NANYANG PRIMARY SCHOOL

PRIMARY 4 SCIENCE

SEMESTRAL ASSESSMENT 2
2014

BOOKLET A

Date : 29 Oct 2014
Duration : 1 h 45 min

Name : _____ **( )**

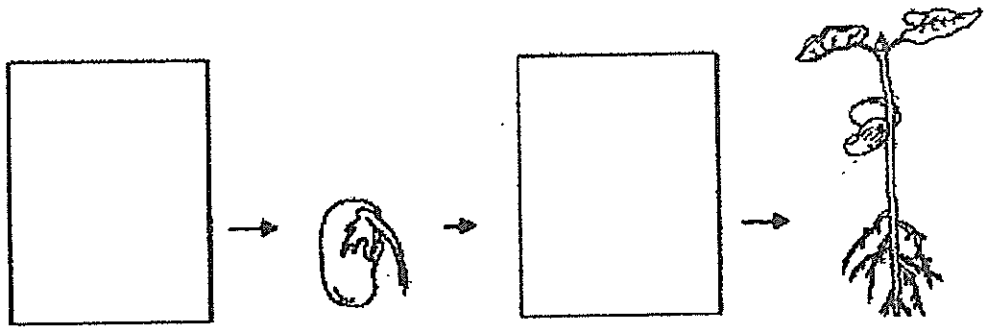
Class: Primary 4 ( )

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

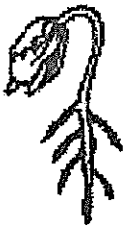
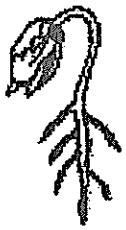
Booklet A consists of 16 printed pages including this cover page.

Section A (30 x 2 marks = 60 marks)
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

1. The diagram below shows the growth of a young plant with two missing stages P and Q.



Which one of the following shows the correct stages for P and Q?

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

2. A snail hides itself in its shell when touched.

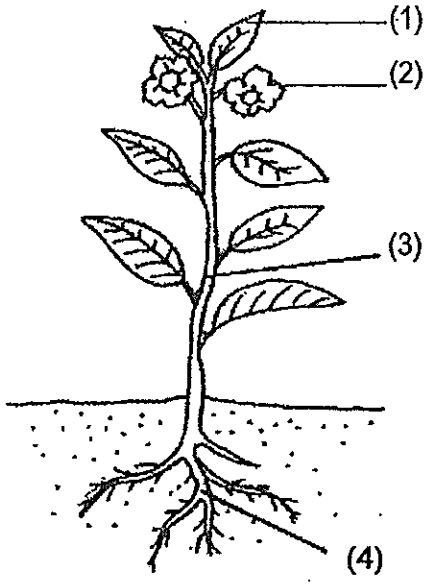
This shows that the snail is a living thing because it can _____.

(1) grow
(2) breathe
(3) respond
(4) reproduce

3. Which one of the following statements is true for **ALL** insects?

(1) They have tails.
(2) They have wings.
(3) They live on land.
(4) They have six legs.

4. The diagram below shows a plant.



Which part, (1), (2), (3) or (4), is the stem?

5. 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)

large intestine stomach small intestine

(3)

stomach small intestine large intestine

(4)

small intestine large intestine stomach

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

(1)

(2)

(3)

(4)

7. Which one of the following is **NOT** a source of heat?

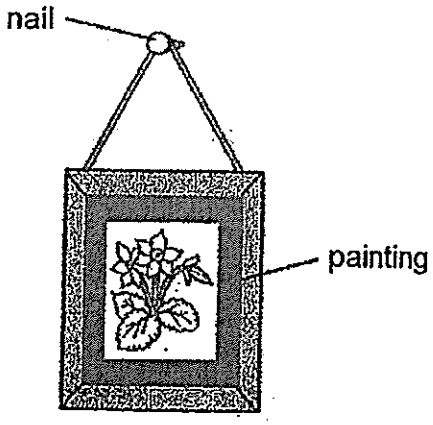
(1) The Sun
(2) A lighted bulb
(3) A woollen cap
(4) A candle flame

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

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

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

9. The diagram shows a painting hanging on a wall.



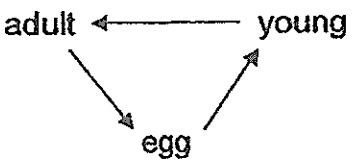
Iron is used to make nails because iron _____.

(1) is shiny
(2) is strong
(3) sinks in water
(4) conducts heat well

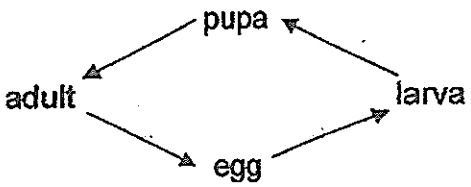
10. Which one of the following can be attracted by a magnet?

(1) steel ball
(2) rubber ball
(3) plastic ball
(4) wooden ball

11. The diagrams below show the stages of life cycles for two different organisms, A and B.



life cycle of organism A



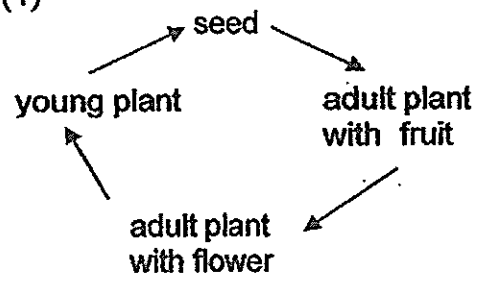
life cycle of organism B

Which of the organisms could represent organisms A and B?

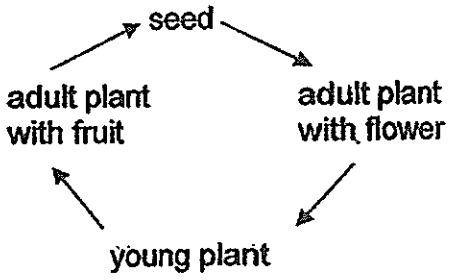
	A	B
(1)	mosquito	grasshopper
(2)	frog	mealworm beetle
(3)	mealworm beetle	mosquito
(4)	grasshopper	frog

12. Which one of the following diagrams correctly shows the life cycle of a tomato plant?

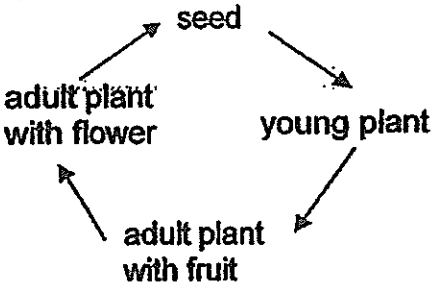
(1)



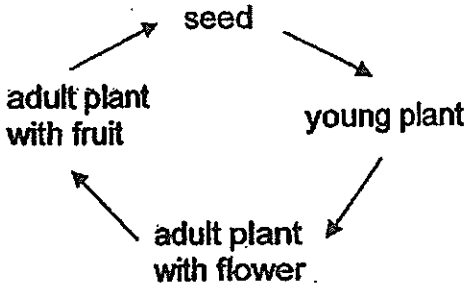
(2)



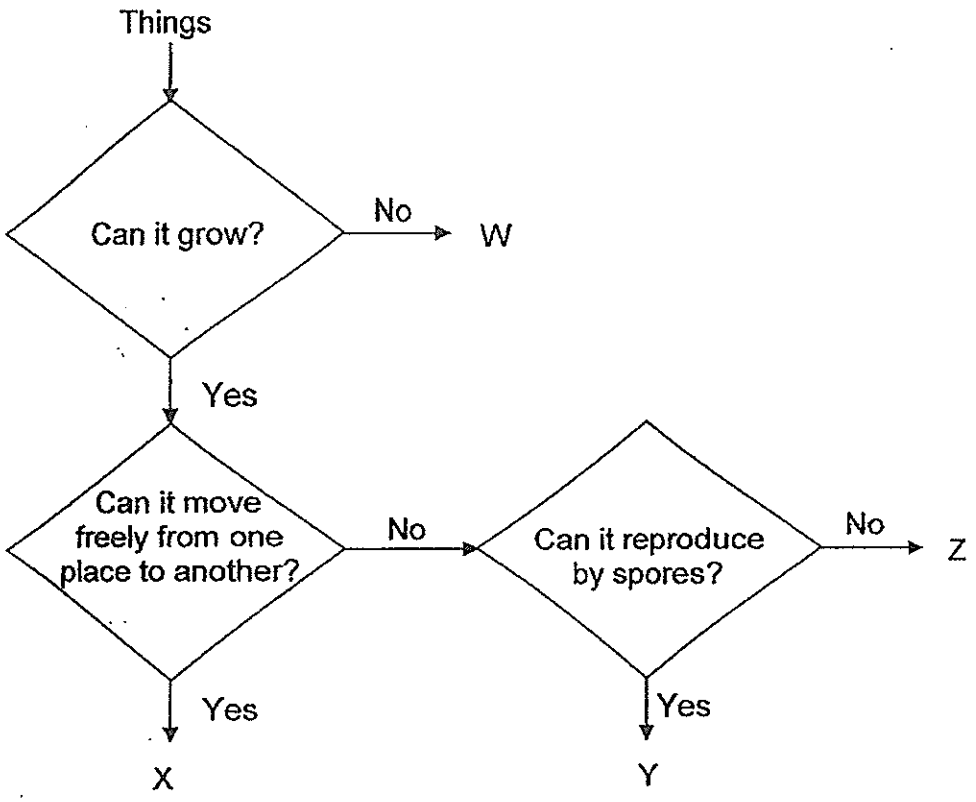
(3)



(4)



13. Study the characteristics of 4 things, W, X, Y and Z as shown in the flowchart below.



Based on the flowchart, which of the following could W, X, Y and Z be?

A Y could be a fern.
B X could be an ant.
C W could be a marble.
D Z could be a mushroom.

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

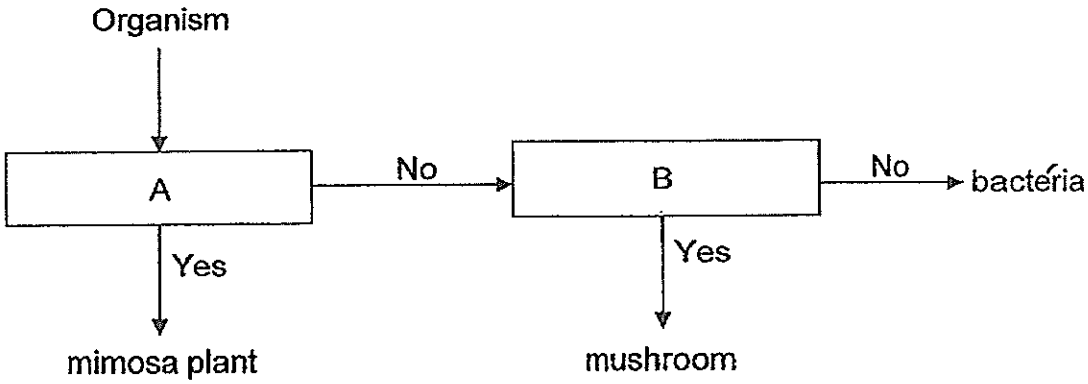
14. Miss Chua described an unknown living thing, X, to her class.

- It makes its own food.
- It can be found on land.
- It does not bear flowers.

Which one of the following fits the description of living thing X?

(1) toadstool
(2) orchid plant
(3) hibiscus plant
(4) bird's nest fern

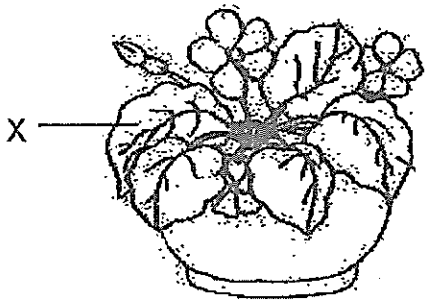
15. Study the flow chart below.



Based on the flowchart, which one of the following set of questions represents A and B **correctly**?

	A	B
(1)	Does it reproduce by spores?	Can it only be seen with our naked eye?
(2)	Does it respond to changes in the surrounding?	Is it always harmful?
(3)	Does it reproduce by spores?	Is it always harmful?
(4)	Does it make its own food?	Can it be seen with our naked eye?

16. The diagram below shows a flowering plant that is well-watered and fertilizer is added to it. A part of it is labelled 'X'.

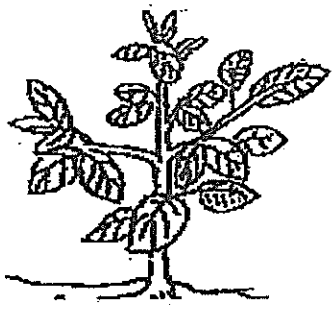


Which of the following **correctly** explain(s) what will happen to the plant after **all** the parts labelled 'X' are completely removed for a month?

A The plant will die as it is not able to make food.
B The plant will die as it is not able to keep itself upright.
C The plant will grow well as it receives air, food and water.
D The plant will grow well as its flowers can attract insects

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

17. The diagram below shows a plant growing in the soil.

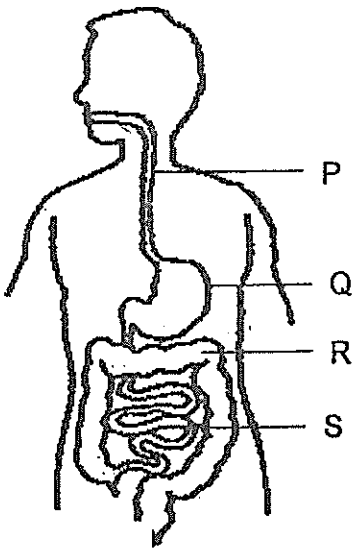


What is the function of the stem in this plant?

A It holds the plant firmly to the ground.
B It holds the plant upright to reach for sunlight.
C It transports food from the leaves to all other parts of the plant.
D It transports water and mineral salts from the roots to all other parts of the plant.

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

18. The diagram below shows the human digestive system.



Which one of the following statements **incorrectly** describes what happens in parts P, Q, R and S?

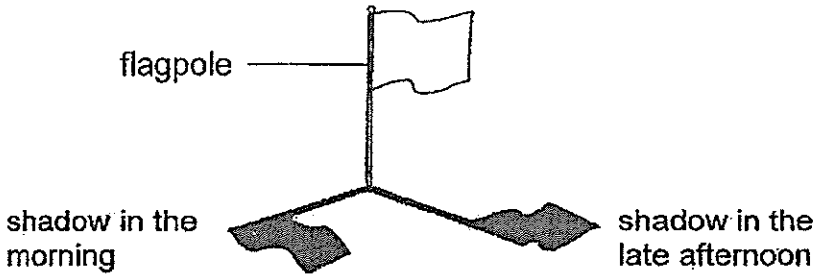
(1) Digestion of food starts at part Q.
(2) Water is removed from the undigested food at part R.
(3) Food is moved down by the movement of muscles at part P.
(4) Digested food is absorbed into the bloodstream at part S.

19. Which of the following statements describe the circulatory system **correctly**?

A It consists only of the blood and blood vessels.
B It does not work with any other organ system in the body.
C It carries digested food and oxygen to all parts of the body.
D It carries waste materials away from different parts of the body.

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

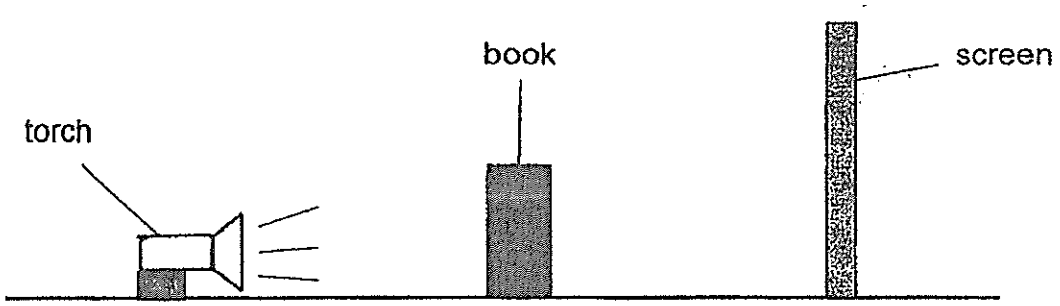
20. Jiaxin observed the shadow of a flagpole in the morning and in the late afternoon. She noticed that the shadow was formed on one side of the flagpole in the morning and another side in the late afternoon, as shown in the diagram below.



Which one of the following statements best explains Jiaxin's observation of the change in the position of the shadow in the morning and late afternoon?

(1) The position of the shadow formed changes with the position of the flagpole.
(2) The position of the shadow formed changes with the position of the Jiaxin.
(3) The position of the shadow formed changes with the position of the sun.
(4) The position of the shadow formed changes with the position of the moon.

21. Ronnie placed the torch, book and screen as shown the diagram below. He switched on the torch and the shadow of the book was cast on the screen.

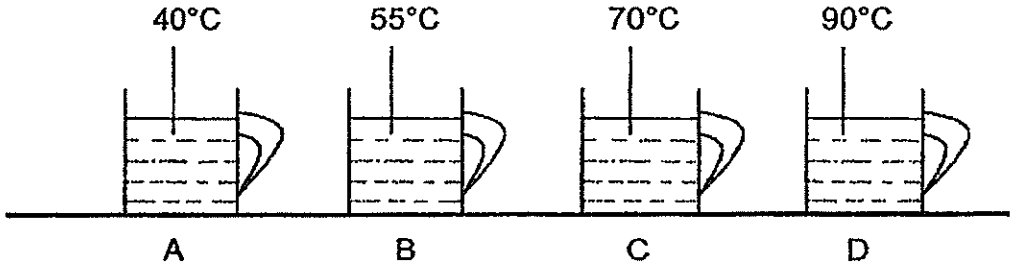


Which of the following changes should Ronnie make if he wants the shadow of the book to appear larger?

A Move the torch nearer to the book.
B Move the book nearer to the screen
C Move the screen farther away from the book.

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

22. Mingli placed four identical mugs of hot tea, A, B, C and D, on a table, as shown below. Each mug contained 300ml of hot tea at different temperatures. The temperature of the room was 28°C.



Which mug of tea will reach room temperature the fastest?

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

23. Ali placed some ice cubes on a metal plate. After 5 minutes, he observed that the ice cubes had melted. He touched the metal plate and it felt cold.

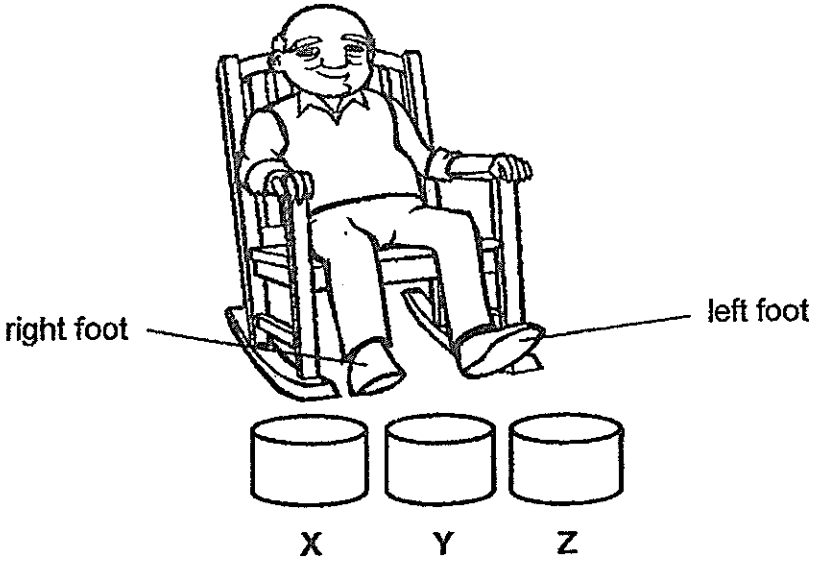
Which of the following statements could explain the change that he observed?

A The metal plate lost heat to the ice cubes.
B The ice cubes lost heat to the surroundings.
C The metal plate gained heat from the ice cubes.
D The ice cubes gained heat from the surroundings.

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

24. Brandon prepared 3 containers of water, X, Y and Z, for Grandpa James to soak his feet in. Grandpa James sat on a chair and put his right foot into container X and his left foot in container Z at the same time. After 1 minute, he lifted both his feet and put them into container Y together.

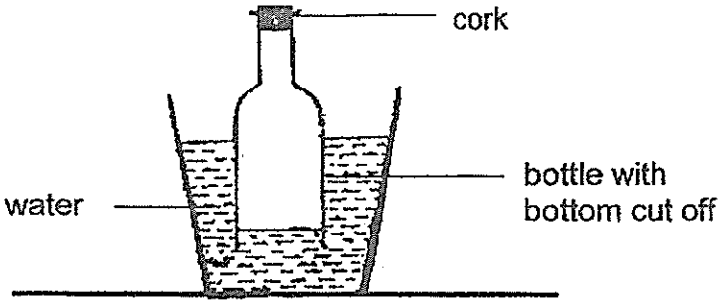
Grandpa James said that his right leg felt cold and his left leg felt warm.



Which one of the following shows the possible temperatures of the water in containers X, Y and Z?

	Temperature of water (°C)		
	Container X	**Container Y**	**Container Z**
(1)	5	25	50
(2)	50	5	5
(3)	25	50	25
(4)	50	25	5

25. Yufan cut off the bottom of an empty plastic bottle and lowered it into a container of water as shown in the diagram below.

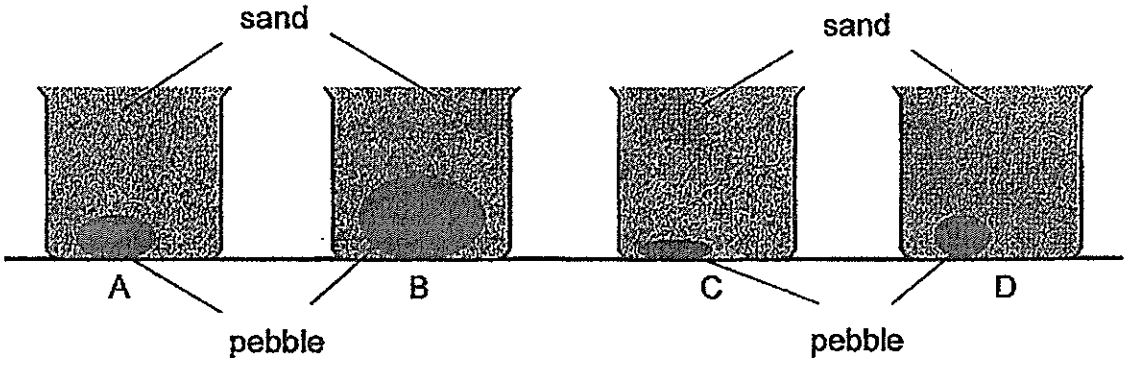


What will happen when Yufan removed the cork from the bottle opening?

A Air will escape from the bottle.
B The water level inside the bottle will rise.
C The water level outside the bottle will rise.

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

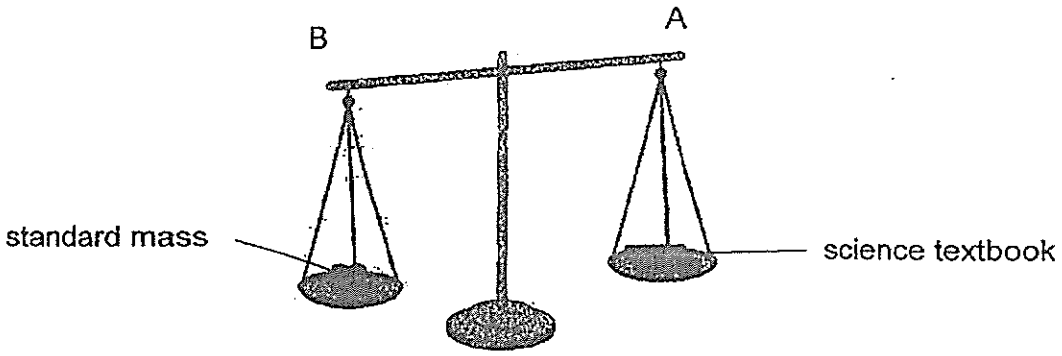
26. Sam placed pebbles of different volume into each of the beakers as shown below. Then, he poured sand into each beaker till the sand reached the brim of the beakers.



Which beaker has the least amount of sand in it?

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

27. Molly used a lever balance and some standard mass to find out the mass of her science textbook.



Molly recorded her observations when she added each standard mass to the lever balance, in the table below.

Standard mass (g)	Direction in which the lever balance tilts towards
10	A
30	A
50	A
100	B
150	B

Based on the table above, what is the most likely mass of the science textbook?

(1) 25 grams
(2) 50 grams
(3) 90 grams
(4) 120 grams

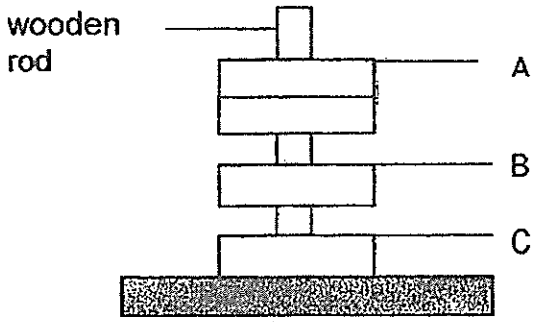
28. The table below shows the properties of three different types of metal, A, B and C.

Metal	Strength	Flexibility
A	low	high
B	high	low
C	high	high

Based on the information in the table, which of the following types of metals are suitable for making the three objects below?

	Steel Key	Copper wire	Aluminium foil
(1)	A	C	B
(2)	B	A	C
(3)	B	C	A
(4)	C	B	A

29. The diagram below shows a wooden rod placed through 4 ring magnets. Three of the faces of the magnets are labelled.

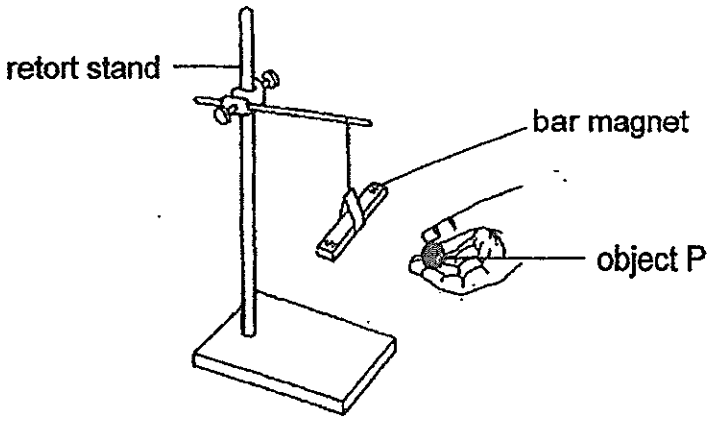


Which one of the following shows the **correct** poles for the faces of the ring magnets?

	A	B	C
(1)	north	north	south
(2)	north	south	south
(3)	south	south	south
(4)	south	north	south

30. A bar magnet of strong magnetic force was hung from a retort stand as shown in the diagram below. This set-up was placed in an enclosed room without any wind.

An object, P, was then brought close to the magnet without touching it. The magnet moved towards object P when it was brought nearer.



Based on the observed results, which of the following could object P be?

A steel coin
B copper coin
C button magnet
D aluminium ball

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

NANYANG PRIMARY SCHOOL

PRIMARY 4 SCIENCE

SEMESTRAL ASSESSMENT 2
2014

BOOKLET B

Date : 29 Oct 2014
Duration : 1 h 45 min

Name : _____ ( )

Class: Primary 4 ( )

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Any query on marks awarded should be raised by _____. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

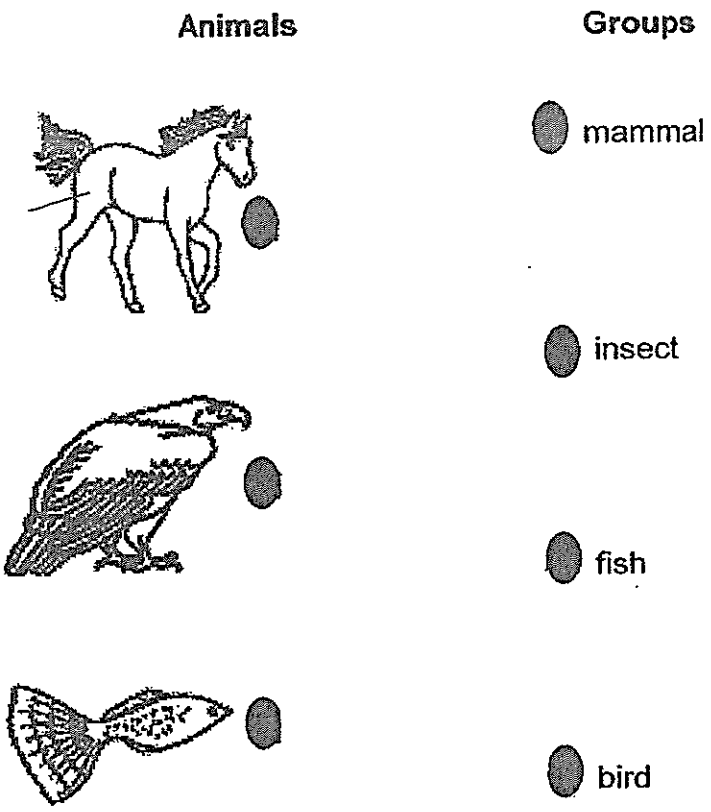
Parent's signature: .....

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

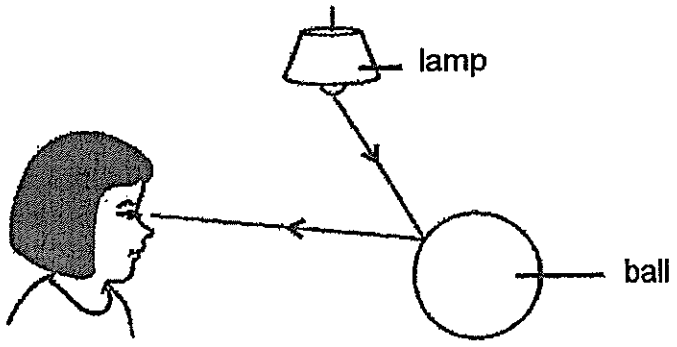
Booklet B consists of 13 printed pages including this cover page.

Section B (40 marks)
Write your answers to questions 31 to 44 in the spaces provided.

31. Draw lines to match the following animals to the correct groups. [3]

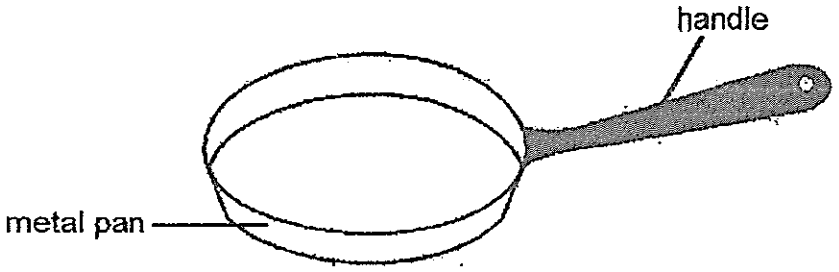


32. The diagram below shows how Mary sees the ball.
Fill in the blank to correctly complete the sentence below.



The _____ from the lamp is _____ by the ball and enters Mary's eye. [2]

33. The diagram below shows a frying pan.



(a) The handle is made of plastic because it is a _____conductor of heat. [1]

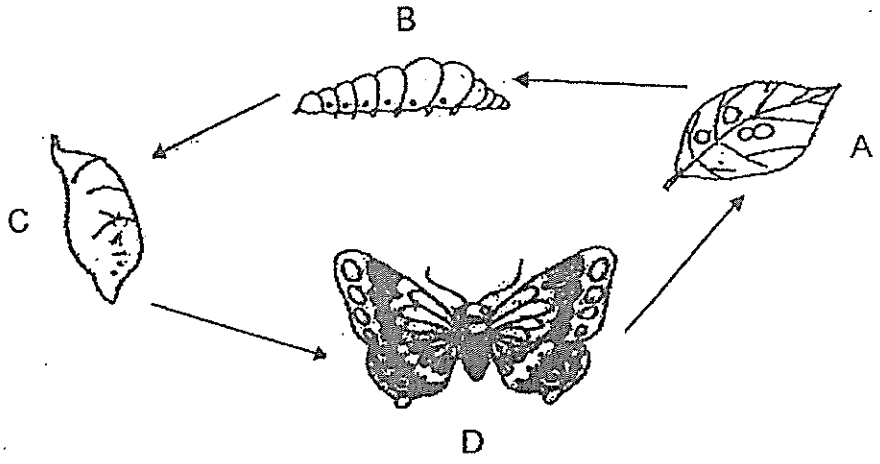
(b) The pan is made of metal because it is a _____ conductor of heat. [1]

34. Classify the following into matter and non-matter. [3]

Air	Sand	Shadow

Matter	Non-matter

35. The diagram below shows the different stages of the life cycle of a butterfly.



(a) Name **stages** B and C. [1]

(i) Stage B: _____

(ii) Stage C: _____

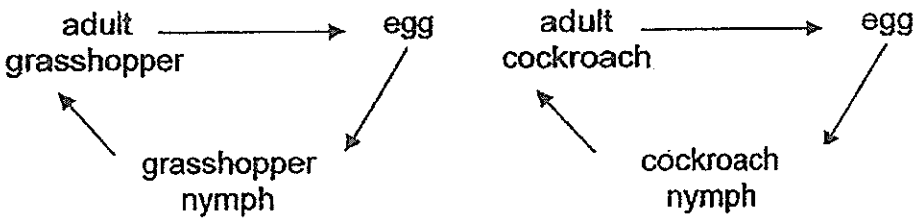
(b) At which stage of the butterfly's life cycle is it considered a pest? Give a reason for your answer. [1]

_____

_____

36. Betty compared the life cycles of the grasshopper and the cockroach and recorded the following similarities:

- Both life cycles go through the nymph stage
- Both life cycles go through the adult stage



(a) Write down two <u>other</u> similarities in their life cycles. [2]

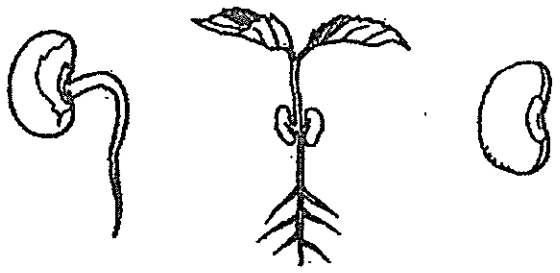
(i) _____

_____

(ii) _____

_____

(b) The diagrams below show 3 different stages of the growth of a green bean seed. The diagrams have not been arranged in the correct order.



A B C

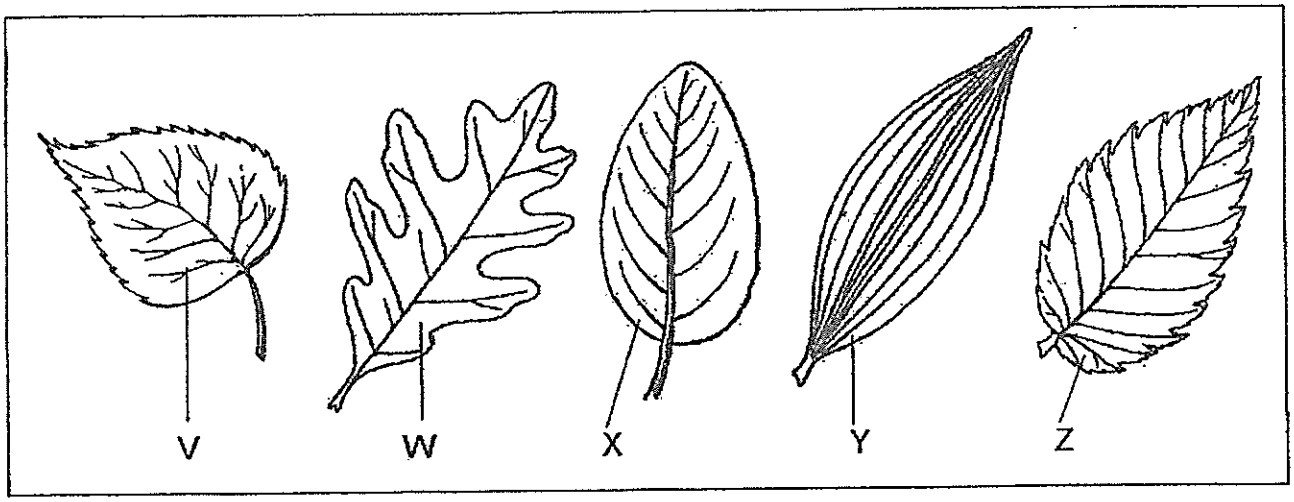
(i) At which stage(s) would the seed require sunlight to grow? [1]

(ii) List two conditions which are needed for the seeds to start growing into young plants. [1]

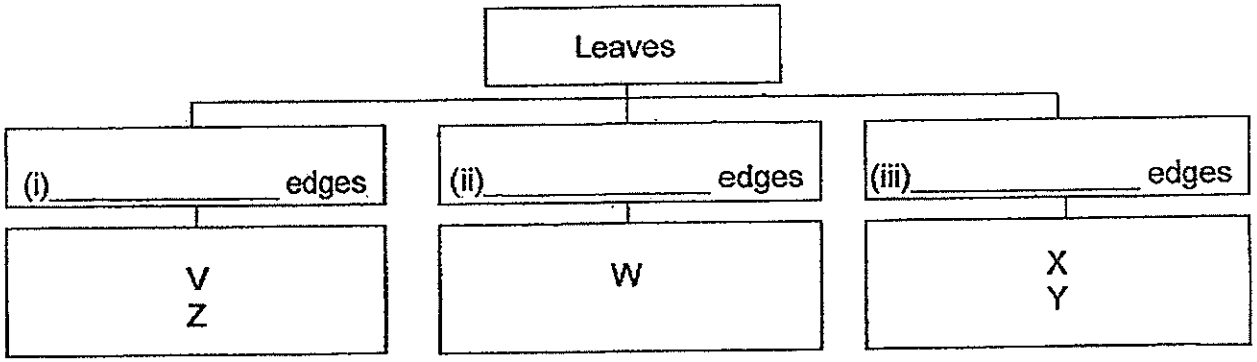
Condition 1: _____

Condition 2: _____

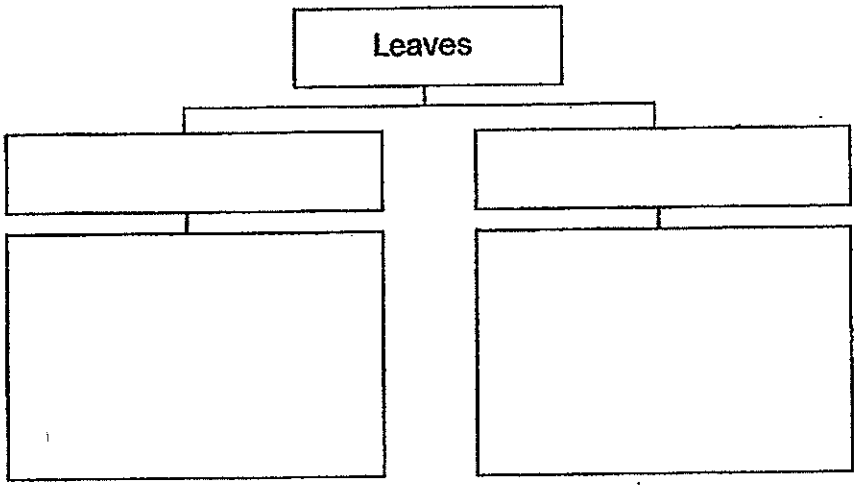
37. The diagram below shows 5 leaves, V, W, X, Y and Z.



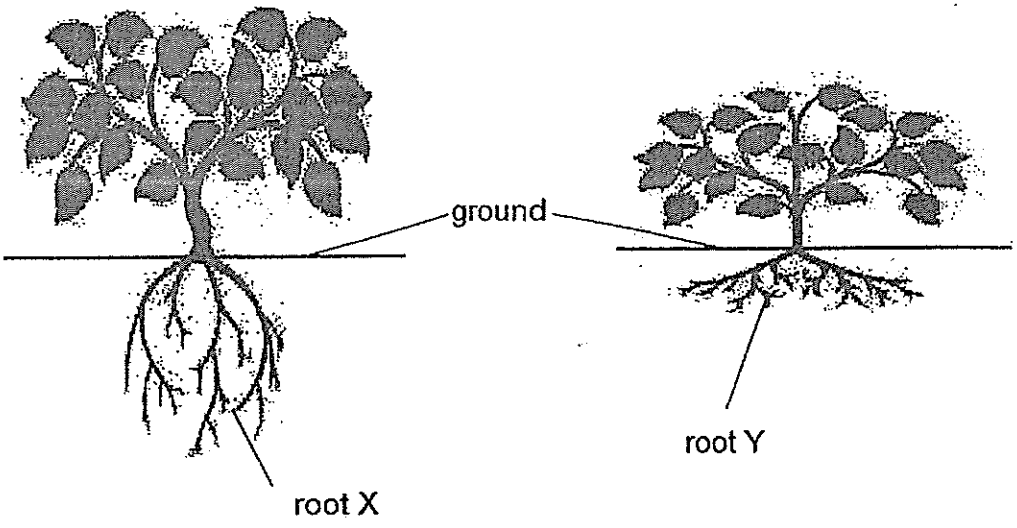
(a) In the chart below, the leaves have been classified according to their edges. Fill in the boxes with the correct headings. [1]



(b) Use **another** characteristic based on the diagram of the leaves to classify the five leaves into two groups. [2]



38. Plants A and B were planted in the same type of soil.
During a thunderstorm, plant A was uprooted but plant B remained upright. The diagrams below show the roots of the two plants.



(a) Based on the information given, which type of root, X or Y, would plant A most likely have? Explain your answer. [1]

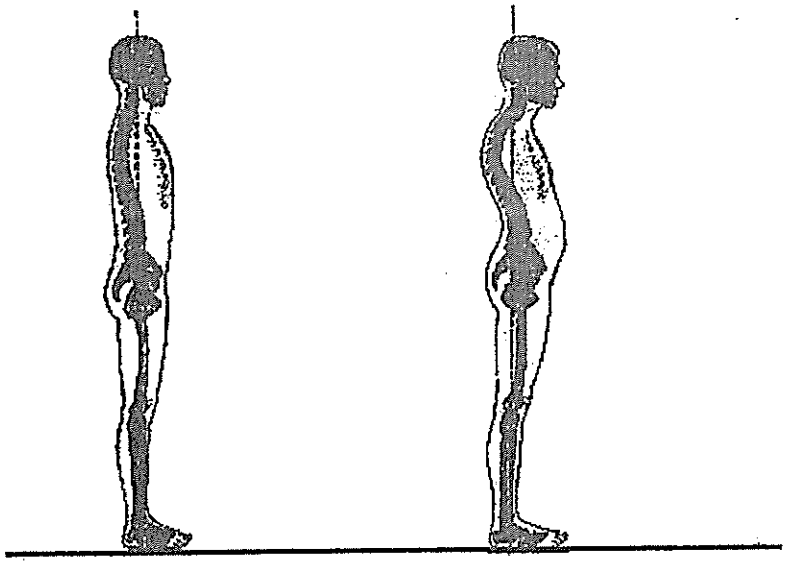
_____

_____

(b) Other than holding the plant firmly to the ground, state one function of roots. [1]

_____

39. A person who is suffering from a hunchback condition has a back that is bent as shown in the diagram below.



(a) What is the main organ system that is affected when a person has a hunchback? [1]

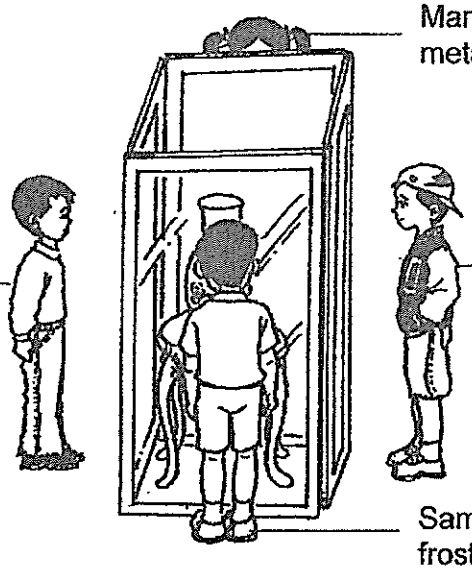
_____

(b) State a function of the system mentioned in (a). [1]

_____

_____

40. Four students visited a museum. They were standing in front of a display case with a huge antique vase inside. Each student was facing one side of the display case. Each side of the display case is made of a different material.



(a)(i) Who would not be able to see the antique vase inside the display case? Explain why. [1]

_____

_____

(a)(ii) Who would be able to see the antique vase inside the display case most clearly? Explain why. [1]

_____

_____

(b)(i) The traffic policeman has to wear a special jacket at night to ensure that the drivers are able to see him. The special jacket is made of a material which looks bright at night when light falls on it.

Which property of light enables this special jacket to work well? [1]

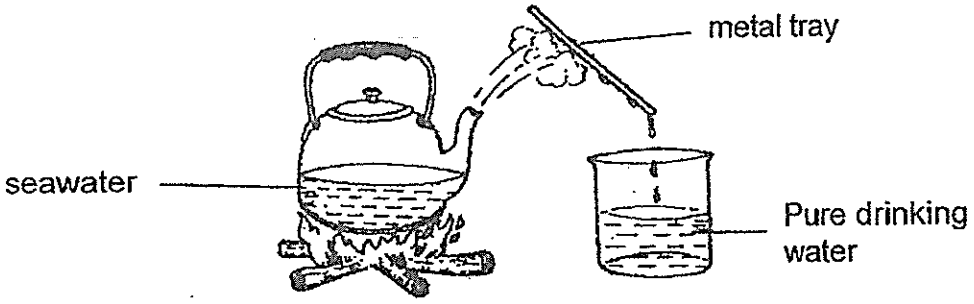
_____

(b)(ii) Name two man-made sources of light. [1]

1) _____

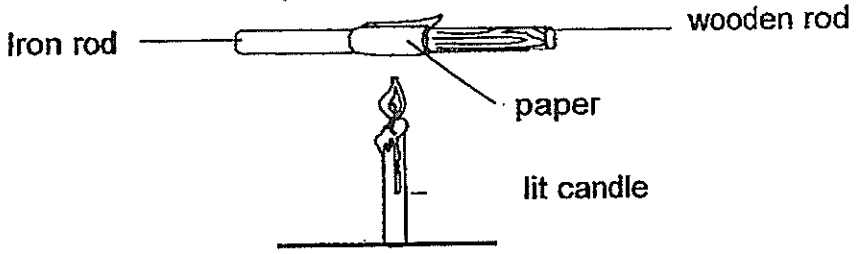
2) _____

41. Merryanne conducted an experiment to obtain drinking water from seawater. She collected some seawater in a kettle and heated it over a fire. Once the seawater started to boil, she held a metal tray over the steam. Pure drinking water was collected in the beaker as shown in the diagram below.



(a) State, in terms of heat gain or heat loss, what happened to the **seawater** when it was boiled and pure water was collected in the beaker [2]

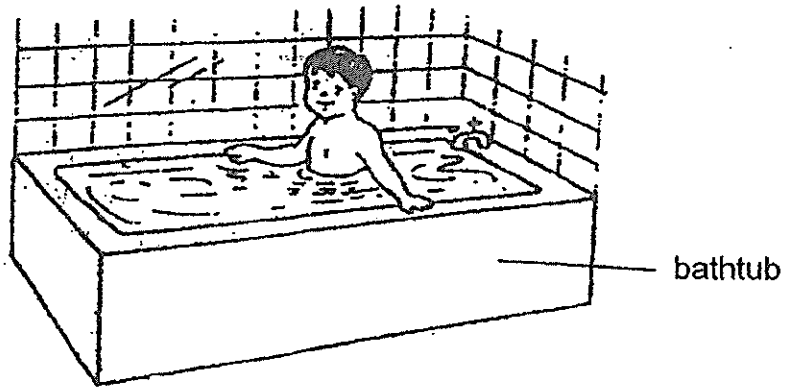
Merryanne found a broken iron rod and a wooden rod. She joined the two rods together and wrapped a piece of paper tightly over the section where the two rods were joined as shown in the diagram below.



She held the two rods 5 cm above a lit candle and heated the joint for a few seconds. Merryanne observed that the section of the paper around the iron rod showed no visible change while the section of paper around the wooden rod was slightly burnt.

(b) Explain why the section of the paper around the iron rod showed no visible change but the one around the wooden rod was slightly burnt. [2]

42. Ernest filled his bathtub with some water. When he got into the bathtub, he observed that the water 'evel in the bathtub changed.



(a) What observation did Ernest make about the water level in the bathtub after he got into it? [1]

_____

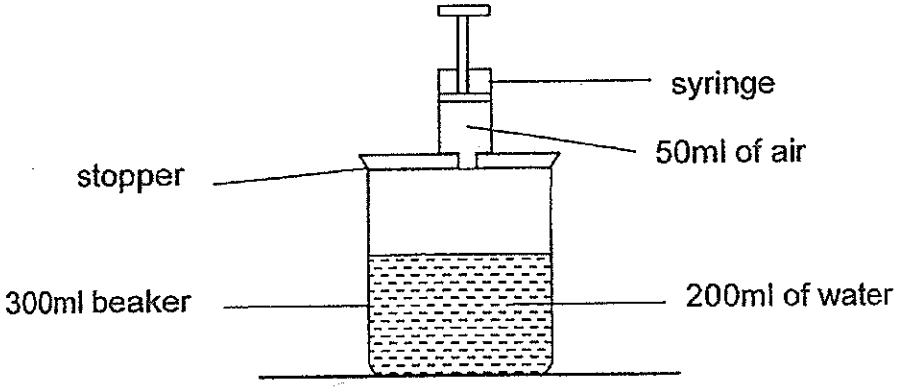
_____

(b) Explain Ernest's observation in (a) above. [1]

_____

_____

43. Ah Seng filled a 300ml beaker with 200ml of water. Then, he attached a 50ml syringe full of air to the beaker as shown in the diagram below.

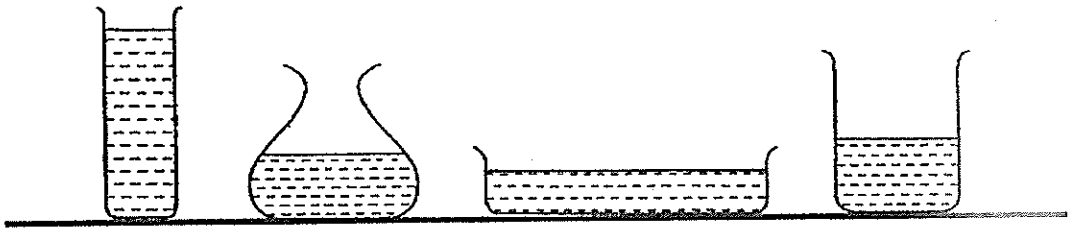


Ah Seng pushed the plunger of the syringe such that all the air in the syringe is pumped into the beaker.

(a)(i) What is the final volume of air in the beaker? [1]

(a)(ii) Explain your answer in (i) [1]

Ah Seng observed that when he poured the same amount of water into different containers, the water would take the shape of the containers as shown in the diagrams below.

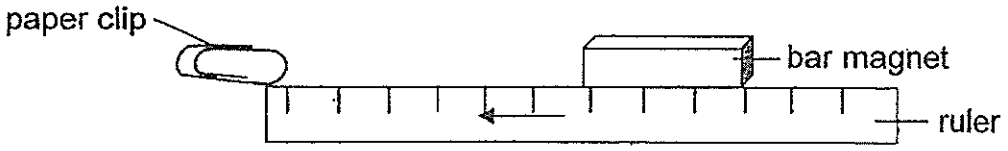


(b) Explain why the water is able to take the shape of the containers it is poured into. [1]

44. Gwyneth carried out an experiment to compare the magnetic strength of two similar bar magnets, X and Y.

She placed a paper clip along a ruler. Then she brought magnet X nearer to the paper clip until the paper clip was attracted to the magnet.
She measured the distance from which the paper clip was attracted and recorded it in the table below. She repeated the experiment two more times.

She then repeated the whole experiment with magnet Y.



After conducting the experiment, Gwyneth concluded that magnet X has a greater magnetic strength than magnet Y.

(a) Based on Gwyneth's conclusion, **complete the table below** with a possible reading that she had obtained for magnet Y. [1]

Magnet	Average distance from which the paper clip was attracted (cm)
X	5
Y	(a) _____

Gwyneth had two unknown objects, P and Q. She replaced the paper clip with the unknown object, P.

(b) Magnet X attracted object P from a distance of 3 cm. What could be the reason for the difference in result? [1]

_____

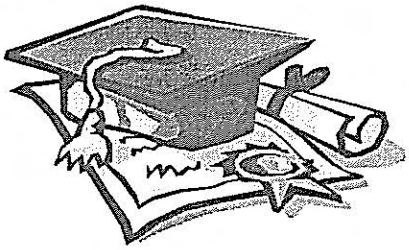
_____

(c) Then Gwyneth brought Magnet X near to the unknown object Q and found that object Q moved away from magnet X.
What could object Q be? Explain your answer. [2]

_____

_____

/// The End \\\



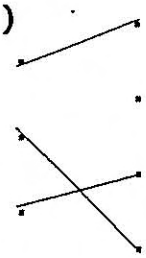
ANSWER SHEET

EXAM PAPER 2014
SCHOOL : NANYANG
PRIMARY : P4
SUBJECT : SCIENCE
TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
4	3	4	3	3	2	3	4	2	1	2	4	3	4	4	1	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	4	3	2	1	3	4	1	2	3	3	4	2

31)



32)light , reflected

33)a)poor
b)good

34)

matter	Non-matter
Air	shadow
Sand	

35)a)i)larva ii)pupa

b)Stage B. At stage B of the butterfly's life cycle, it eats a lot of leaves, resulting in the leaves of the plant decreasing and causing the remaining leaves of the not able to make sufficient food plant for the plant.

36)a)i)Both the adult grasshopper and the adult cockroach reproduce by laying eggs.

ii)Both the young of the grasshopper and cockroach looks like the adult.

b)i)Stage B.

ii)1)air. 2)warmth.

37)a)i)jagged ii)lobed iii)entire

b)

network veins	Parallel veins
V	Y
W	
X	
Z	

38)a)Root Y. Root Y is at the surface of the soil, which is easier to be pulled out. Root X is deeper into the soil, thus plant A is likely to be Root Y.

b)Roots help to absorb water and mineral salt from the soil for the plant.

39)a)Skeletal system.

b)It helps to protect the organs in our body.

40)a)i)Mart. Mary stood in front of a metal screen and metal is opaque. Thus, no light could pass through the metal screen and Mary would not be able to see the huge antique vase.

ii)Hashim. Hashim stood in front of a clear glass screen and glass is transparent. Thus, it allows all the light to pass through and Hashim could see the huge antique vase most clearly.

b)i)Light can be reflected.

ii)1)torch light. ii)headlight of a car.

41)a)The seawater gains heat and changes into steam. It then loses heat to the metal plate and changes into water.

b)The iron was a good conductor of heat while the wooden rod was a poor conductor of heat. Thus, when the wrapped paper piece was heated, the section of paper around the iron conducted the heat away faster preventing the being burnt. The wooden rod was a poker conductor of heat then the iron rod. Hence, the wooden rod could not conduct away the heat as fast as the iron rod, causing the section of paper around the iron rod to be slightly burnt.

42)a)The water level in the bathtub increased.

b)Ernest has a definite volume. Thus, when he enters the bathtub, he will displace the water as no two matter can take up the same space at the same time. Thus, causing the water level in the bathtub to rise.

43)a)i)100ml.

ii)Air can be compressed. When 50ml of air was pumped into the beaker the volume of the air still remained the same as some air was compressed.

b)Water does not have a definite shape.

44)a)3.

b)Object P is heavier than the paperclip.

c)Object Q was a magnet. Only magnets can repel each other. He likes poles of object Q and magnet X were facing each other, thus causing them to repel.