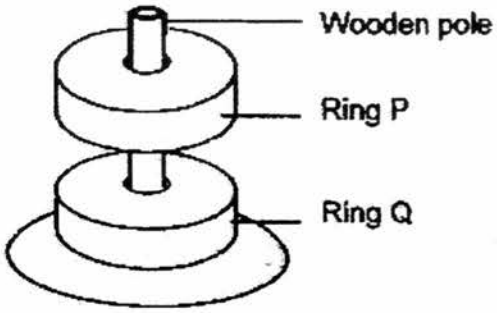
A There were not enough coils on Nail Z.
B There was only one nail used in her set-up.
C The paper clips were made of non-magnetic materials.

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

20 Which material is best used for Nail Z so that the nail can become an electromagnet?

(1) Iron
(2) Paper
(3) Plastic
(4) Aluminium

21 Gabriel slotted 2 rings, Rings P and Q, through a wooden pole.



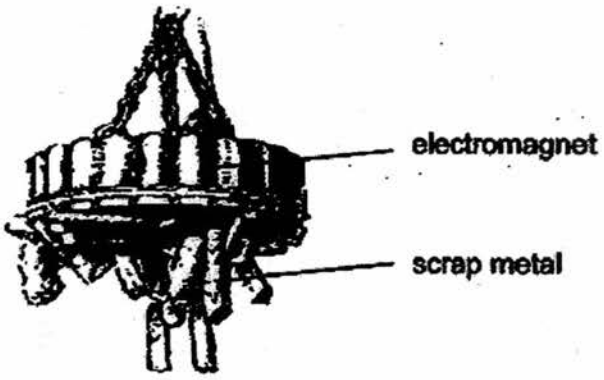
He observed that Ring P float above Ring Q.

Which of the conclusions below can Gabriel draw from his observation?

A Ring Q is a magnet.
B Ring P is not a magnet.
C Both rings have like poles facing each other.

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

22 Isaac visited a scrap yard and saw scrap metal lifted by an electromagnet.



An electromagnet is used mainly because it _____.

(1) is a permanent magnet
(2) is made of non-magnetic material
(3) is able to attract non-magnetic materials
(4) becomes a magnet only when electricity is flowing through it

PEI HWA PRESBYTERIAN PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1

PRIMARY 4
SCIENCE
12th May 2017

(BOOKLET B)

Name: _____ ( )

Class: Primary 4 Teamwork ____

Total time: 1 h 30 mins

INSTRUCTIONS TO CANDIDATES

1. Write your Name, Class and Index No. at the spaces provided above.
2. DO NOT turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write all your answers in this booklet.

FOR TEACHER'S USE

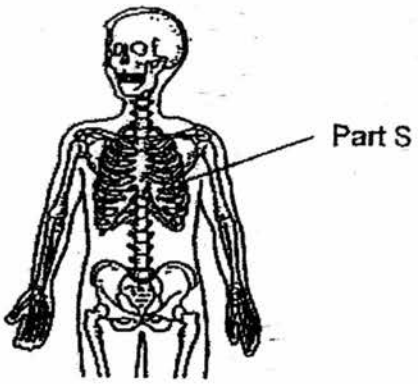
Marks (Booklet A) :	44
Marks (Booklet B) :	36
Total Marks (Booklet A & B) :	80

There are a total of 10 pages in this booklet, excluding the cover page.

For questions 23 to 33, write your answers in the booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (36 marks)

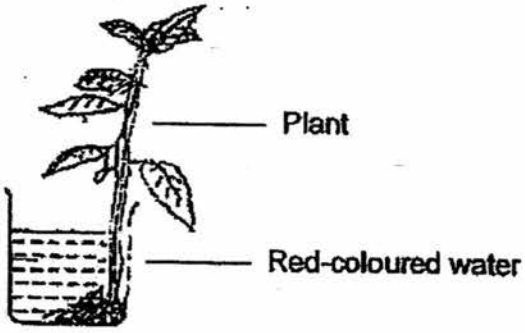
23 Study the diagram of the human skeletal system as shown below.



(a) Which two important organs does Part S protect? [1]

(b) Besides protecting important organs, state another function of the skeletal system. [1]

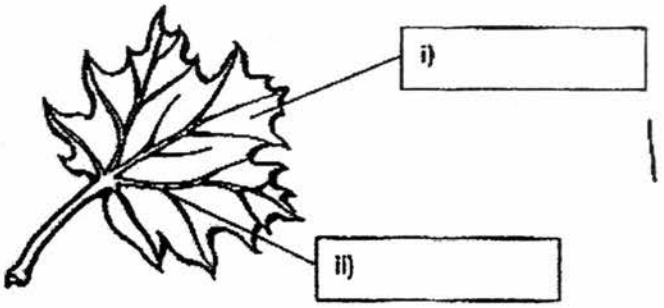
24 Jane put a plant into a beaker of red-coloured water. After a few hours, she noticed that some parts of the leaves had turned red.



(a) **Draw an arrow on the diagram** to show the direction of the water being transported to the rest of the plant. [1]

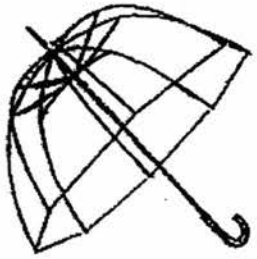
Question 24 continues on page 13

(b) Study the diagram of a leaf below and label the parts in the boxes provided. [1]



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

25 Kelly has an umbrella made of clear plastic sheet and metal frames.



The umbrella is only suitable to use on rainy days to keep her dry and not sunny days to give shade.

(a) State the property that enables the umbrella suitable to be used on a rainy day. [1]

_____

(b) Why is the umbrella not suitable to be used to give shade on sunny days? [1]

_____

(c) (i) State the property of the metal used to make the frame. [1]

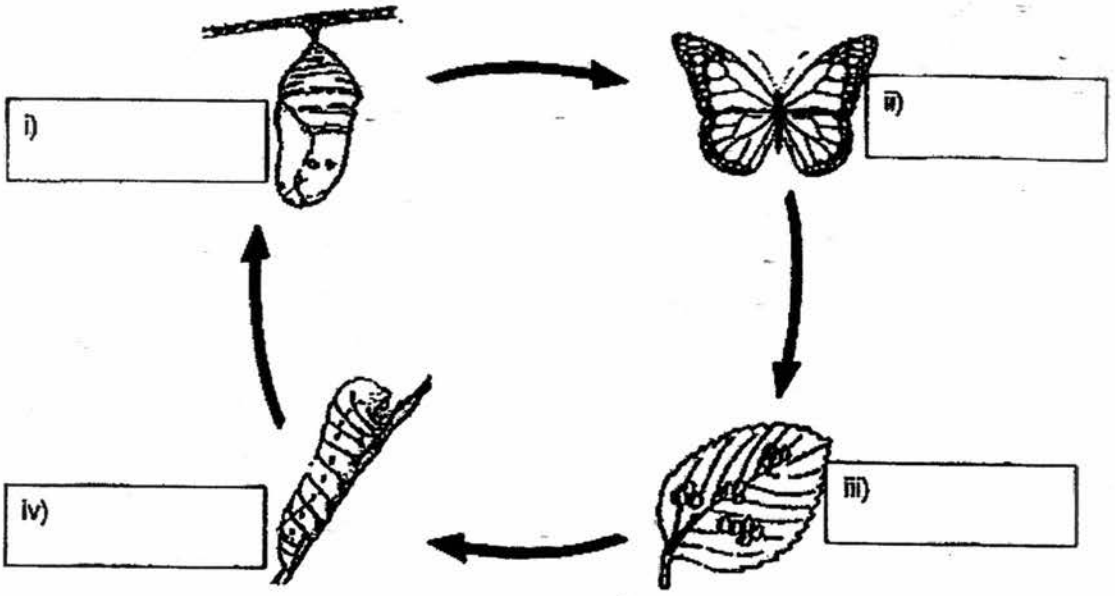
_____

(ii) Explain why the property in (c)(i) is suitable to make the frame. [1]

_____

26 The following diagram shows the life-cycle of a butterfly.

(a) Fill in the stages of the life cycle of a butterfly in the boxes provided. [2]

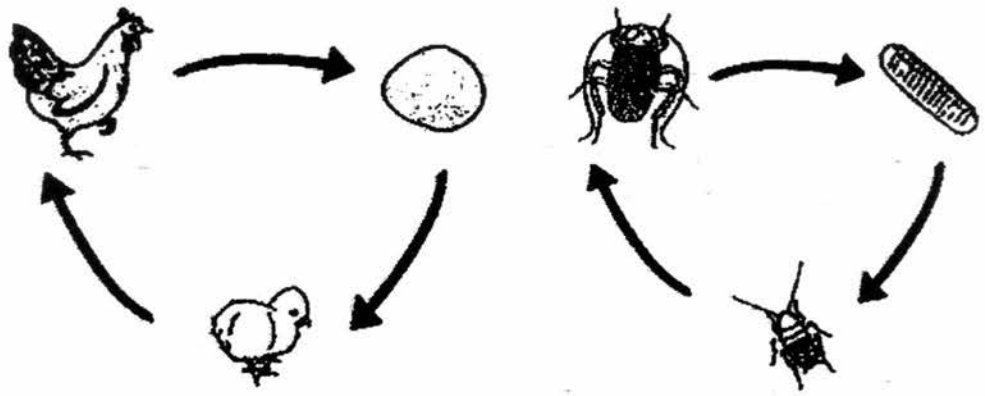


(b) (i) Circle in the diagrams below, the stage in which the animal goes through the process of moulting. [1]

(ii) Why is moulting necessary for the animal at the stage in (b)(i)? [1]

_____

27 Study the life cycles below.



Chicken Cockroach

(a) State one similarity between the life cycles of a chicken and a cockroach. [1]

(b) What is the young of a cockroach called? [1]

(c) Mrs Tan wanted to get rid of the cockroaches in her house. She bought 3 poison brands and conducted an experiment with some cockroaches in 3 enclosed containers for 3 days.

She recorded the results of her experiment in the table below.

Container	Poison Brand used	Number of cockroaches alive at the beginning	Number of cockroaches alive after 3 days
1	X	25	10
2	Y	19	9
3	Z	22	13

Based on the results, which poison (X, Y or Z) is best in getting rid of the cockroaches in her house? Why? [1]

28 Mary observed two insects, P and Q and recorded the number of days of each stage of their life cycles in the table shown below.

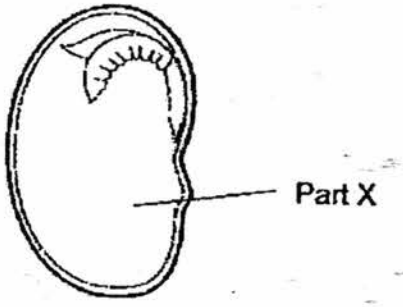
Stage	Egg	Larva	Pupa	Adult
Insect P	6	6	12	10
Insect Q	5	9	10	8

(a) Which insect (P or Q) has a longer life cycle? [1]

(b) (i) Insect Q is identified as a butterfly. At which stage is it a pest to farmers? [$\frac{1}{2}$]

(ii) Why is it a pest at the stage in (b)(i)? [1]

29 Study the diagram of a seed as shown below.



(a) Name Part X. [1]

(b) The mass of Part X decreased as the seed germinated into a young plant. Explain why. [1]

(c) Part X was removed after the seed has germinated into a young plant but the young plant continued to grow. Give a reason why this was so. [1]

30 Matthew prepared 4 beakers, A, B, C and D. In each beaker, he placed 3 green beans on a moist cotton wool and placed the beakers in different locations as shown below.

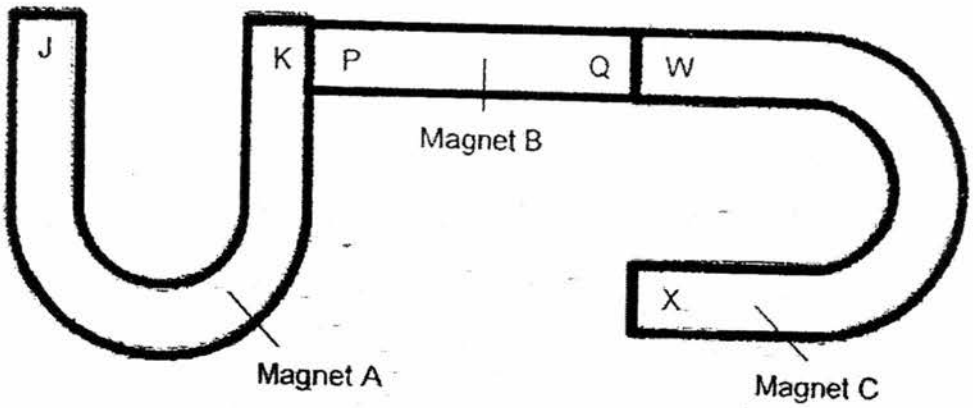
Set-up	A	B	C	D
Location	Well-lit room at 30°C	Well-lit room at 0°C	Dark room at 30°C	Dark room at 0°C

(a) He found that only the seeds in set-ups A and C germinated after a few days. From the experiment, state the <u>three</u> conditions that were needed for the seeds to germinate. [1½]

(b) How many stages are there in the life cycle of a flowering plant? [1]

(c) Matthew set up another beaker, Beaker E, with some moist soil and 3 green beans. He put them next to Beaker A in a well-lit room at 30°C. He found that the plants in Beaker E grew <u>better</u> than the plants in Beaker A. Explain why. [1]

31 The diagram below shows how 3 magnets are attracted to one another.



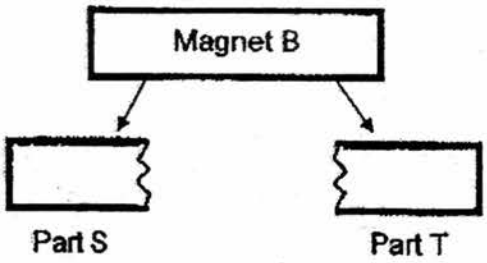
(a) Based on the information above, state whether the following statements is/are 'true' or 'false' by putting a tick (✓) under the correct column in the table below. [1]

	True	False
K repels Q		
P attracts W		

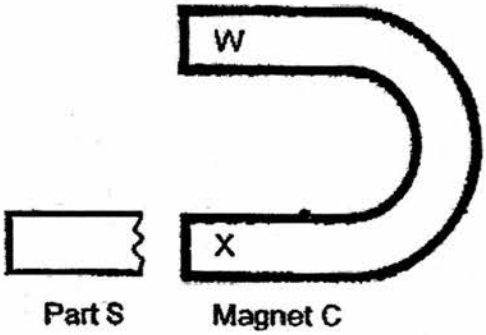
(b) Describe clearly how Magnet B can be used to make an iron nail into a temporary magnet. [2]

Question 31 continues on page 19

(c) Magnet B breaks into two to become Part S and Part T as shown in the diagram below.

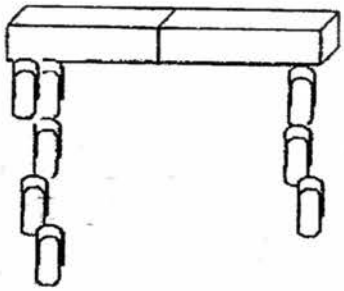


Part S is brought near to Magnet C as shown in the diagram below.



Describe what will be observed. [1]

32 Nathan carried out an experiment using a bar magnet and some paper clips as shown below.



(a) He noticed that most of the paper clips were attracted to some parts of the magnet in the set-up above.
Why were the paper clips attracted to these parts? [1]

_____

_____

(b) He then took the bar magnet and heated it for 10 minutes. After that, he noticed that the magnet was not able to attract any paper clips when he brought it near some paper clips. What could have happened? [1]

_____

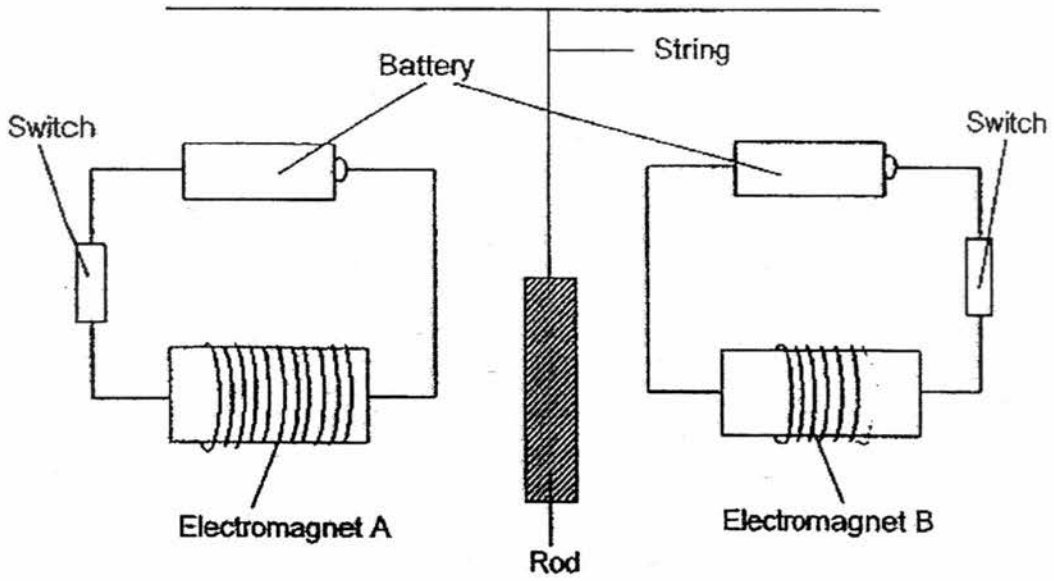
_____

(c) He then put the heated bar magnet in the fridge. After the bar magnet has cooled down, he took the bar magnet and tried to attract the paper clips.
Will he be able to attract any paper clips? Give a reason for your answer. [1]

_____

_____

33 Paul constructs the following using two electromagnets A and B, and a rod.



(a) Explain why the rod moves to Electromagnet A when the switches in the two set-ups are switched on. [2]

(b) State the material to be used for the rod in order for it to move towards Electromagnet A or B. [1]

(c) Suggest what can be done to the set-up of Electromagnet B so that the rod moves to Electromagnet B when both the switches are on. [1]

-- END OF PAPER --

SCHOOL : PEI HWA PRESBYTERIAN PRIMARY SCHOOL

LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2017 SA1

CONTACT :

SECTION A

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

SECTION B

Q23)	a) The lungs and the heart. b) The skeletal system allows us to move our body and support our body.
Q24)	a) {Draw an upward arrow in the stem to show water being transported to the rest of the plant} b) i) leaf blade ii) leaf veins c) The leaf allows gaseous exchange to happen and take in air and sunlight.
Q25)	(a) Waterproof (b) The umbrella is transparent and light can enter (c) i) Strong, ii) When it rains, the strong metal can keep its shape and will not bend or close.
Q26)	(a) i) Pupa ii) adult ii) egg iv) larva (b) Moulting allows the larva to grow and become bigger after coming out of the skin its shed

Q27)	(a) Both the adult chicken and adult cockroach reproduce by laying eggs. (b) Nymph (c) Poison X. It killed the most cockroaches in three days.
Q28)	(a) Insect P (b) i) The larva stage ii) At the larva stage,it eats the farmer's crops and leaves.
Q29)	(a) Seed leaves (b) As the baby plant grew, it used the food in the seed leaves. (c) The young plant had its own leaves and could make its own food.
Q30)	(a) Water, warmth and air (b) Three stages (c) In the soil, there are mineral salts and water but the cotton wool had only water and no mineral salts. Hence, plants in beaker E grew better than plants in Beaker A.
Q31)	(a) K repels Q → True P attracts W → False (b) Keep on stroking the iron nail in Magnet B and keep trying until the paper clip get attracted by the iron nail from a distance. (c) Part S will repel Magnet C at X.
Q32)	(a) A magnet's magnetism is the strongest at its poles. (b) The magnet loss its magnetism after being heated for 100 minutes (c) He will not be able to attract any paper clips. When a magnet has lose its magnetism, the only way to make it a magnet again is to stroke it using another magnet and not cool it down as it uses the stroking method which cannot be a magnet again if he cools it down.
Q33)	(a) Electromagnet A has more coils than electromagnet B causing Electromagnet A to have a stronger magnetic force to get the rod attracted to electromagnet A. (b) Steel (c) Paul can add more batteries or coils to electromagnet B so that the rod will move towards Electromagnet B.