RAFFLES GIRLS' PRIMARY SCHOOL
SEMESTRAL ASSESSMENT (2)
2014

Section A	⟋ 50
Section B	⟋ 40
Your score out of 90	
Parent's signature	

Name : _____ Index No: ____ Class: P4 ____

20 October 2014   SCIENCE   Att: 1 h 30 min

SECTION A (25 x 2 marks)
For each question from 1 to 25, 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 (OAS) provided.

1. Which one of the following statements is true for all insects?

   (1) They have tails.
   (2) They have wings.
   (3) They live on land.
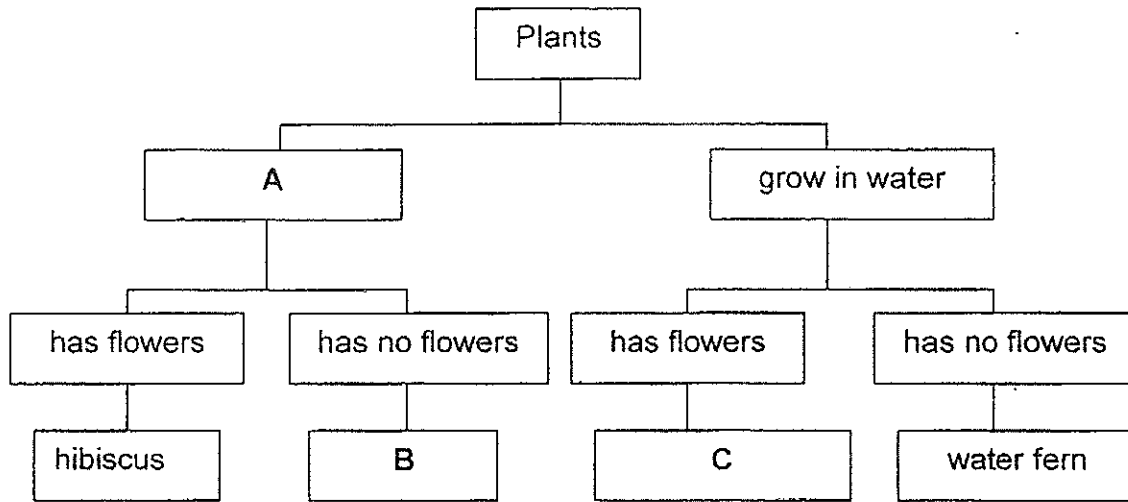   (4) They have 6 legs.

2. A tortoise hides in its shell when touched or when faced with danger.
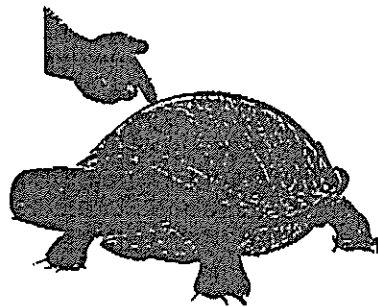
Based on the information above, which one of the following statements shows that the tortoise is a living thing?

   (1) It grows.
   (2) It reproduces.
   (3) It responds to changes.
   (4) It needs food, water and air to survive.

3. The classification chart below shows how plants can be classified.

```
                          ┌──────────┐
                          │  Plants  │
                          └────┬─────┘
              ┌────────────────┴────────────────┐
        ┌─────┴─────┐                    ┌───────┴──────┐
        │     A     │                    │ grow in water │
        └─────┬─────┘                    └───────┬──────┘
        ┌─────┴─────┐                    ┌───────┴──────┐
   ┌────┴─────┐ ┌───┴────────┐    ┌──────┴────┐ ┌───────┴──────┐
   │has flowers│ │has no flowers│   │has flowers│ │has no flowers│
   └────┬─────┘ └───┬────────┘    └──────┬────┘ └───────┬──────┘
   ┌────┴─────┐ ┌───┴────┐        ┌──────┴────┐ ┌───────┴──────┐
   │ hibiscus │ │   B    │        │     C     │ │  water fern  │
   └──────────┘ └────────┘        └───────────┘ └──────────────┘
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Based on the information above, which one of the following best identifies boxes A, B and C?

	A	B	C
(1)	green plants	rose	bird's nest fern
(2)	green plants	mushroom	bird's nest fern
(3)	grow on land	mushroom	water lily
(4)	grow on land	bird's nest fern	water lily

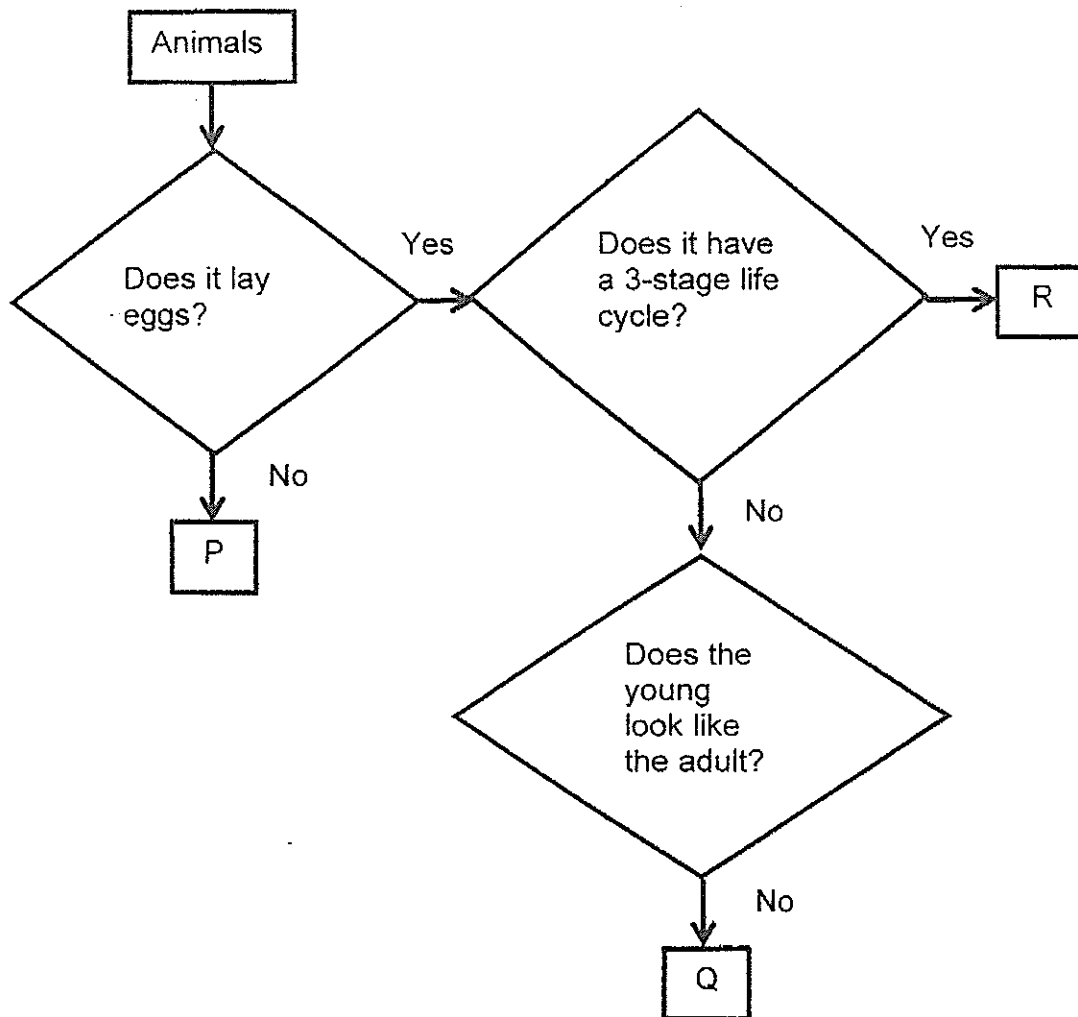4. The diagram below shows the different stages in the life cycle of an animal.
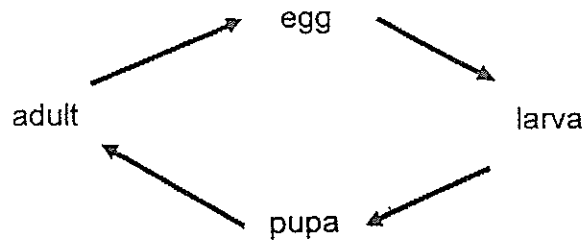
Which of the following animals go through the above life cycle?

A   butterfly
B   chicken
C   mosquito
D   cockroach

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

5. The flow chart shows how animals P, Q and R, are grouped.

Based on the information given above, which one of the following best represents animals P, Q and R?
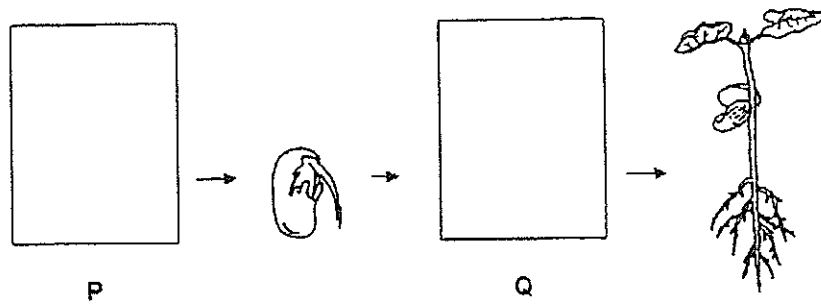
	P	Q	R
(1)	tiger	mosquito	cockroach
(2)	tiger	cockroach	mosquito
(3)	chicken	cockroach	mosquito
(4)	chicken	mosquito	cockroach

6. At which stages does the plant need sunlight to make food?

A Seed
B Young plant
C Adult plant

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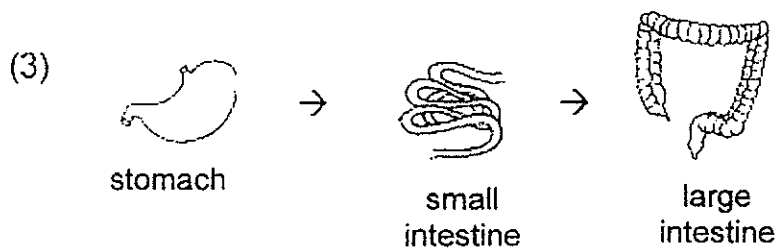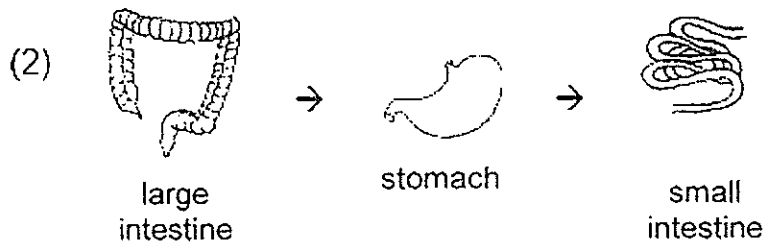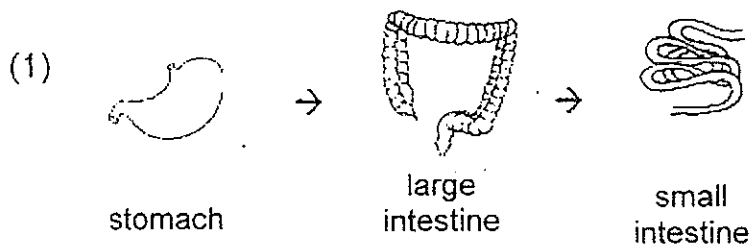(3) B and C only
(4) A, B and C

7. The diagram below shows the growth of a young plant with two of its missing stages in boxes P and Q.

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

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

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8. Which one of the following set of diagrams shows the correct order in which food moves from one part of the digestive system to another?

(1)

stomach → large intestine → small intestine

(2)

large intestine → stomach → small intestine

(3)

stomach → small intestine → large intestine

(4)

small intestine → large intestine → stomach
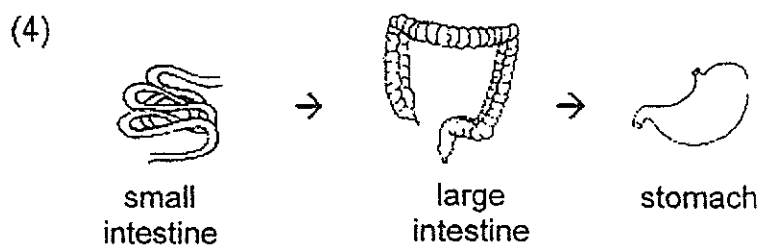
9. The graph below shows the amount of undigested food of type X, Y and Z when it first enters each organ.
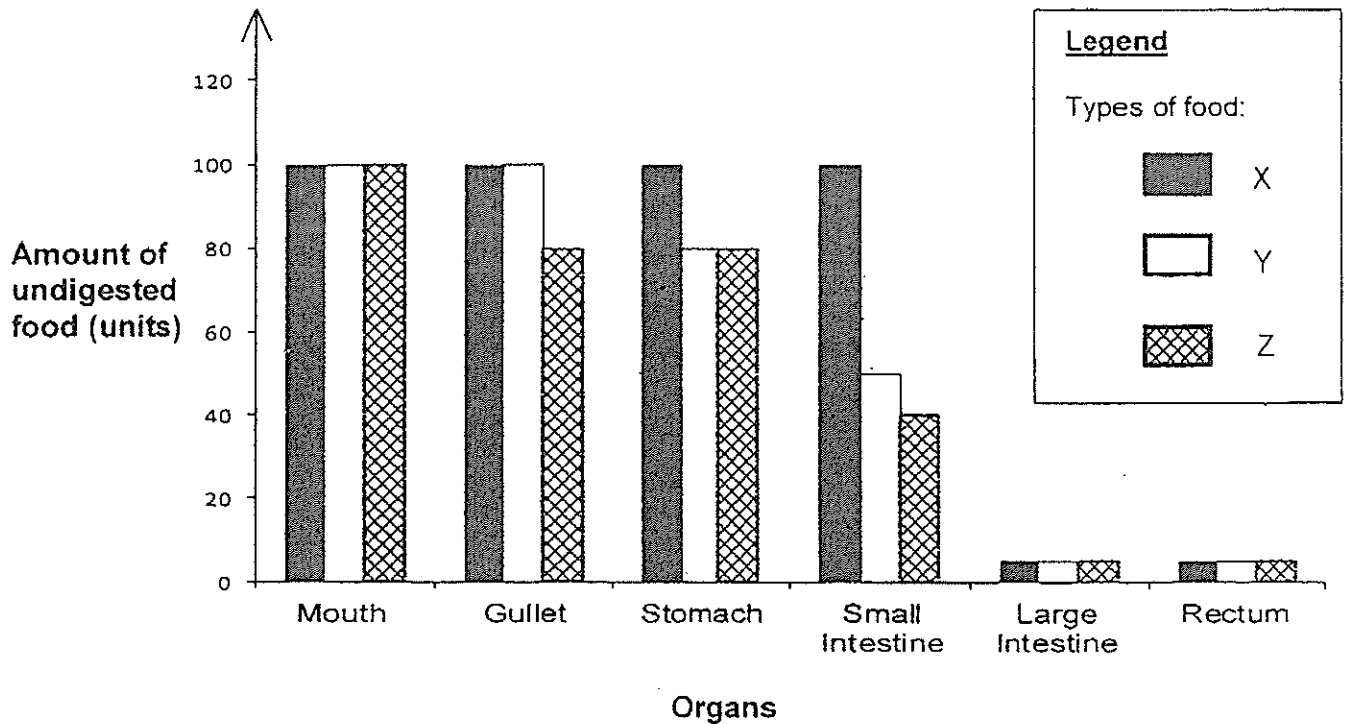
Based on the information above, which one of the following about the process of digestion for the three types of food, X, Y and Z, is true?

(1) The digestion of all the three types of food, X, Y and Z, starts from the mouth

(2) The digestion process is still ongoing at the large intestine for food types Y and Z.

(3) The digestive juices in the stomach can digest all three types of food, X, Y and Z.

(4) The digestive juices in the small intestine can digest all three types of food, X, Y and Z.

10. Mr Tan placed a plant without its roots in a beaker of red-coloured water. After 3 days, he observed that some parts of its leaves and white flowers had turned red.
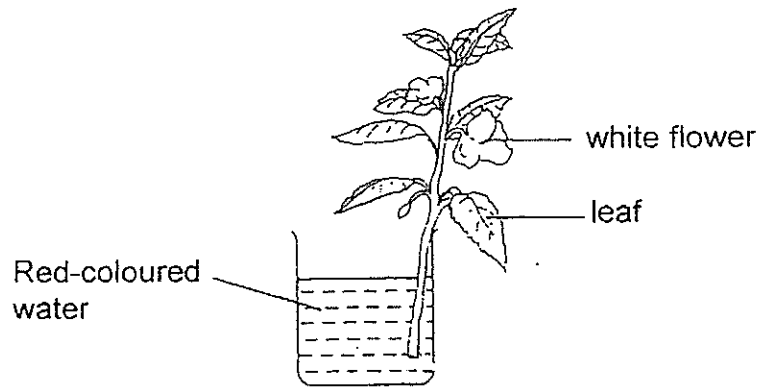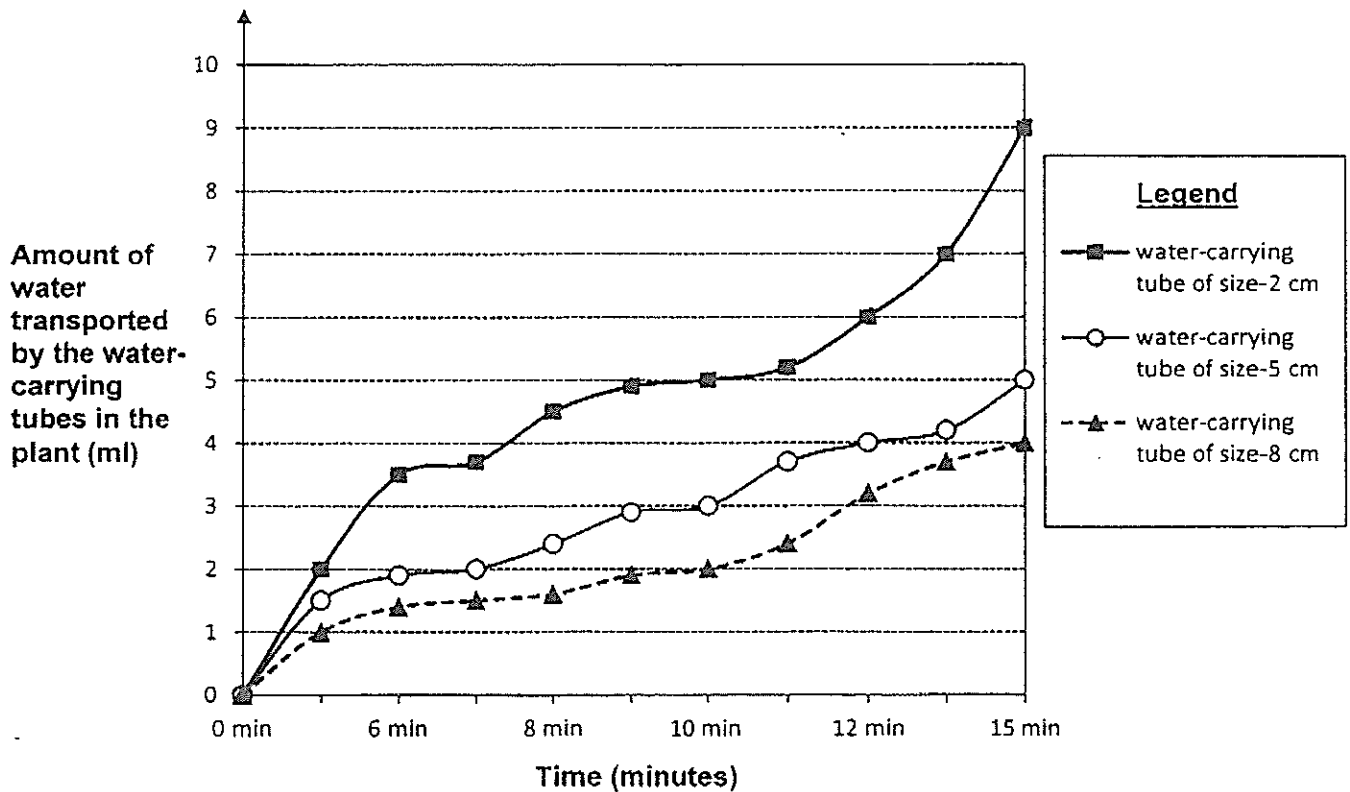

Based on the information above, which one of the following statements best explain Mr Tan's observation?

(1) Water is taken in by the flower and leaves.

(2) Food is taken in by the flower and leaves.

(3) Water is transported through the water-carrying tubes in the stem to all plant parts.

(4) Food is transported through the food-carrying tubes in the stem to all plant parts

11. Mrs Seto carried out an experiment to find out how the size of the water-carrying tubes in the plant affects the amount of water transported by the plant within a period of 15 minutes. She recorded her results as shown in the graph below.

Based on the information above, which one of the following statements about Mrs Seto's experiment is true?

(1)   As the size of the water-carrying tube in the plant increases, the amount of water transported by the water-carrying tubes increases within a period of 15 minutes

(2)   As the size of the water-carrying tube in the plant increases, the amount of water transported by the water-carrying tubes decreases within a oeriod of 15 minutes

(3)   The ~ze of the water-carrying tube of the plant does not affect the amount of water transported by the water-carrying tubes within a period of 15 minwater transported by the water-carrying tubes within a period of 15 minutes

(4)   When the size ~ the amount of ~e water-carrying tube of the plant is 5 cm and above, minutes is 5 ml.   ˙ transported by the water-carrying tubes at 15

F

f 36

12. The diagram below shows an electrical iron with a metal base.

metal base
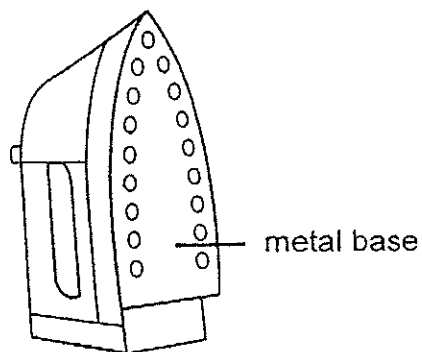
electrical iron

Which of the following properties should the base of the electrical iron possess?

A   It is strong.
B   It is flexible
C   It is a good conductor of heat.
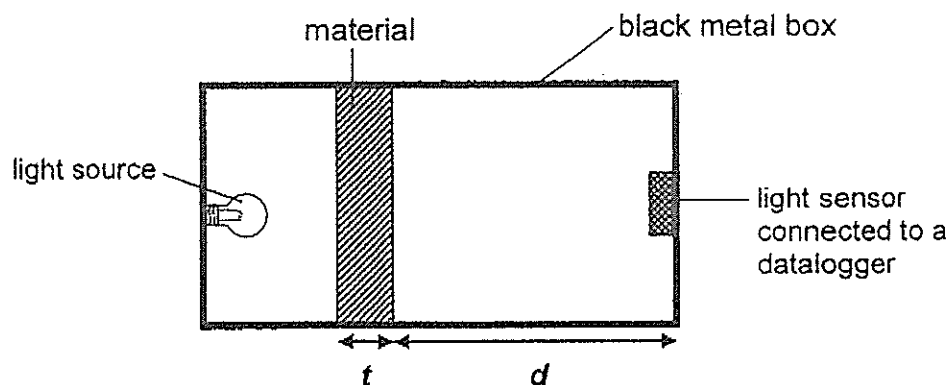D   It allows light to pass through it.

(1)   A only

(2)   B and D only

(3)   A and C only

(4)   B, C and D only

13. John prepared a set-up to find out which material, X or Y, blocks out more light.

He placed each material, one at a time, in a black metal box as shown in the diagram below.

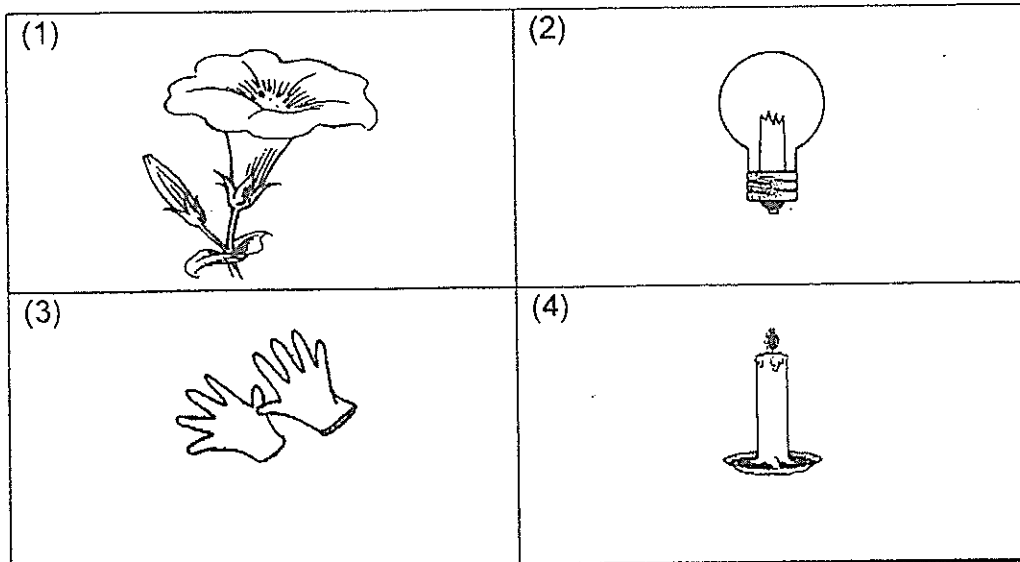John recorded his results in the table below.

Set-up	material	t (cm)	d (cm)
1	X	2	15
2	X	4	15
3	Y	2	12
4	Y	4	8
5	Y	4	15

Which of these set-ups would allow John to conduct a fair test for his experiment?

(1) 1 and 3 only

(2) 2 and 4 only

(3) 1 and 5 only

(4) 2 and 5 only

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14. The table below describes three different states of matter, X, Y and Z.

Property	X	Y	Z
has a fixed shape	no	yes	no
has a fixed volume	no	yes	yes

Based on the information above, which one of the following is correct?

	X	Y	Z
(1)	gas	solid	liquid
(2)	gas	liquid	solid
(3)	liquid	solid	gas
(4)	liquid	gas	solid

15. Muthu prepared 4 set-ups, P, Q, R and S, using identical 400-cm³ containers. One of the set-ups is shown in the diagram below.

← air pumped in

— 400-cm³ container

— 150 cm³ of oil

The container each contained different amount of oil as shown in the table below.

Set-up	Amount of oil in container (cm³)
P	150
Q	400
R	300
S	250

300 cm³ of air was pumped into each container.

In which set-up(s) was air compressed in the container(s)?

(1)   P and S only

(2)   P, R and S only

(3)   Q, R and S only

(4)   P, Q, R and S

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

17. A carpenter wanted to build a classroom door. Part S of the door enabled people outside the classroom to see the pupils in the classroom clearly.
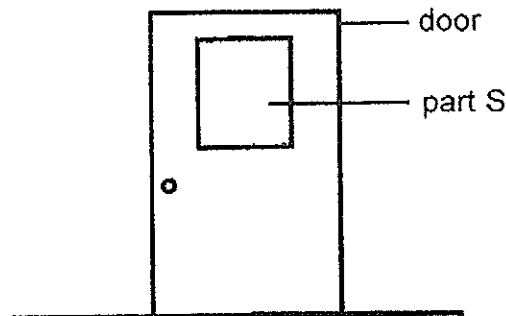
Which one of the following best identifies the type of material use to make part S and its property?

	material	property of material
(1)	wood	allows some light to pass through it
(2)	clear glass	does not allow light to pass through it
(3)	clear glass	allows most light to pass through it
(4)	frosted glass	allows most light to pass through it

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18. The line graph below shows how the length of Deana's shadow changed over a period of 6 minutes as she was walking in a straight line towards and away from a street lamp at night.

A, B, C and D are different points on the line graph.

Length of shadow (m)
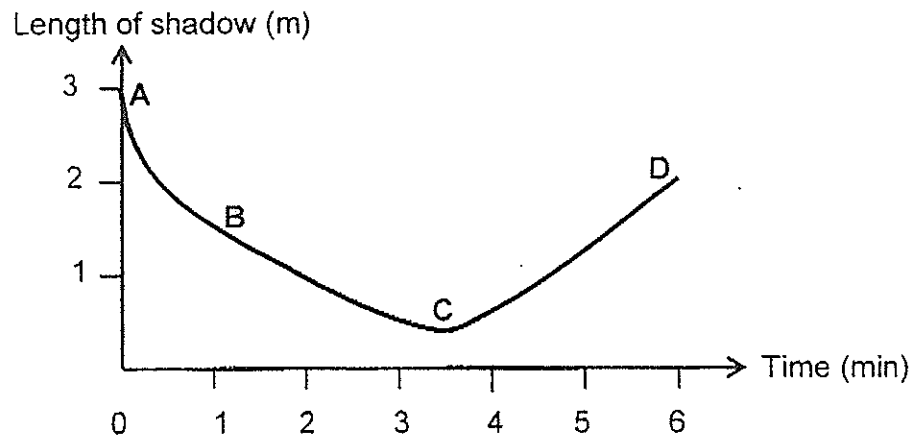
Which parts of the graph show that Deana was walking towards and away from a street lamp?

	walking towards street lamp	walking away from street lamp
(1)	point A to B	point B to C
(2)	point B to C	point C to D
(3)	point C to D	point A to B
(4)	point C to D	point B to C

19. Susie placed an ice cube in a cup of hot tea as shown below.
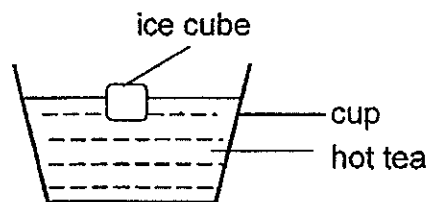
Which one of the following statements is true?

(1) The cup lost heat to the hot tea.

(2) The ice cube lost heat to the cup.

(3) The ice cube lost heat to the hot tea.

(4) The hot tea lost heat to the cup and ice cube.

20. Ravi placed a test tube containing 50 cm³ of water at 80 °C into a beaker of 100 cm³ of water at 20 °C.
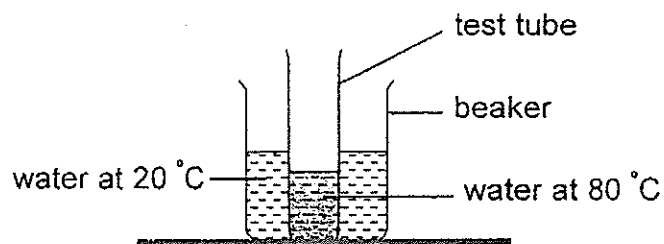
What would happen to the temperature of the water in both test tube and beaker after 5 minutes?

	temperature of water in the test tube	temperature of water in the beaker
(1)	increase	increase
(2)	increase	decrease
(3)	decrease	decrease
(4)	decrease	increase

21. Steven placed an egg of similar size in identical saucepans with an equal amount of water at the same temperature. Identical lids were used to cover the saucepans.
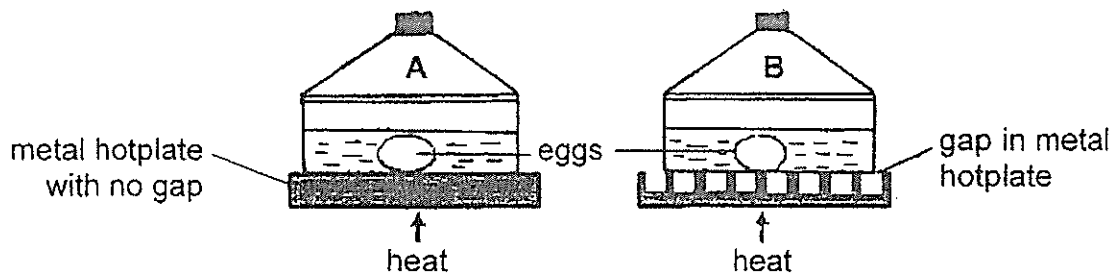

After a while, Steven found out that one egg cooked more quickly than the other though the same amount of heat was provided to boil the water.

Which one of the following provides the correct explanation for the egg which cooked first?

	egg which cooked first	explanation
(1)	in saucepan A	There was less surface area of contact between the metal hotplate and saucepan. Water gained heat slower from the hotplate. .
(2)	in saucepan A	There was more surface area of contact between the metal hotplate and saucepan. Water gained heat faster from the hotplate.
(3)	in saucepan B	There was less contact surface area between the metal hotplate and saucepan. Water gained heat slower from the hotplate.
(4)	in saucepan B	There was more surface contact between the metal hotplate and saucepan. Water gained heat faster from the hotplate.

22. In which one of the following will the two magnets push each other away?
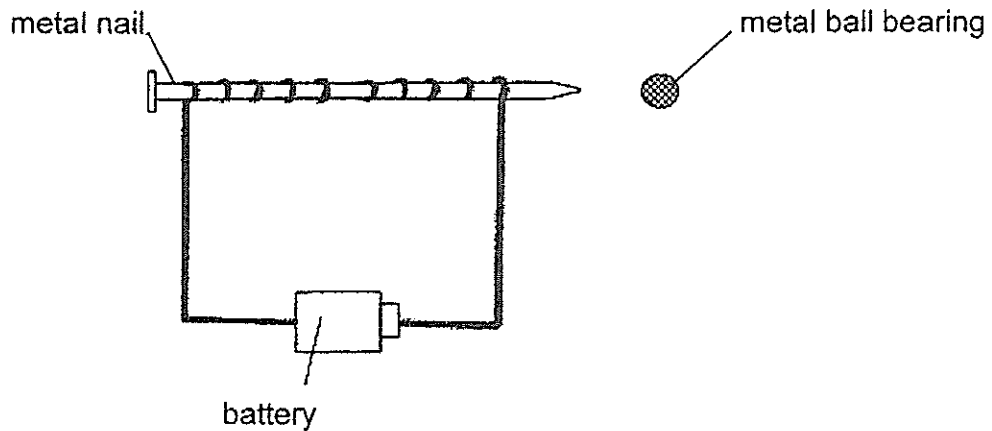
(1)

N	S	N	S

(2)

S
N

N	S

(3)

S	S
N	N

(4)

N	S

S
N
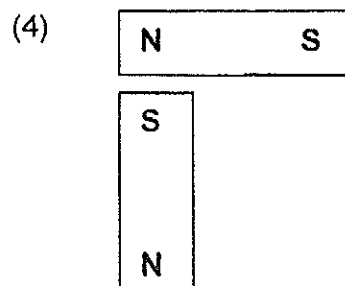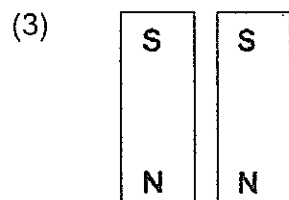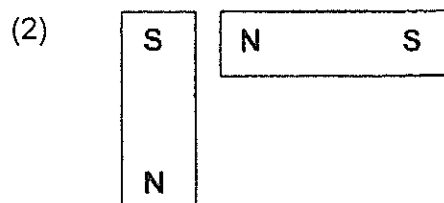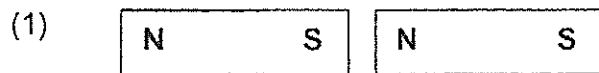
23. Which one of the following can be attracted by a magnet?

(1) plastic ball   (2) rubber ball

(3) steel ball   (4) wooden ball

24. Muthu used a wire and coiled it around a metal nail.
Both ends of the wire were connected to a battery.

Next, Muthu brought a metal ball bearing near to coiled nail as shown in the diagram below.

Muthu observed that the metal ball bearing was not attracted to the nail.

Which of the following could possibly explain Muthu's observations?

A   The nail was made of copper. ·

B   The nail was made of a magnetic metal.

C   The metal ball bearing was made of aluminum.

D   The metal ball bearing was made of a magnetic material.

(1)   A and C only   (2)   A and D only

(3) . B and C only   ... ·   (4)   C and D only

25. Yanglin wanted to compare the magnetic strength of four bar magnets, W, X, Y and Z of the same size.

She hung bar magnet W 10 cm above the plastic tray of iron nails. The rest of the bar magnets were hung at different distance above the plastic tray of iron nails as shown in the diagram below.
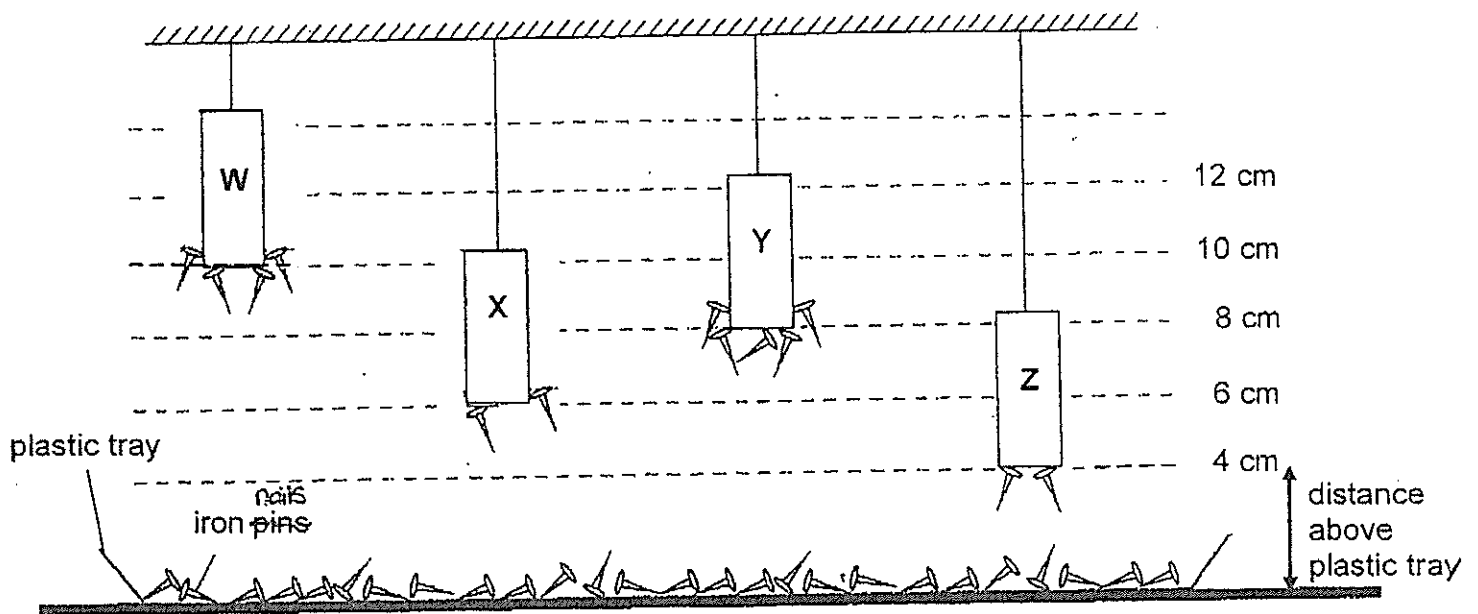
Based on information above, Yanglin could not conclude that magnet Y had a stronger magnetic strength than magnet W.

What should Yanglin do so that she could find out which magnet, W or Y, had a greater magnetic strength?

(1) raise magnet Y to 10 cm above the plastic tray

(2) raise magnet W to 12 cm above the plastic tray

(3) lower magnet W to 8 cm above the plastic tray

(4) lower magnet W to 6 cm above the plastic tray

End of Section A

SECTION B (40 marks)

For questions 26 to 39, write your answers clearly in the spaces provided.
The number of marks available is shown in the brackets [ ] at the end of each question or part question.

26. Haris observed and classified some things that are shown in the table below.

things	
X	**Y**
ant	table
tiger	stone
mushroom	pencil

Based on the information above, answer the following questions:

(a) Write a suitable set of sub-headings for X and Y.   [2]

(i) X :

(ii) Y :

Haris re-grouped the things in group X.

(b) Fill the table below with the things from group X.   [1]

mammal	insect	fungi

27. Yasmin carried out an experiment to find out if the temperature of the soil affects the germination of seeds Z.
She recorded her observations in the graph below.
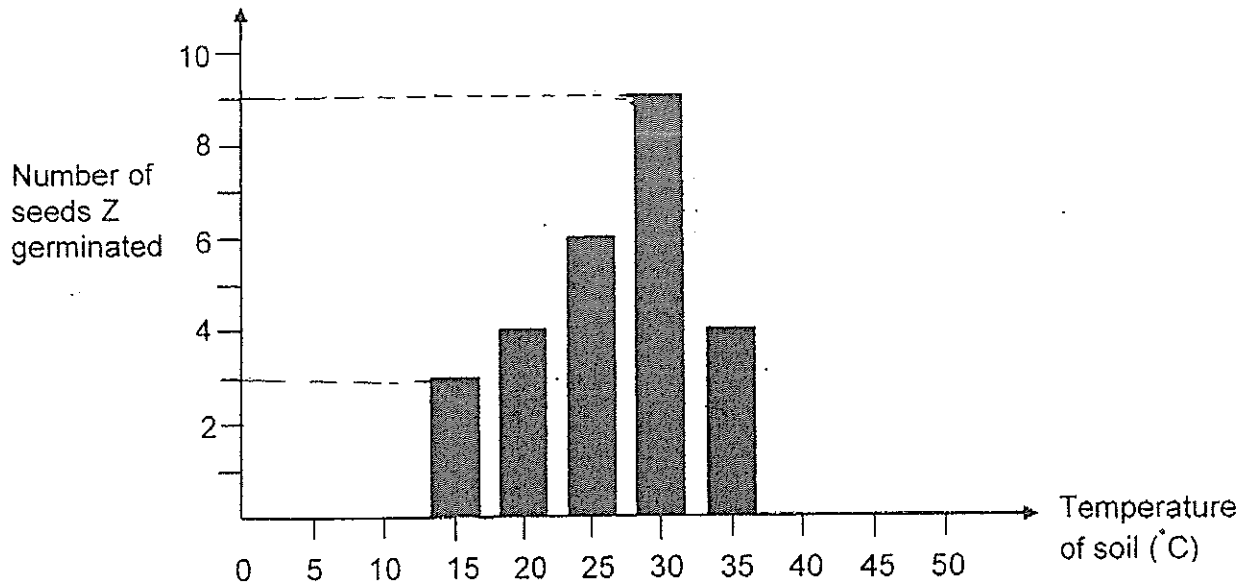
Based on the information above, answer the following questions:

The table below shows the temperature ranges of soil.

(a) How did the temperature of soil affect the number of seeds Z germinated? [2]

(i)	from 15 °C to 30 °C	
(ii)	40 °C and above	

(b) State the temperature of the soil which was best suited for seeds Z to germinate. [1]

_____

(c) Other than warmth, state two more conditions needed for seeds to germinate. [1]

28. The diagram below shows the human digestive system.
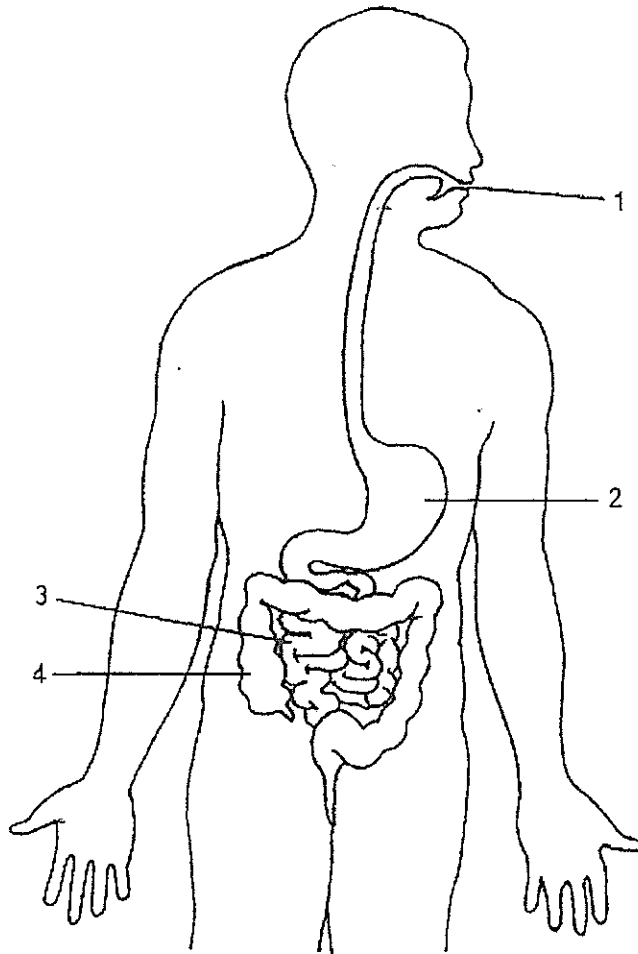
Based on the diagram above, fill in each blank with the correct number: 1, 2, 3 and/ or 4. [2]

(a) Digestion begins at _____

(b) There is no digestion at _____

Score | 2

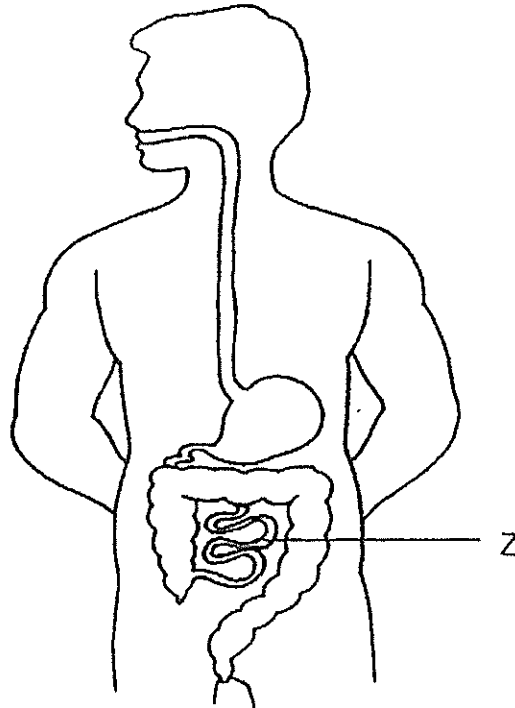29. (a) Classify the following body parts in the chart below. [1]

| blood vessels | lungs | bone | small intestine |

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                    ┌──────────────┐
                    │ body systems │
                    └──────┬───────┘
          ┌────────────────┼────────────────┐
   ┌──────┴─────┐   ┌───────┴────┐   ┌───────┴────┐
   │  System A  │   │  System B  │   │  System C  │
   └──────┬─────┘   └───────┬────┘   └───────┬────┘
      Examples          Examples          Examples
   ┌────────────┐   ┌────────────┐   ┌────────────┐
   │    nose    │   │    skull   │   │    heart   │
   ├────────────┤   ├────────────┤   ├────────────┤
   │  (i)       │   │  (ii)      │   │  (iii)     │
   └────────────┘   └────────────┘   └────────────┘
```

(b) Name system A. [1]

_____

Score   2

The diagram below shows a labelled part, Z, of the human digestive system.

Based on the table and diagram above, answer the following question:

(c)   Which system, A, B or C, in question (a), works with organ Z so that
        digested food is carried to all parts of the body?   [1]

        System _____

Score   /   1

30. The diagram below shows two plants.

plant A   plant B

leaves

stems
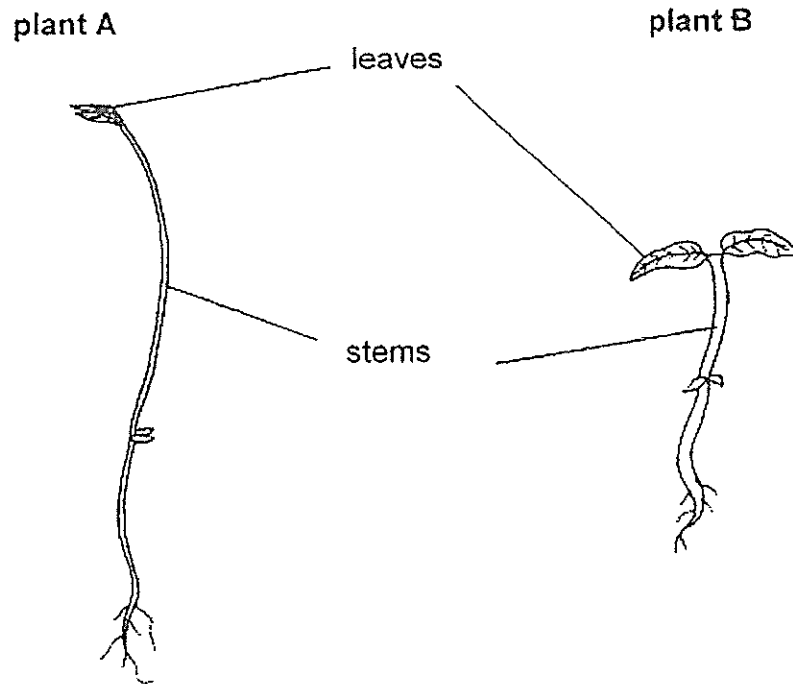
(a) Based on the diagram above, answer the following questions:

(i) What is one difference between the stem of plant A and the stem of plant B? [1]

The stem of plant A is _____ than the stem of plant B.

(ii) The leaves help both plants make _____ in the light. [1]

continue on the next page

Score   2

Pauline removed a 1-cm ring from a branch as shown in the diagrams below. Figure A showed the magnified view of the branch.

branch with a 1-cm ring removed

magnified view
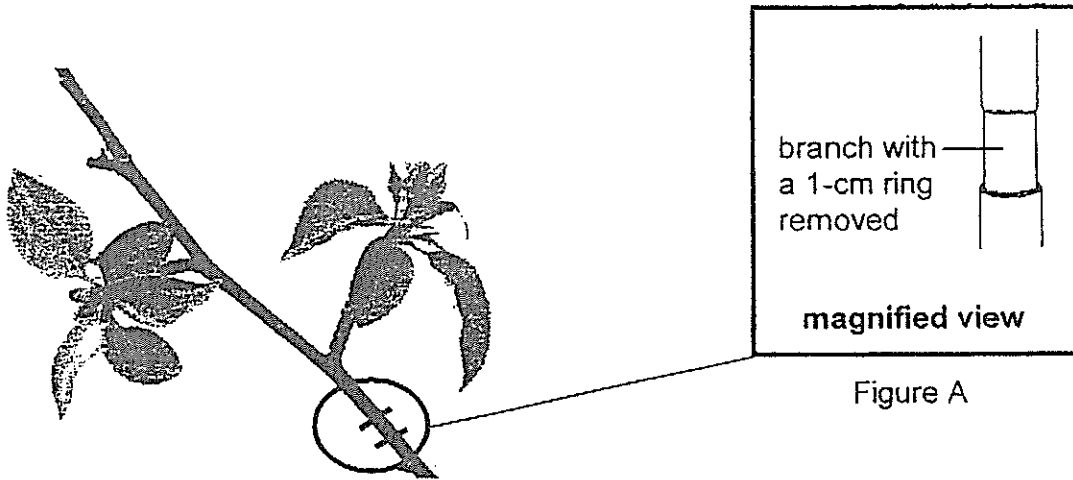
Figure A

Two weeks later, Pauline observed the following changes as shown below.
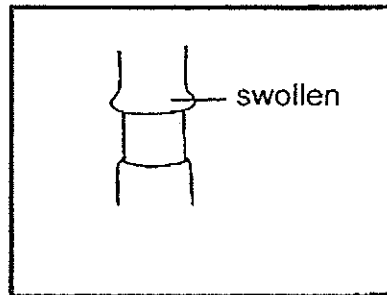
— swollen

Figure A
(two weeks later)

(b)   Based on Pauline's observations above, explain why the <u>upper part</u> of the branch of Figure A was swollen.

_____

_____

_____

Score   2

31. James conducted an experiment to find out the strength of each type of paper, X, Y and Z. He used papers of type X, Y and Z of the same mass to make bags of the same size. Identical strings were used to tie at the side of each paper bag.

Next, he placed identical marbles, one at a time, in each paper bag as shown below.
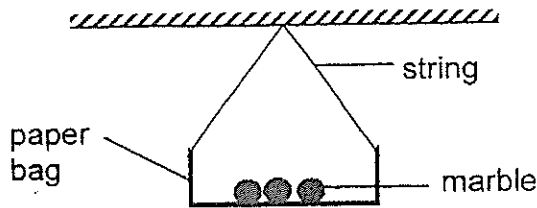
James recorded the most number of marbles each paper bag could hold just before it tore.

His results are shown in the table below.

Type of paper	X	Y	Z
Number of marbles the paper bag could hold just before it tore	6	9	2

(a) Which type of paper, X, Y or Z, was of the least strength?
Give a reason for your answer. [1]

_____

_____

(b) Name one other variable which James must keep the same to conduct a fair test for his experiment. [1]

_____

_____

(c) Could James conclude from the results of his experiment that paper of type Y was the most absorbent? Give a reason for your answer. [1]

_____

_____

Score   3

32. Classify the following into matter and non-matter. [2]

heat	steam	oil

matter	non-matter

33. Helen sealed the nozzles of two identical syringes. Next, she filled each syringe completely with a different matter, P and Q.

length of plunger (cm)

plunger

10 cm

sealed nozzle   matter
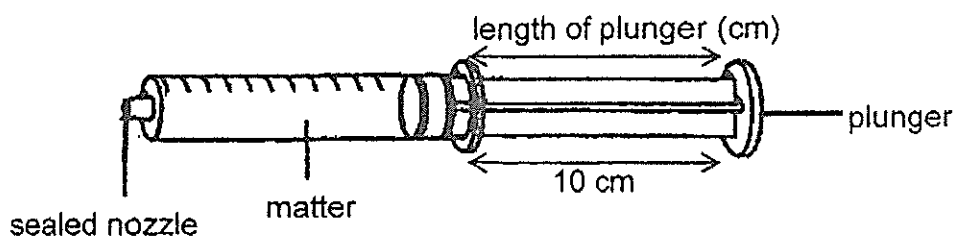
She measured the length of the plunger for each syringe after it had been pushed in. The table below shows her results.

Matter in syringe	P	Q
length of plunger (cm)	10	5.2

Based on the information above, answer the following questions:

(a) Give an example of a substance that Helen put in syringe Q. [1]

_____

(b) Give an example of P and state one of its properties. [2]

(i) Example of P : _____

(ii) A property of P : _____

_____

34. A factory produced four different types of materials, S, T, U and V, classified in the table as shown below.

Types of materials		
Allow most light to pass through them	Allow some light to pass through them	Do not allow light to pass through them
T V	U	S

Some of these materials were used to make walls of equal thickness in a bright playroom.

Some children stood between the walls of the playroom as shown in the diagram below.

Jim   Siti   Ali   Mary   Leela

material V   material S
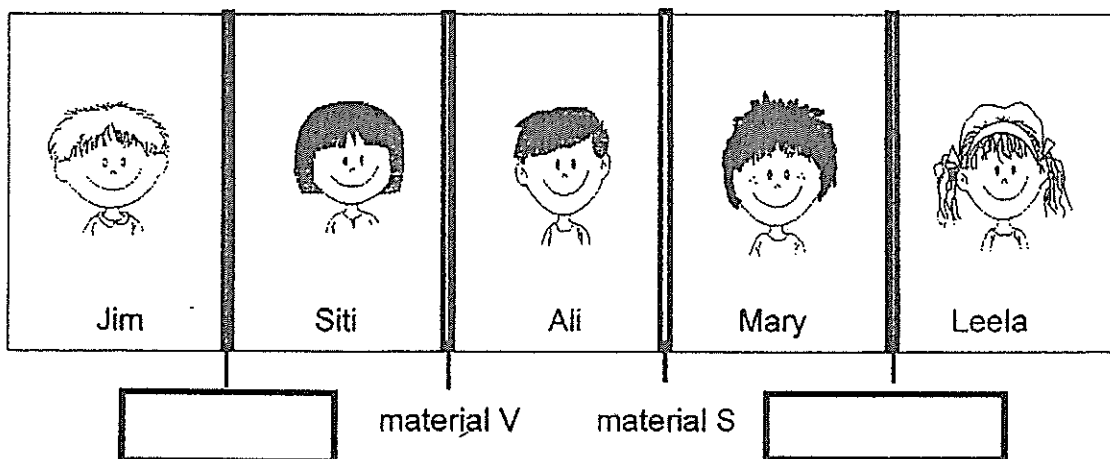
Based on the information above, answer the following questions:

Jim could **NOT** see Siti but Mary could see Leela clearly.

(a) In the diagram above, identify the materials of the walls which separated
   (i) Jim and Siti;
   (ii) Mary and Leela.
   Write only letter S, T, U and/ or V in the correct boxes. [2]

(b) Name two other children who could see each other clearly.
   Give a reason for your answer. [1]

_____

_____

Score   3

35. Jane used an instrument to measure the temperature of water in a glass.
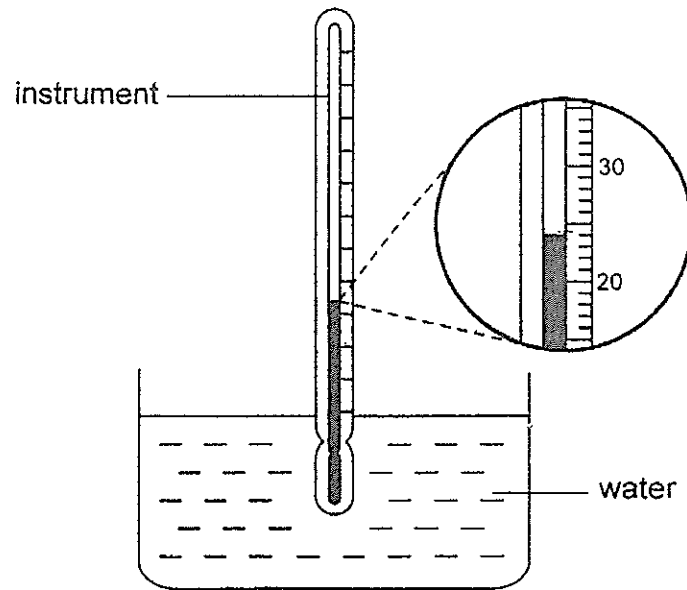
(a) What is the instrument called?   [1]

_____

(b) What is the temperature of the water in the glass?   [1]

_____ °C

Score   /2

36. Bob placed two identical ice blocks on similar plates of the same size and thickness. Each plate was made of a different material, W and X.
The plates of ice blocks were placed on identical stoves for an hour.

plate made of material W — ice blocks — plate made of material X — stoves
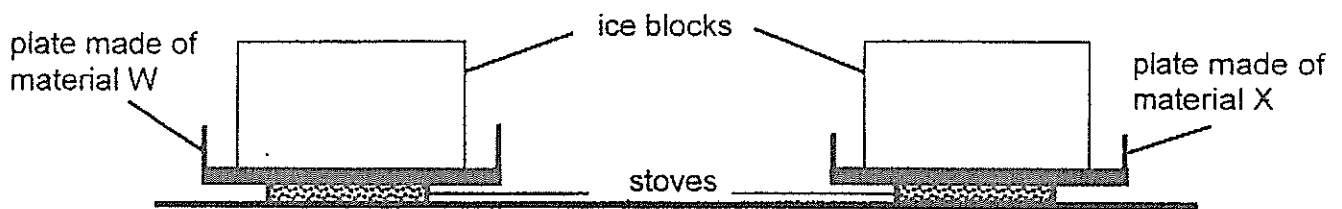
After an hour, Bob observed that more water was collected on the plate made of material W.

(a) Which plate, W or X, was a better conductor of heat?
Explain your answer. [2]

_____

_____

_____

In another experiment, Bob used identical plates of material X in 2 different set-ups. He placed the plates of ice blocks on identical stands and replaced the stoves with burning candles as shown in the diagram below.

ice blocks — plates made of material X — stands — burning candles — set-up 1 — set-up 2
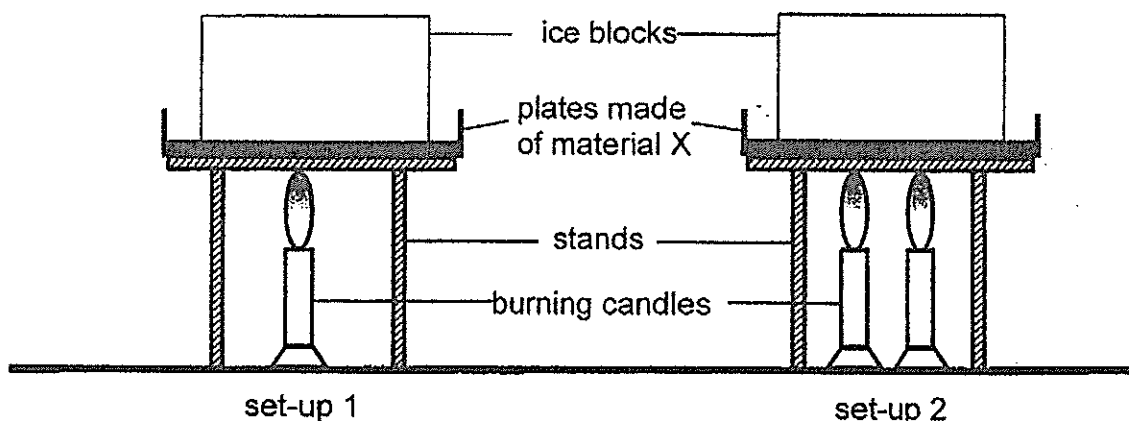
(b) In which set-up, 1 or 2, would the ice block melt more quickly?
Explain your answer. [1]

_____

_____

Score   3

37. Susan places a magnet near an iron rod.
     The iron rod moves towards the magnet.
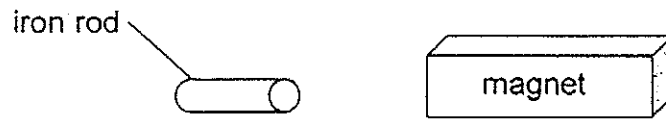
iron rod

magnet

(a) The magnet exerts a _____ on the iron rod. [1]

(b) Choose the correct word from the box to answer the question below. [1]

hard	magnetic	strong
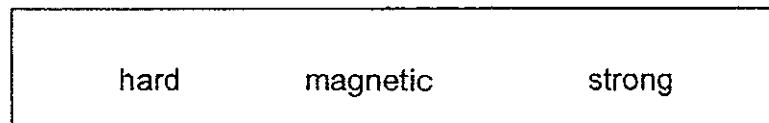
Susan's observation shows that iron rod is a _____ material.

Score   2

38. A bar WX made of a magnetic material was magnetised using the 'stroke' method as shown in Diagram 1 below.

Diagram 2 shows the magnetic poles of bar WX after it was magnetised.
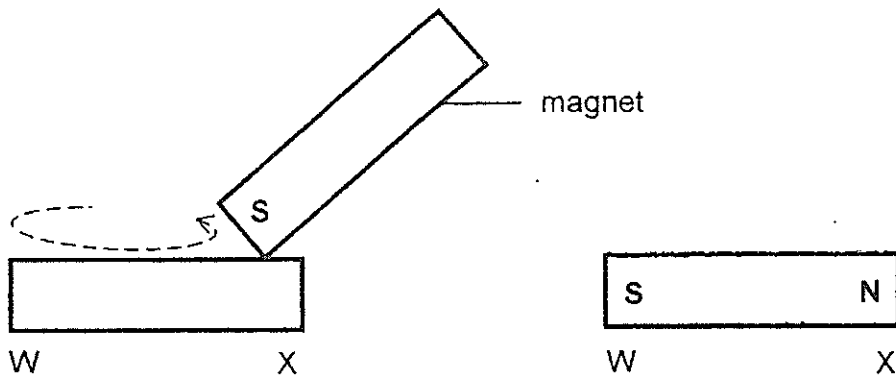
Diagram 1   Diagram 2

Another bar YZ made of the same material as bar WX was magnetised using the same method as shown in the diagram below.
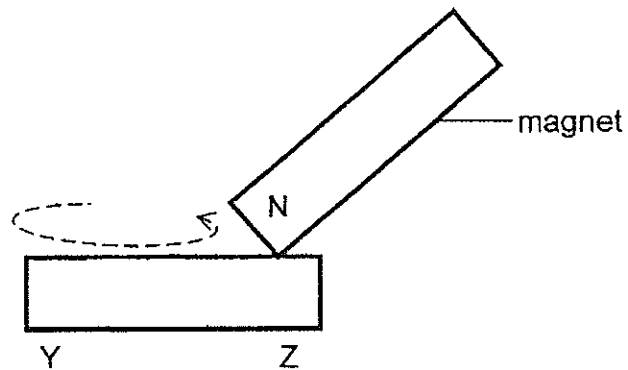
continued from the previous page

Based on the information on the previous page, answer the following questions:

Bar WX was brought near to bar YZ as shown in the diagrams below.

Describe what would happen in set-ups 1 and 2:   [2]

(i)   **Set-up 1**

← brought near

Y Z	W X

_____

_____

_____

(ii)   **Set-up 2**

← brought near

Y Z	X W

_____

_____

_____
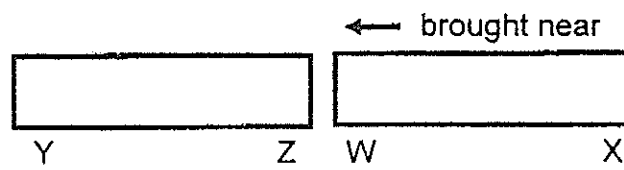
Score   2
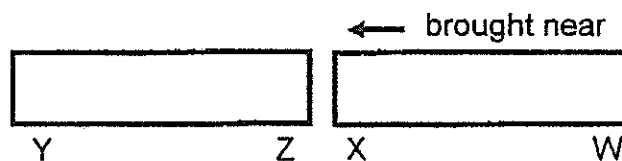
39. Rani set up an experiment using a strong bar magnet. She placed steel pins, one at a time, at parts P and R until no more pins could be attracted by the magnet.

Rani drew a diagram as shown below to show her results.
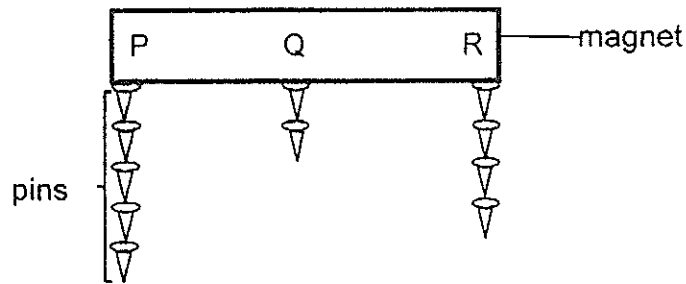
(a) Explain why more pins were attracted at parts P and R than at Q. [2]

_____

_____

_____

Score /2

Rani had two metal rods, B and C, of the same size. One of these rods was a magnet but the other one was made of a magnetic material. She wanted to find out which rod was the magnet.

She arranged the rods, B and C, and magnet PR as shown in the diagram below.
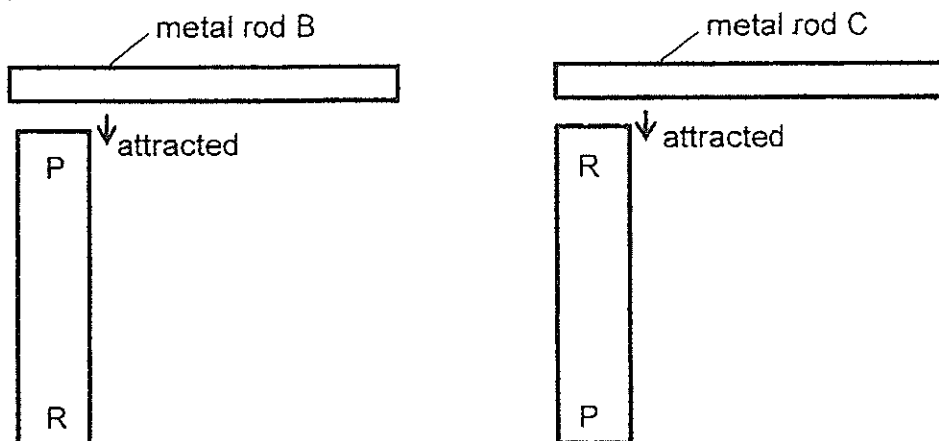
Rani could not conclude which rod was the magnet.

Below is the 1st step which Rani took to find out which rod, B or C, was the magnet.

(b)   Complete steps 2 and 3 which Rani would take to find out which rod was the magnet.   [2]

Step	Actions
1	Bring pole P to one end of rod B. Bring pole P to the other end of rod B.
2	Bring _____ to _____ Bring _____ to _____
3	The rod which _____ from the pole of magnet PR identified the rod which was a magnet.

Score

School: RAFFLES GIRLS' PRIMARY SCHOOL
Subject: PRIMARY 4 SCIENCE
Term: SA2

1) 4	6) 3	11) 1	16) 4	21) 2
2) 3	7) 1	12) 3	17) 3	22) 3
3) 4	8) 3	13) 4	18) 2	23) 3
4) 2	9) 4	14) 1	19) 4	24) 1
5) 1	10) 3	15) 4	20) 4	25) 3

26. (a) i. X: Living
    ii. Y: Non-living
  (b) Mammal: tiger; Insect: ant; Fungi: mushroom

27. (a) i. As the temperature of the soil increases, the number of seeds Z germinated increases.
    ii. No seeds Z germinated.
  (b) 30°C
  (c) Air and water

28. (a) 1
  (b) 4

29. (a) i. lungs
    ii. bones
    iii. blood vessels
  (b) Respiratory system
  (c) C

30. (a) i. taller
    ii. food
  (b) The food carrying tubes were removed. Food made by the leaves gathered at the upper part of the branch causing it to swell.

31. (a) Z. It tore with the least amount of marbles.
  (b) The thickness of the paper used.
  (c) The strength of the paper did not measure its absorbing rate.

32. Matter: steam, oil; Non-matter: heat

33. (a) Air
  (b) i. Water
    ii. It does not have a definite shape.

34. (a) i. S
    ii. T

(b) Siti and Ali. Material V allows most light to pass through for them to see each other.

35. (a) A thermometer.
    (b) 24

36. (a) W gained heat more quickly from the stoves to melt the ice more quickly.
    (b) Set-up 2. The ice block gained more heat from more candles.

37. (a) pull
    (b) magnetic

38. i. YZ will move away from WX.
    ii. YZ will move towards XW.

39. (a) P and R are the magnet's poles and magnets are the strongest at its poles.
    (b) Step 2: Bring pole R to one end of rod C. Bring pole R to the other end of rod C. Step 3: repels