



Index No.

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Anglo-Chinese School (Primary)

P6 SCIENCE 2008

PRELIMINARY EXAMINATION

BOOKLET A

Name: _____ ()

Class: Primary 6

Date: 22 August 2008

Duration of paper: 1h 45 min

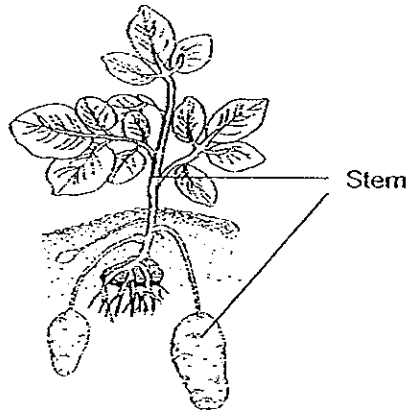
Parent's/Guardian's signature

THIS BOOKLET CONTAINS 18 PRINTED PAGES.
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A (60 marks)

For each question from 1 to 30, four options are given. One of them is the correct answer. Choose the correct option (1, 2, 3 or 4) and shade the correct oval on the Optical Answer Sheet (OAS) provided.

- 1 The figure below shows a potato plant. Which of the following are functions of the stem?



- A It stores food for the plant.
- B It helps the plants reproduce.
- C It holds the plant firmly to the ground.
- D It supports the branches and leaves of the plant.

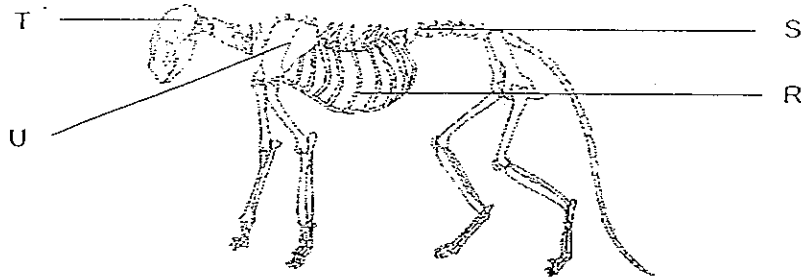
- (1) A and C only
- (2) B and D only
- (3) A, B and D only
- (4) ~~A, C and D only~~
A, B, C and D

- 2 In Country X, the number of cows is being controlled to prevent cows from overgrazing the grassland. Overgrazing will directly result in _____.

- (1) forest fire
- (2) air pollution
- (3) soil erosion
- (4) new vegetation

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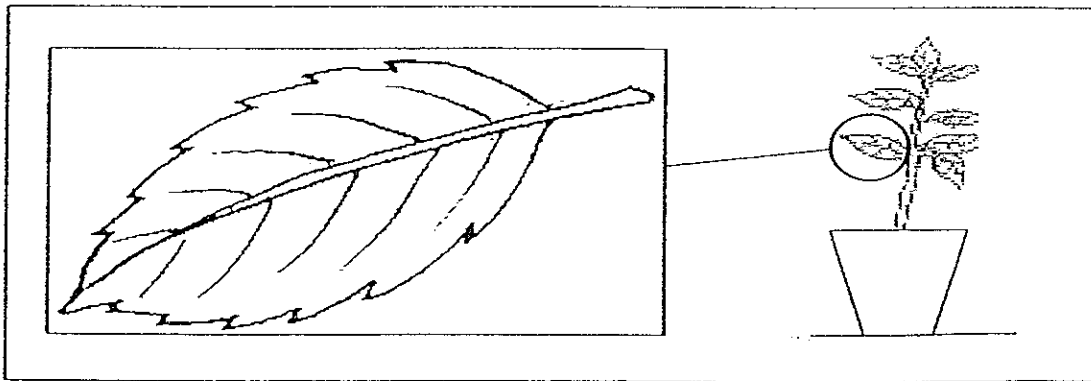
3 The diagram below shows the skeletal structure of a dog.



When a dog breathes in air through its nose, the air is exchanged in an organ so that the dog receives oxygen and gives out carbon dioxide. Which part of the skeletal structure protects this organ?

- (1) R
- (2) S
- (3) T
- (4) U

4 The diagram below shows a plant and a picture of its leaf.

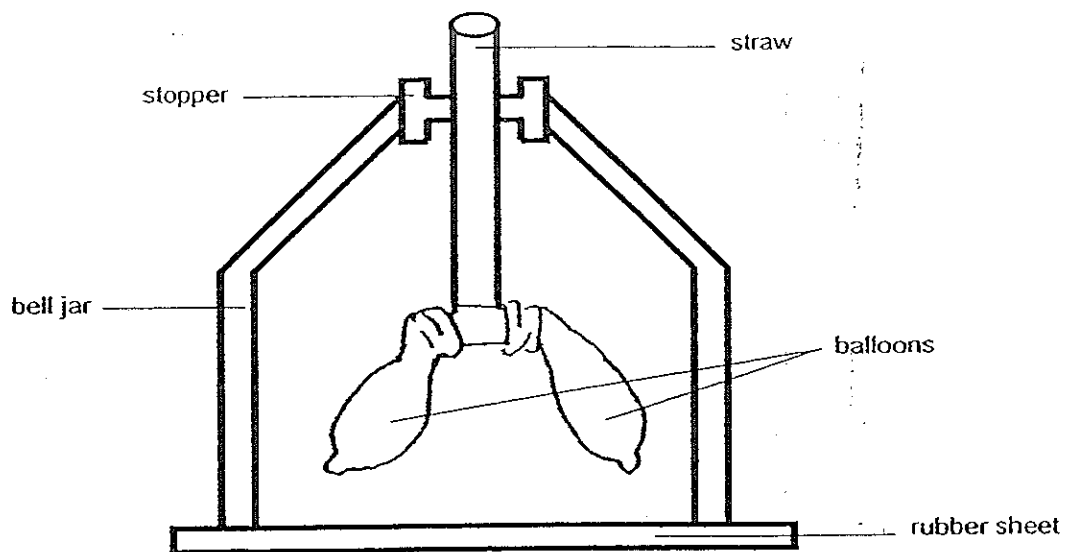


The plant where this leaf is from will not survive in a desert as it has _____.

- (1) green leaves that photosynthesise
- (2) large leaves that lose water easily
- (3) leaves with net vein patterns, which retain water
- (4) waxy leaves that make the water flow off them

(Go on to the next page)

- 5 May sets up some apparatus to represent the respiratory system of the human body.



Which of the following will be observed when she uses the apparatus to demonstrate air being inhaled?

	Movement of rubber sheet	Balloons
(1)	Downwards	Expand
(2)	Upwards	Expand
(3)	Downwards	Contract
(4)	Upwards	Contract

- 6 During a Science lesson, the teacher told four pupils to give examples of forces at work. The table below shows the responses from the four pupils.

Pupils	Examples of forces at work....
Andy	Stretching a rubber band
Bobby	Leaves falling from a tree
Charlie	Closing the refrigerator door
Danny	A rolling ball coming to a halt

Which pupils have given the correct examples of forces at work?

- (1) Andy and Bobby only
- (2) Andy, Charlie and Danny only
- (3) Bobby, Charlie and Danny only
- (4) All of the above

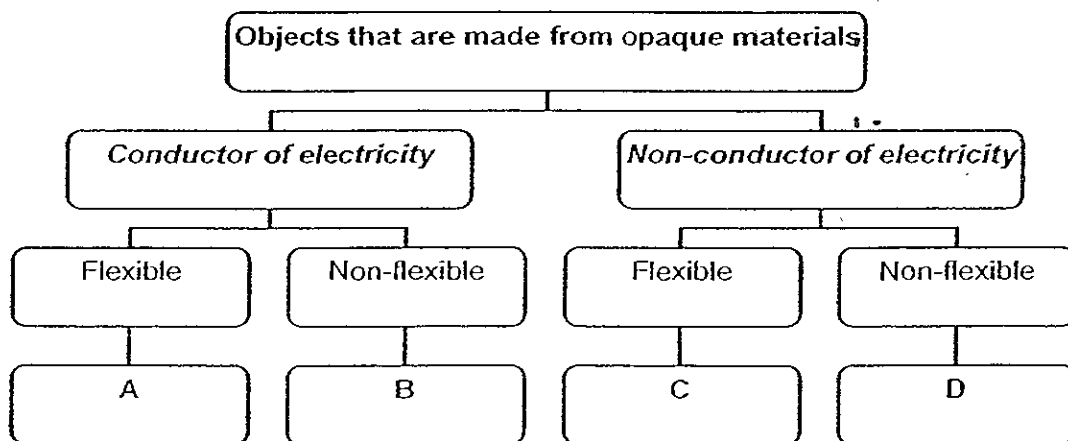
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7 Which of the following statement(s) is/are correct?

- A : The rotation of the Earth causes day and night.
- B : The Earth rotates from East to West on its own axis.
- C : The axis of the Earth is the imaginary line that passes from the south pole to the north pole.

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

8 Study the information provided in the classification chart below carefully.

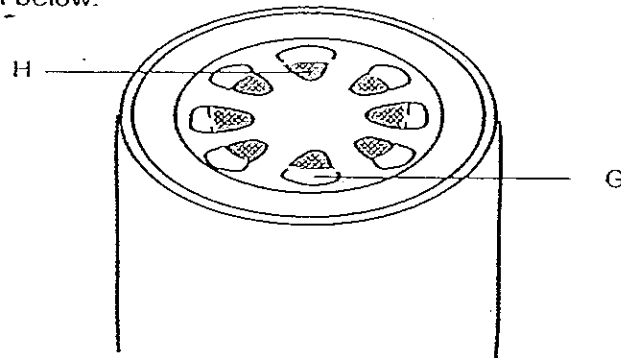


Based on the information above, which one of the following is a possible combination of objects A, B, C and D?

	A	B	C	D
(1)	Nylon	Iron nail	Spectacle Lens	Ceramic mug
(2)	Nylon	Aluminium foil	Carpet	Rubber tube
(3)	Copper wire	Steel pipe	Rubber tube	Spectacle Lens
(4)	Copper wire	Iron nail	Carpet	Ceramic mug

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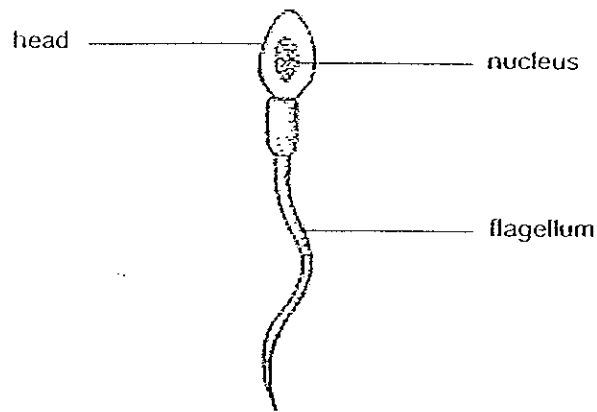
- 9 A plant which is placed under the sun is watered daily. A cross section of its stem is shown below.



Which substances are transported by parts **G** and **H** of the stem respectively?

	G	H
(1)	Water and dissolved mineral salts	Food
(2)	Food	Water and dissolved mineral salts
(3)	Food and carbon dioxide	Water and oxygen
(4)	Water and oxygen	Food and carbon dioxide

- 10 The diagram below shows a sperm cell.

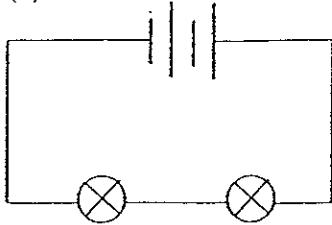


Which one of the following correctly states the function of the nucleus and flagellum respectively?

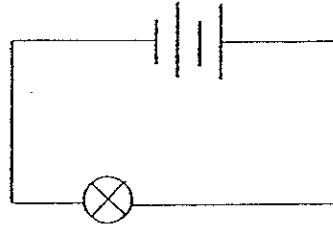
	nucleus	flagellum
(1)	Keeps the cell firm	Acts as a feeler
(2)	Carries genetic materials	Controls activities in the cell
(3)	Controls activities in the cell	Aids in movement
(4)	Acts as the centre of the cell	Keeps the cell firm

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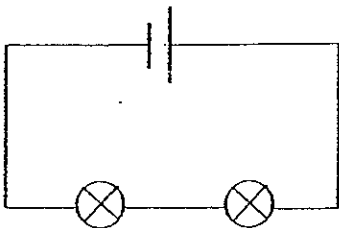
- 11 The diagram below shows 4 circuits, D, E, F and G. If the type of battery and bulb used is the same for each circuit, which circuit will have the dimkest bulb(s)?



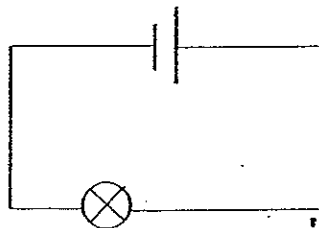
Circuit D



Circuit E



Circuit F



Circuit G

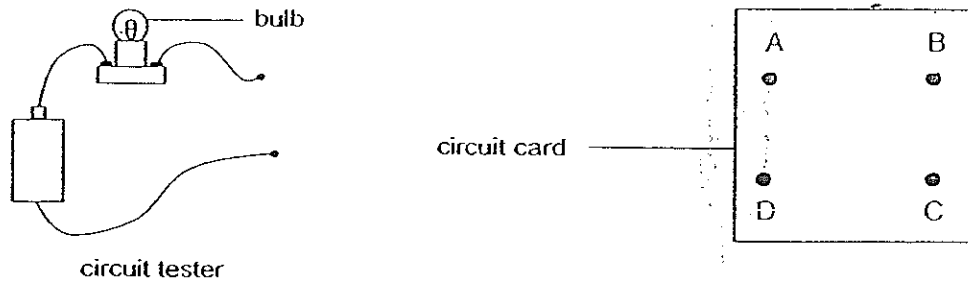
- (1) Circuit D
 (2) Circuit E
 (3) Circuit F
 (4) Circuit G
- 12 The table below shows the boiling and melting points of three substances A, B and C.

Substances	A	B	C
Boiling Point (°C)	18	125	65
Melting Point (°C)	2	45	15
State at room temperature (28°C)	X	Y	Z

What is the state of the substances A, B and C at room temperature?

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

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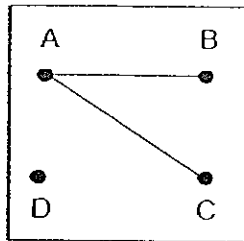


The circuit card shown above has a metal thumbtack at each of the points A, B, C and D. Some of the thumbtacks are connected by wires behind the card.

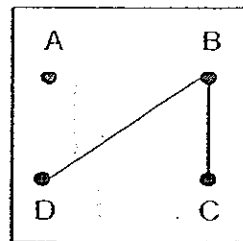
To find out how these thumbtacks are connected, the two ends of the circuit tester are connected to 2 different thumbtacks each time. The results are shown in the table below.

Circuit tester connected to thumbtacks at.....	Does the bulb in the circuit tester light up?
A and B	No
A and C	Yes
A and D	Yes
B and C	No
B and D	No

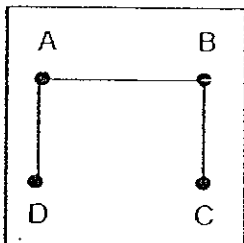
From the results shown in the table above, which one of the following is a possible arrangement of the wires behind the circuit card?



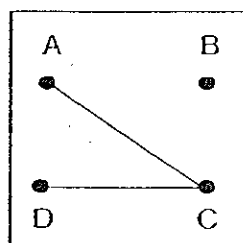
(1)



(2)

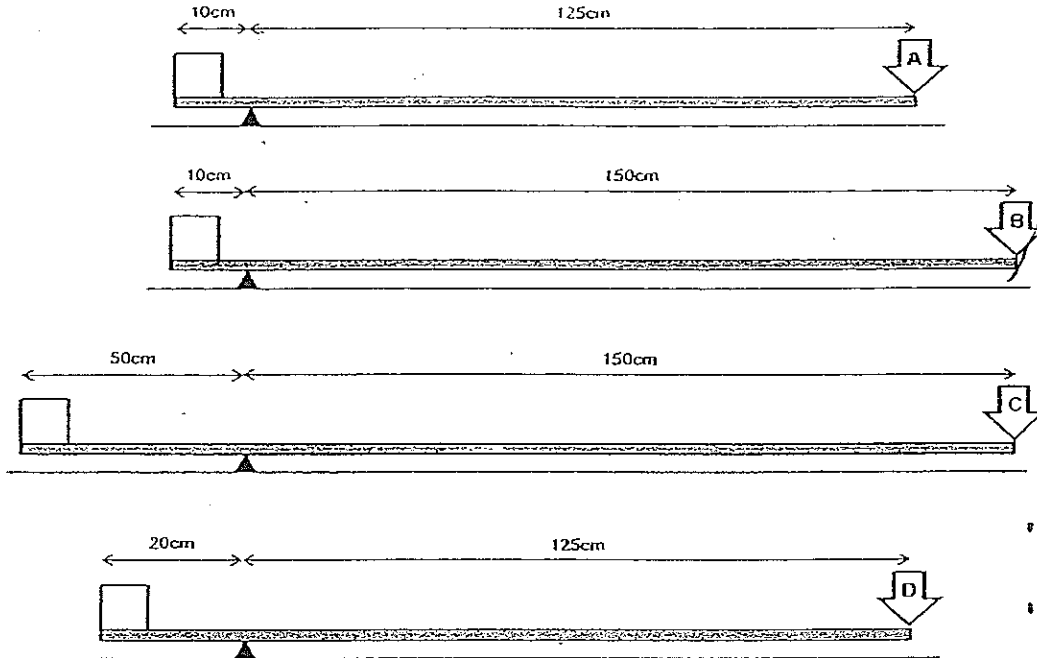


(3)



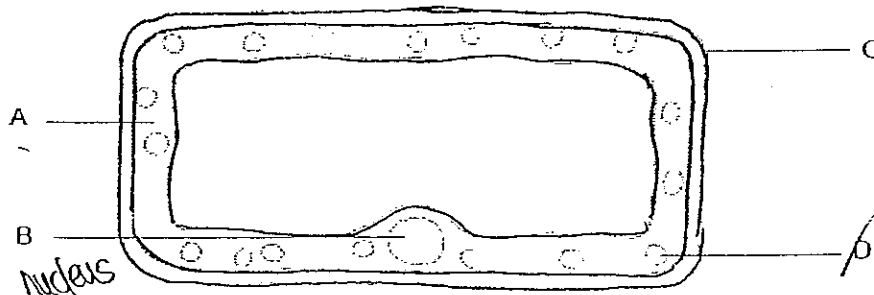
(4)

- 14 The diagram below shows four different levers used to balance the same box. The efforts used are A, B, C and D respectively. (The diagrams are not drawn to scale.)



Which one of the following efforts A, B, C or D is the smallest?

- (1) A
 - (2) B
 - (3) C
 - (4) D
- 15 The diagram below shows a plant cell as seen through a microscope.

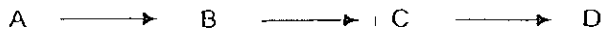


Which part of the cell allows photosynthesis to take place?

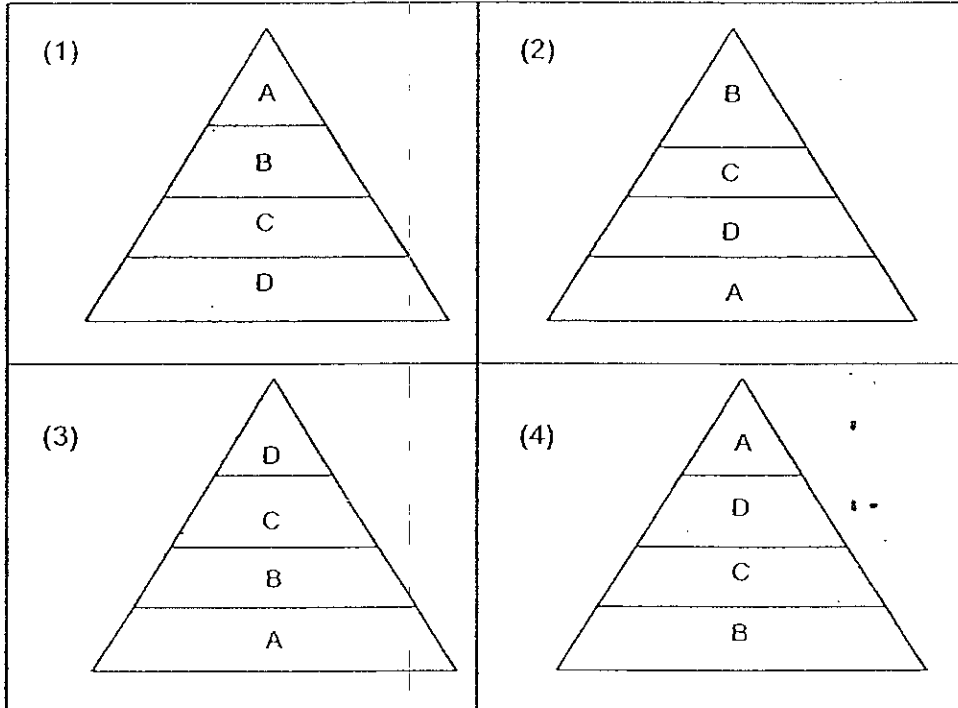
- (1) A
- (2) B
- (3) C
- (4) D

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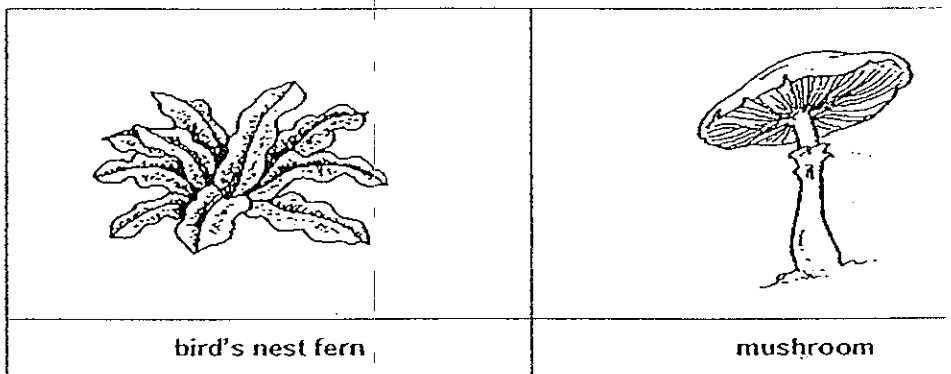
16 Study the food chain below carefully.



Which one of the following food pyramids shows the populations of the organisms A, B, C and D in the above food chain?



17 The pictures below show two organisms.

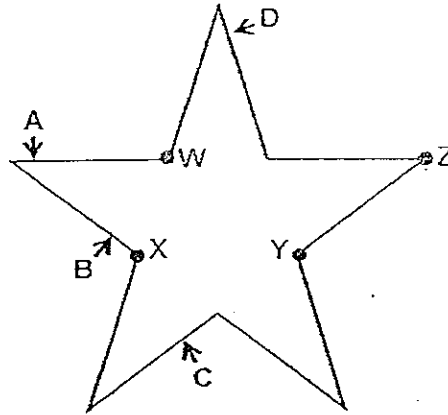


How is the bird's nest fern different from the mushroom?

	bird's nest fern	mushroom
(1)	It has flowers.	It has no flowers.
(2)	It feeds on dead animals.	It feeds on dead plants.
(3)	It reproduces from seeds.	It reproduces by spores.
(4)	It needs sunlight to grow.	It does not need sunlight to grow.

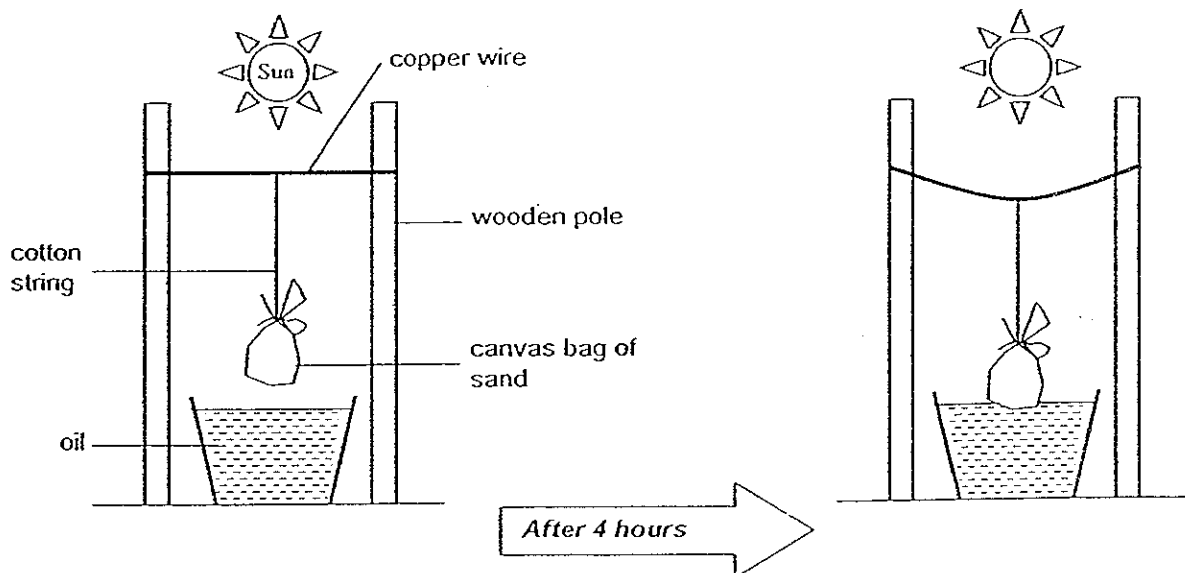
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- 18 W, X, Y, and Z are 4 similar blobs of wax on a piece of copper wire that was bent into the shape of a regular star. When the copper wire was strongly heated at a certain point, the blobs of wax began to melt in the order of W, X, Z, Y.



At which point, A, B, C or D was the wire most likely to be heated?

- (1) A
 - (2) B
 - (3) C
 - (4) D
- 19 Tom set up an experiment on a hot day and observed it every hour. After 4 hours, he observed that the canvas bag of sand had reached the oil.

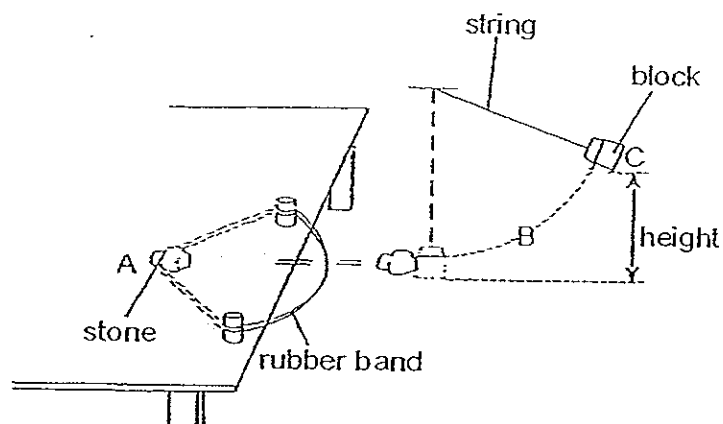


What was Tom trying to find out?

- (1) Whether the canvas bag would soak up the oil.
- (2) How long the wooden poles would stay upright.
- (3) Whether the copper wire would expand in the heat of the day.
- (4) How much the cotton string would be stretched by the weight of the sand.

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20 Ken conducted an experiment as shown in the diagram below.



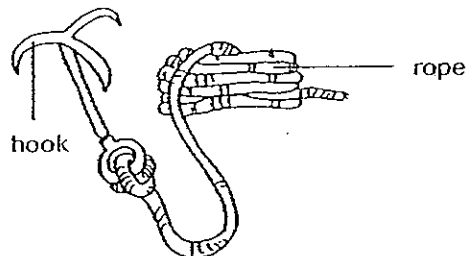
He pulled the rubber band backwards together with a stone to position A. When he released the stone, it moved forward and hit the block. The block, which was suspended by a string, swung upwards to position B and then to position C before falling back.

Which one of the following shows the correct energy transfer?

- (1) Chemical potential energy \rightarrow Kinetic energy in stone \rightarrow Kinetic energy in block \rightarrow Heat and sound energy
- (2) Elastic potential energy \rightarrow Kinetic energy in stone \rightarrow Gravitational potential energy in block \rightarrow Heat and sound energy
- (3) Elastic potential energy \rightarrow Kinetic energy in stone \rightarrow Kinetic energy in block + Heat energy + Sound energy \rightarrow Gravitational potential energy in block
- (4) Chemical potential energy \rightarrow Kinetic energy in stone \rightarrow Gravitational potential energy in block \rightarrow Kinetic energy in block + Heat energy + Sound energy

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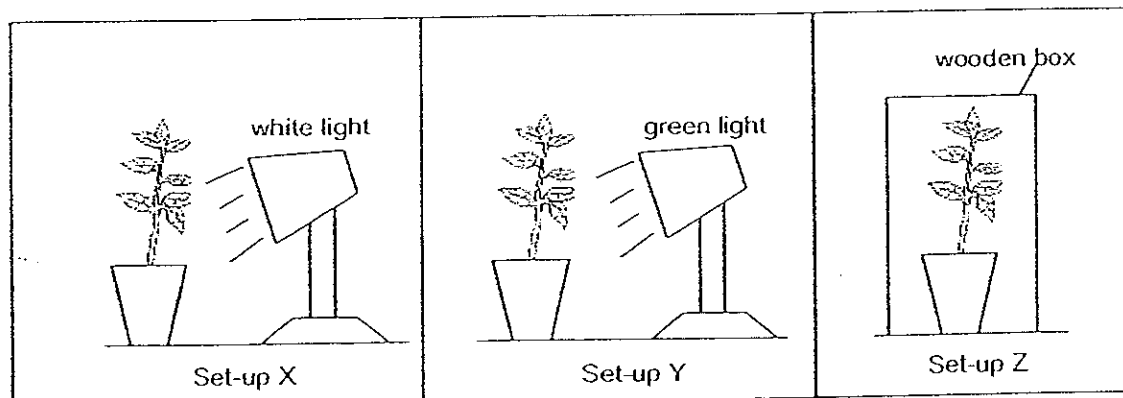
- 21 Mountaineers need equipment to enable them to climb up rocky or snow-covered mountains. The diagram below shows an example of what they might use in their attempt to climb a mountain.



The material needed to make mountaineering equipment is very important. Which of the following shows the most suitable properties of the materials required in the making of the hook and rope respectively?

	Hook	Rope
(1)	hard and light	soft and flexible
(2)	hard and strong	strong and flexible
(3)	light and strong	hard and waterproof
(4)	light and flexible	hard and strong

- 22 Freddie sets up the experiment shown below. He uses the same plant in all the 3 set-ups and gives the plants the same amount of water every day. For set-ups X and Y, he uses lamps with the same light intensity.



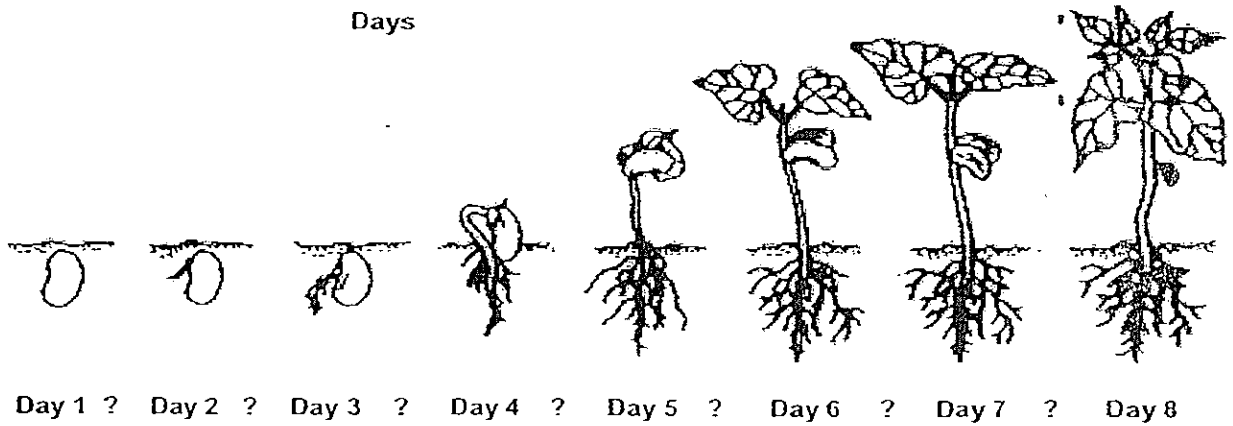
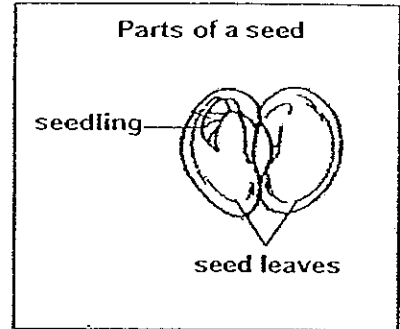
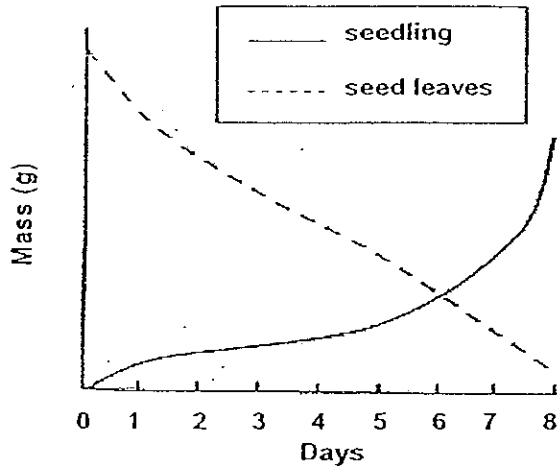
Which of the following hypothesis are possible for the above experiment?

- A: The presence of light affects the growth of the plant.
 B: The colour of the light affects the growth of the plant.
 C: The presence of water affects the growth of the plant.

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

(Go on to the next page)

- 23 A scientist planted 8 green bean seeds under suitable conditions for them to grow. At the end of each day he removed one seedling, dried it and then weighed the masses of its seed leaves and seedling separately. He then recorded his findings in the graph below.

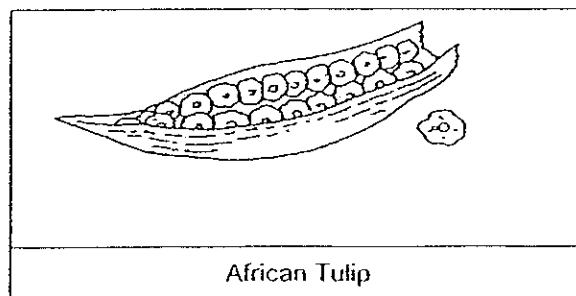
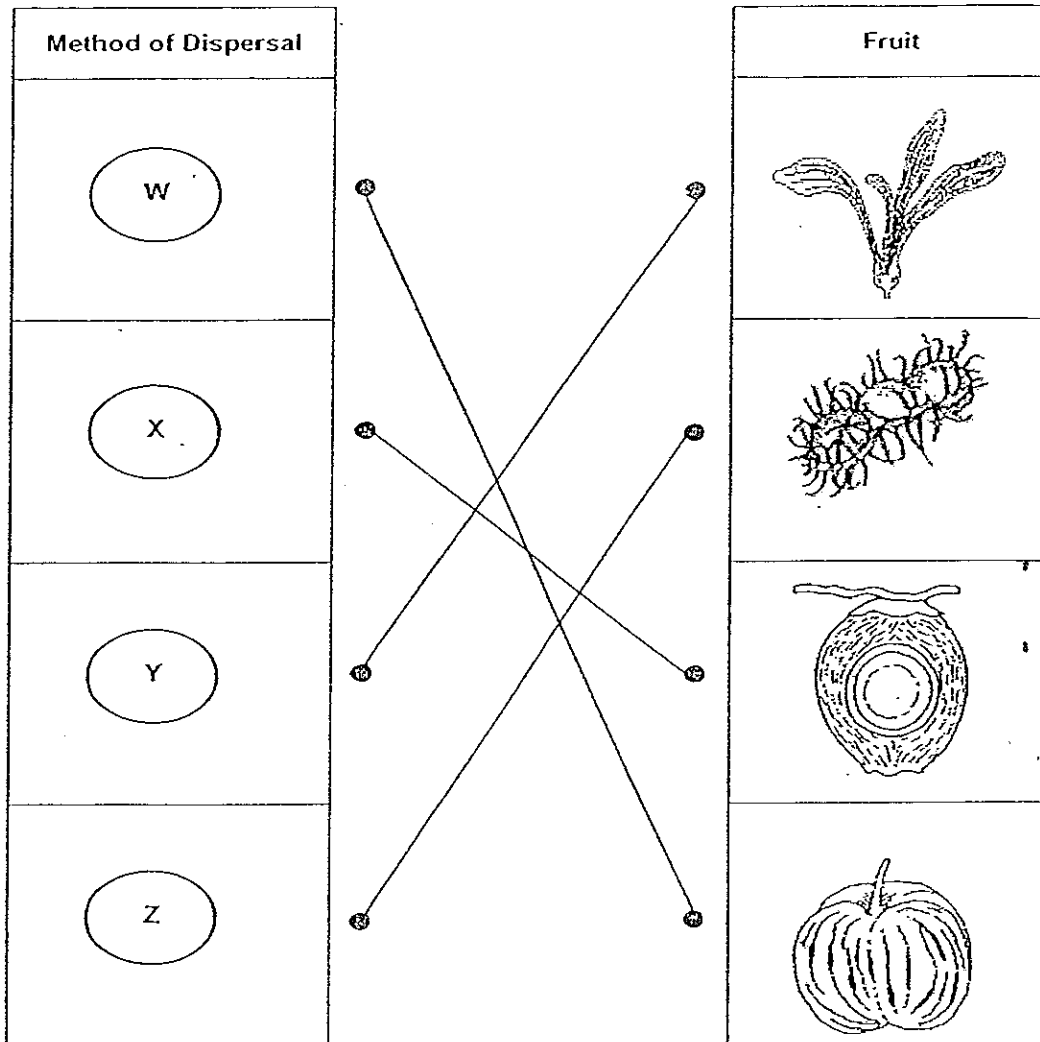


Based on the graph, which one of the following is true?

- (1) Both their masses changed at the same rate.
- (2) The mass of the seedling was similar to the mass of the seed leaves.
- (3) The mass of seed leaves is always greater than the mass of the seedling.
- (4) The mass of the seed leaves decreased as the mass of the seedling increased.

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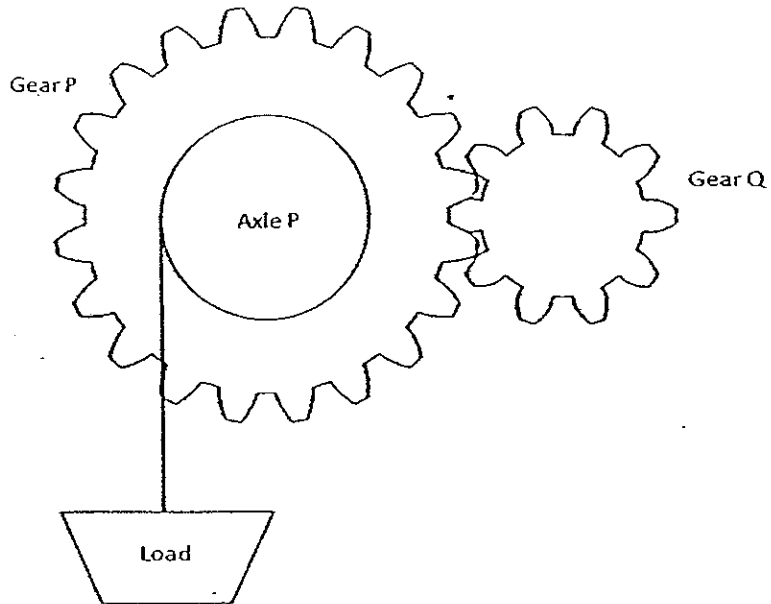
24 The diagram below shows some fruits being matched to their method of dispersal.



In which of the following group(s) can the African Tulip fruit be classified under?

- (1) W only
- (2) W and Y only
- (3) X and Z only
- (4) Y and Z only

- 25 The diagram below shows a system which combines 2 types of simple machines, gears and wheel and axle. Gear P has 20 teeth, Gear Q has 10 teeth and the diameter of Gear P is twice that of Axle P.



In order to lift the load upwards, which one of the following shows the correct direction and number of turns of Gear Q and Axle P?

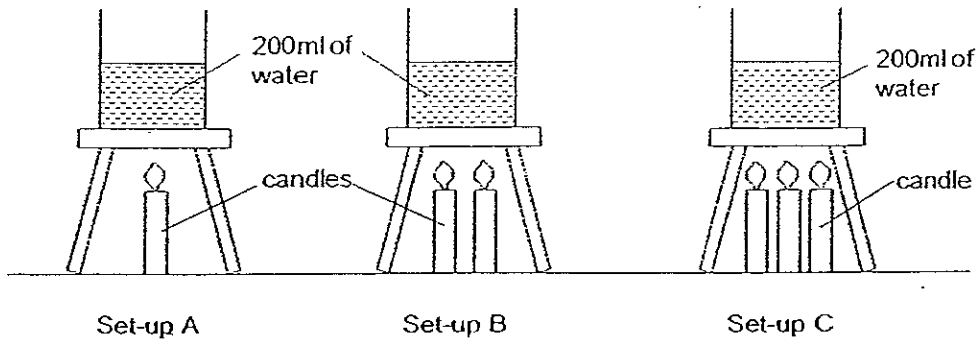
	Direction of Gear Q	Number of turns of Gear Q	Number of turns of Axle P
(1)	Anti-clockwise	4	4
(2)	Anti-clockwise	8	4
(3)	Clockwise	4	8
(4)	Clockwise	8	8

- 26 Which one of the following pairs are examples of sources of energy?

- (1) Steam and coal
- (2) Sound energy and water
- (3) Elastic potential energy and wind
- (4) Gravitational potential energy and kinetic energy

(Go on to the next page)

- 27 Sally set up the following experiment as shown below. The water in all the set-ups has the same initial temperature. She then heated the water in each beaker to boiling and recorded the temperature and the time taken for the water to boil.



Which of the following statement(s) is/are true after the water has boiled?

- A Set-up A would take the longest time to boil.
- B The water in set-up C would have the highest amount of heat energy.
- C The temperature in set-up B would be higher than the temperature in set-up A.

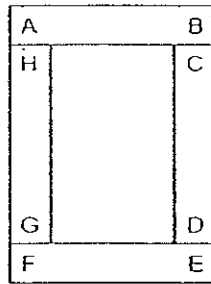
- (1) A only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

- 28 Which one of the following human activities has a negative impact on the environment?

- (1) Recycling
- (2) Reforestation
- (3) Usage of Chlorofluorocarbon (CFC) products
- (4) Developing energy-efficient technology

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29 The diagram below shows 4 bar magnets that are attracted to each other.



If 3 of the magnets are selected at random, which one of the following arrangements below is a possible arrangement that will result in the magnets attracting each other?

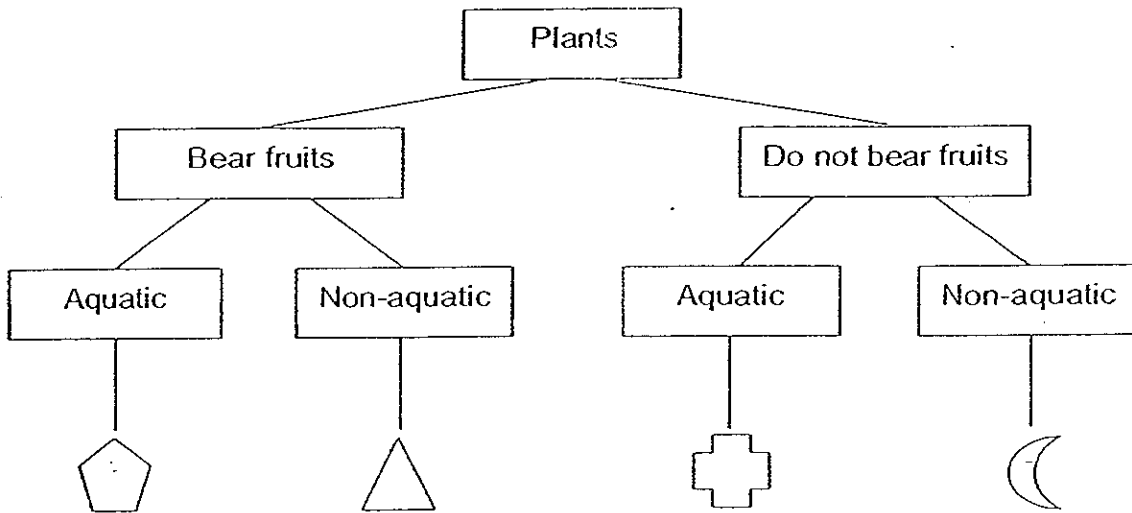
(1)	
(2)	
(3)	
(4)	









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30 The following table provides information on 4 plants, C, D, E and F, based on two characteristics. A tick (✓) shows that the plant has the characteristics.

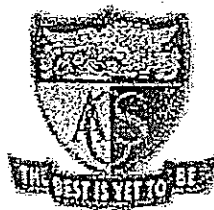
Plants	C	D	E	F
Characteristics				
Has flowers		✓	✓	
Grows on land		✓		✓

From the information above, where do plants E and F belong to in the following classification table?



- | | <u>Plant E</u> | <u>Plant F</u> |
|-----|---|---|
| (1) |  |  |
| (2) |  |  |
| (3) |  |  |
| (4) |  |  |

End of Section A / Booklet A. Please go on to Section B / Booklet B.



Index No.

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Anglo-Chinese School (Primary)

P6 SCIENCE 2008

PRELIMINARY EXAMINATION

BOOKLET B

Name: _____ ()

Class: Primary 6

Date: 22 August 2008

Duration of paper: 1h 45 min

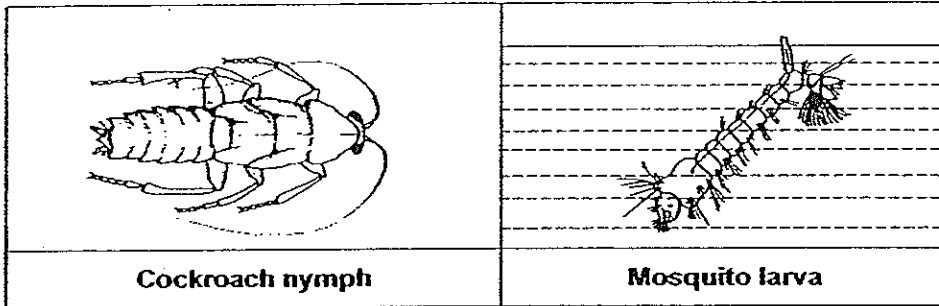
	Maximum Marks	Marks Obtained
Section A / Booklet A	60	
Section B / Booklet B	40	
Total	100	

THIS BOOKLET CONTAINS 15 PRINTED PAGES.
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Section B (40 marks)

For questions 31 to 46, write your answers in this booklet. The number of marks available is shown in brackets [] at the end of each question or part question.

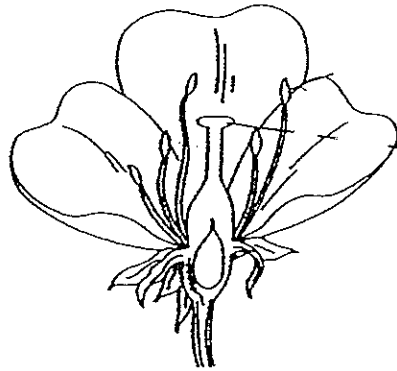
31 The diagrams below show the young of two insects.



(a) Name a process that both the nymph and the larva go through as they grow into an adult. [1]

(b) Sam found a container with mosquito larvae. He sprayed a layer of oil on the surface of the water. After sometime, the larvae were dead. Explain why they died. [1]

32 The diagram below shows the cross-section of a flower.

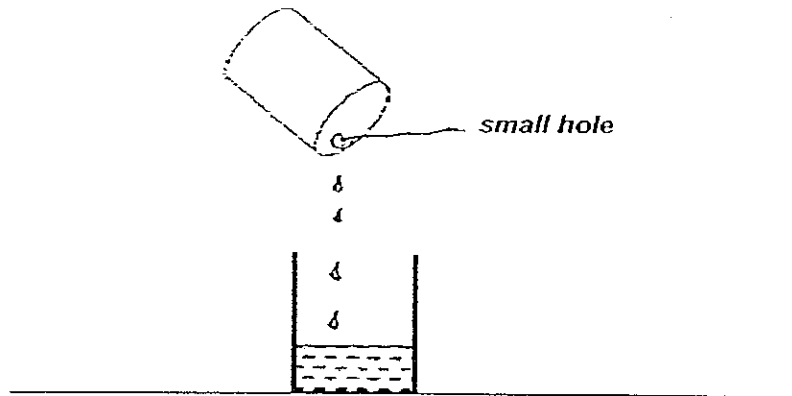


(a) For a flower to develop into a fruit, two important processes have to occur. State these processes. [1]

(b) In the diagram above, draw arrows and label the following parts of the flower, *anther* and *stigma*. [1]

(Go on to the next page)

- 33 Sing Hon made a small hole on the top of a can of condensed milk and observed that the milk dripped very slowly out of the can.



- (a) Why was it difficult for the milk to flow out of the can? [1]

- (b) Sing Hon decided to make another hole on the top of the can to make the milk flow faster into the container. Was he successful? Explain why. [1]

(Go on to the next page)

B - 2

Score	
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34 The table below shows the characteristics of three animals, D, H and M.

Characteristics	Animal D	Animal H	Animal M
The way it moves	Walks and runs	Swims	Swims
Where it lives	Land	Water	Water
How it reproduces	Lays eggs	Gives birth to its young	Lays eggs
Part of body that helps it move	Legs	Flippers	Fins
How it breathes	Through nostrils	Through blowhole	Through gills

- (a) Classify the three animals and write 'Animal D', 'Animal H' and 'Animal M' in the correct box. [1]

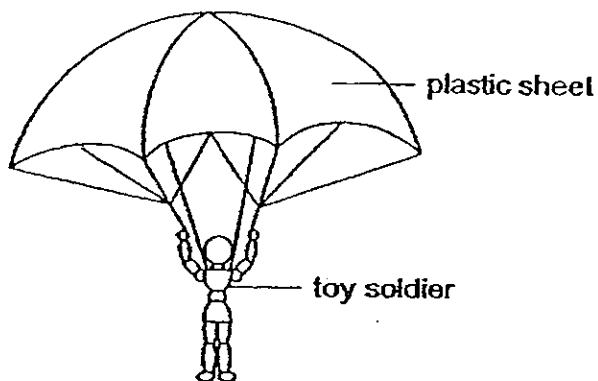
Bird	Fish	Mammal

- (b) State another characteristic that is found only in Animal H. [1]

(Go on to the next page)

Score	
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- 35 Elton wants to find out how the surface area of a plastic sheet affects the time a toy soldier takes to fall vertically to the ground from a certain height. The diagram below shows the setup which was dropped from the certain height.



Elton recorded his readings in the table below.

Area of plastic sheet (cm ²)	Time(s) taken to reach the ground		
	1 st timing	2 nd timing	Average
25	3.2	2.8	3.0
100	4.1	4.1	4.1
225	4.9	5.1	5.0
400	6.0	6.0	6.0
625	7.9	8.1	8.0

- (a) Based on the information above, what could Elton conclude? [1]

- (b) Explain why it is necessary for Elton to do the experiment and record the timing twice. [1]

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B - 4

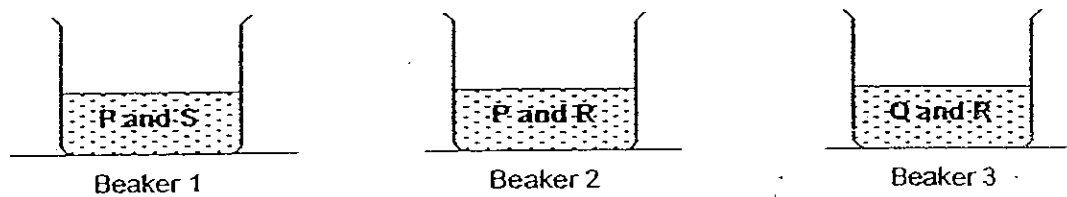
Score	
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36

The table gives some properties of four substances P, Q, R and S.

Property \ Substance	P	Q	R	S
Colour	Green	Green	Yellow	Yellow
Can it dissolve in water?	Yes	No	Yes	No
Is it a magnetic material?	No	No	No	Yes

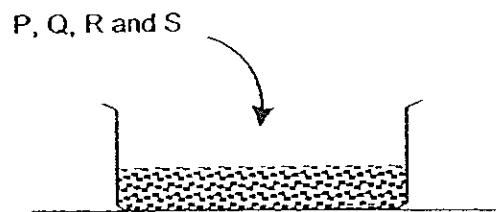
Some of the substances were mixed in some beakers of water as shown in the diagram below.



(a) In which of the beakers would the substances be most difficult to separate? [1]

(b) Explain your answer to (a). [1]

(c) The four substances were then mixed in a dry tray.

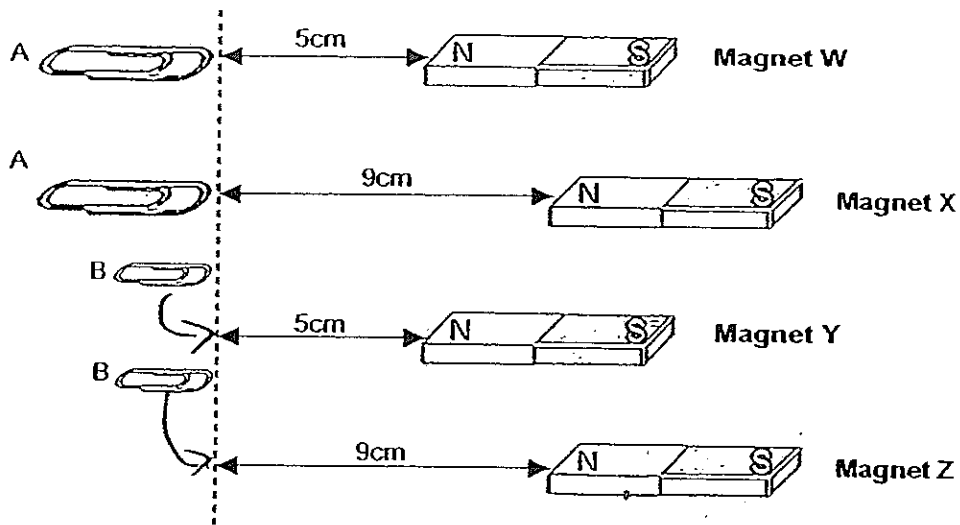


Which one of the four substances would be the easiest to separate from the others? Suggest a method to separate it. [1]

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Score	
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- 37 The diagram below shows the greatest distance at which the magnets will attract paper clips A and B. Paper clip A is twice as heavy as paper clip B.



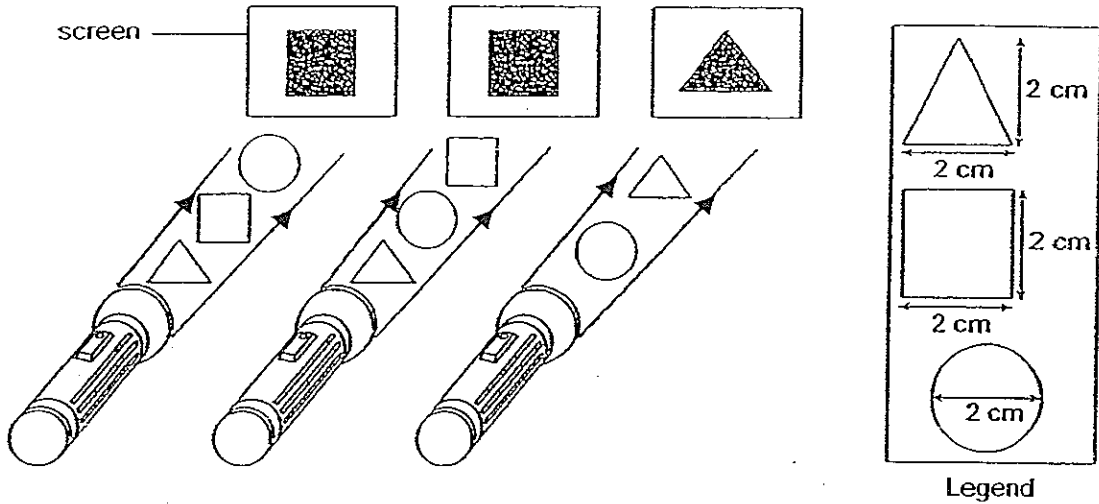
- (a) Explain why magnet X is considered the strongest among all the 4 magnets. [1]

- (b) Based on the setup, why is it difficult to compare the strengths of magnet X and magnet Y? [1]

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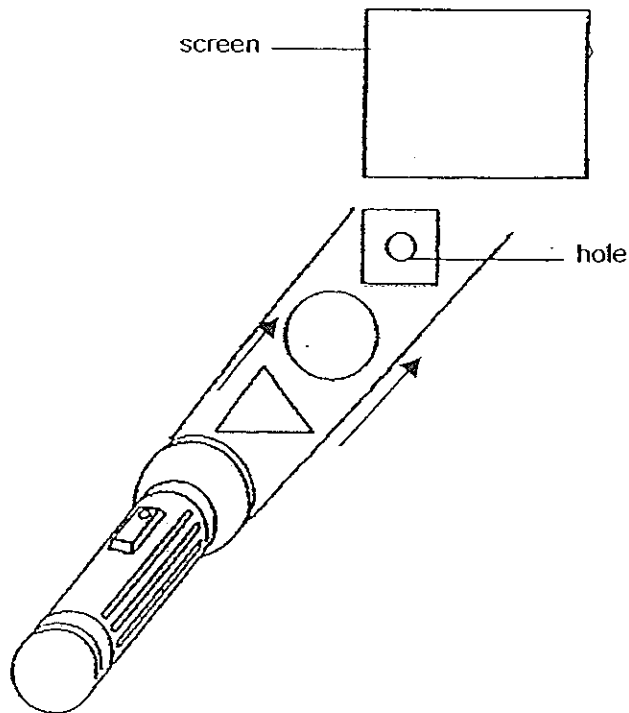
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- 38 The diagram below shows the shapes of the shadows formed when different objects, a triangle, a square and a circle were placed between a screen and the torchlight. The dimensions of the objects are given in the legend on the right.



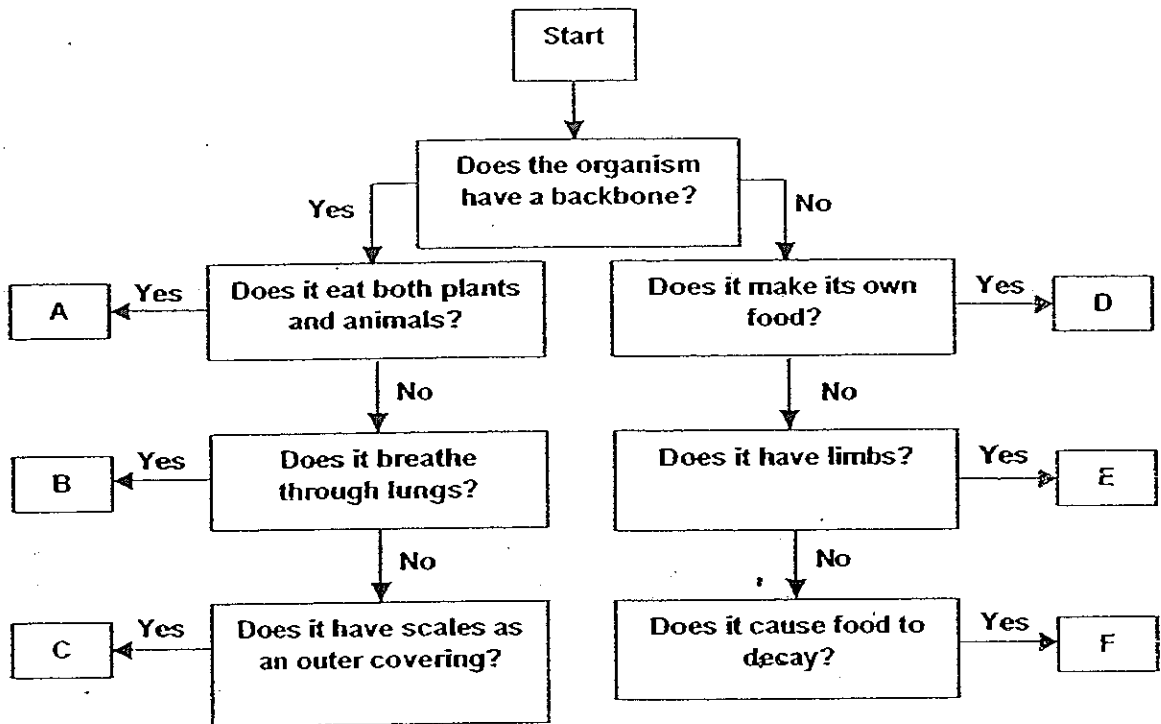
- (a) Based on the diagram above, which object(s) is/are transparent? [1]

- (b) A hole was made in the centre of the square object and it was then placed together with all the other three objects in front of the screen as shown below. Draw the shadow that will be produced on the screen. [1]



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39 Study the flow chart.



Which organisms are most likely represented by the letters A to F? Write the letters A to F in the table below. [3]

Animal	Letter
Butterfly	
Rat	
Bread Mould	
Giraffe	
Piranha	
Moss	

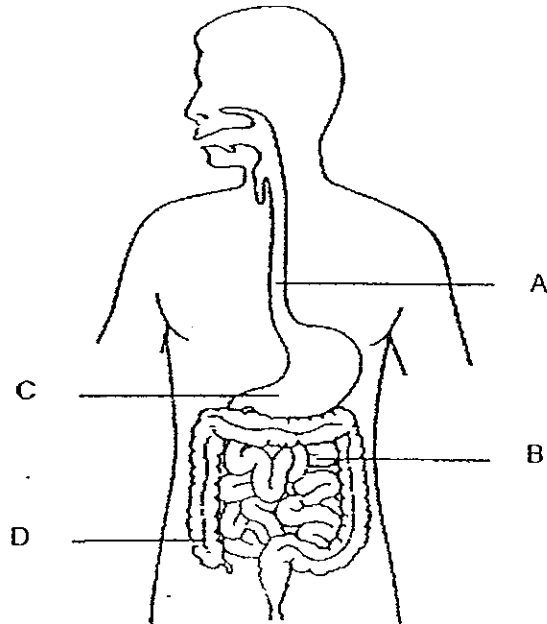
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B - 8

Score	
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- 40 (a) In which part of the human digestive system does digestion first occur? [1]

The diagram below shows the digestive system of a human body.



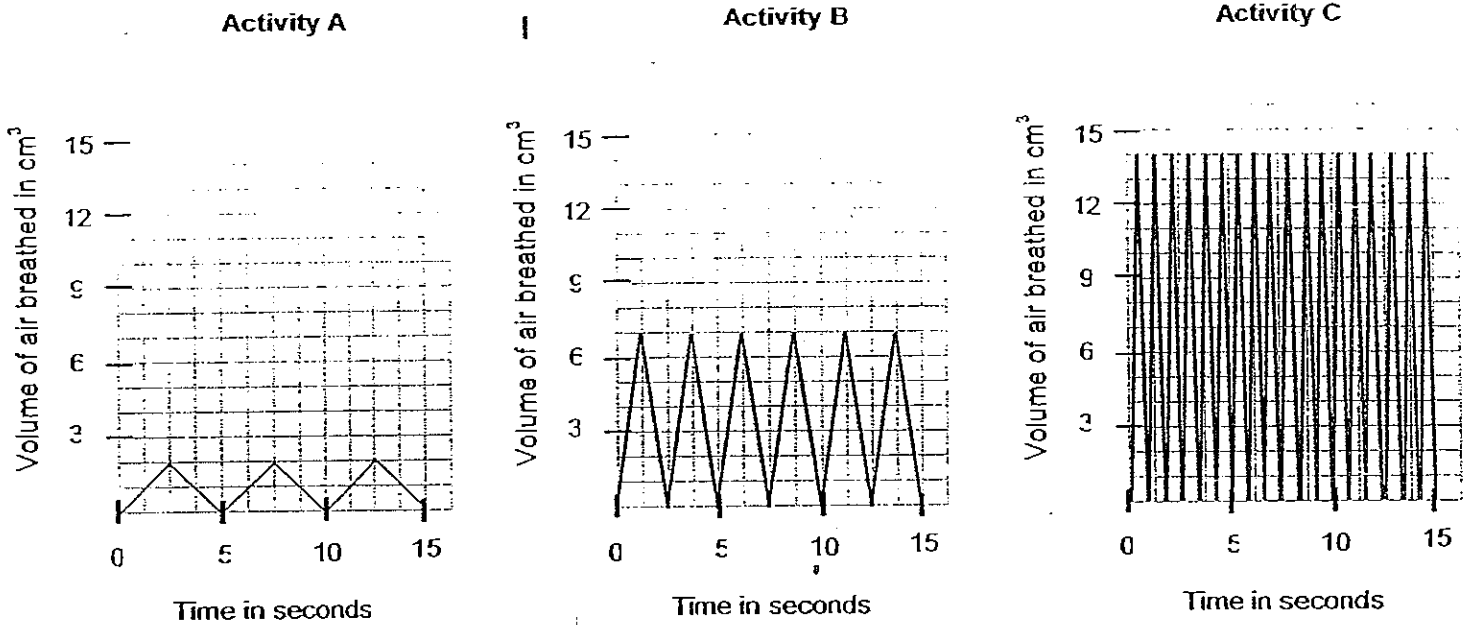
- (b) At which part, A, B, C or D is digested food absorbed into the bloodstream? [1]

- (c) Why is it important that digested food is absorbed into the bloodstream? [1]

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41 The volume of air breathed during three different activities, A, B and C is shown on the graph below.



(a) In Activity B, how many breaths are taken in per minute? [1]

(b) Which activity, A, B or C is likely to be that of someone who is resting? [1]

(c) Explain why Activity C is different from Activities A and B? [1]

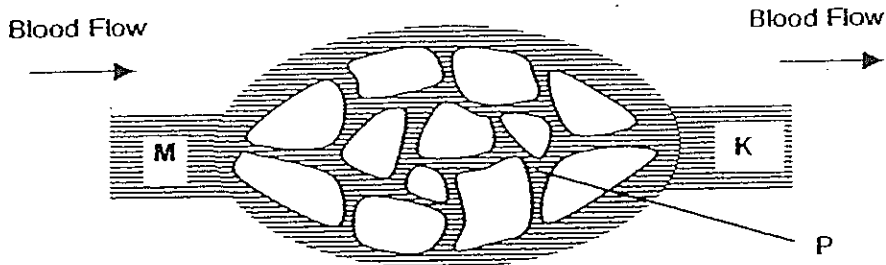
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B - 10

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42

The diagram below shows blood vessels M, P and K and the direction of blood flow in the biceps.



- (a) Which organ does blood at K eventually return to? [1]

- (b) What is the main difference between the blood flowing in M and K? [1]

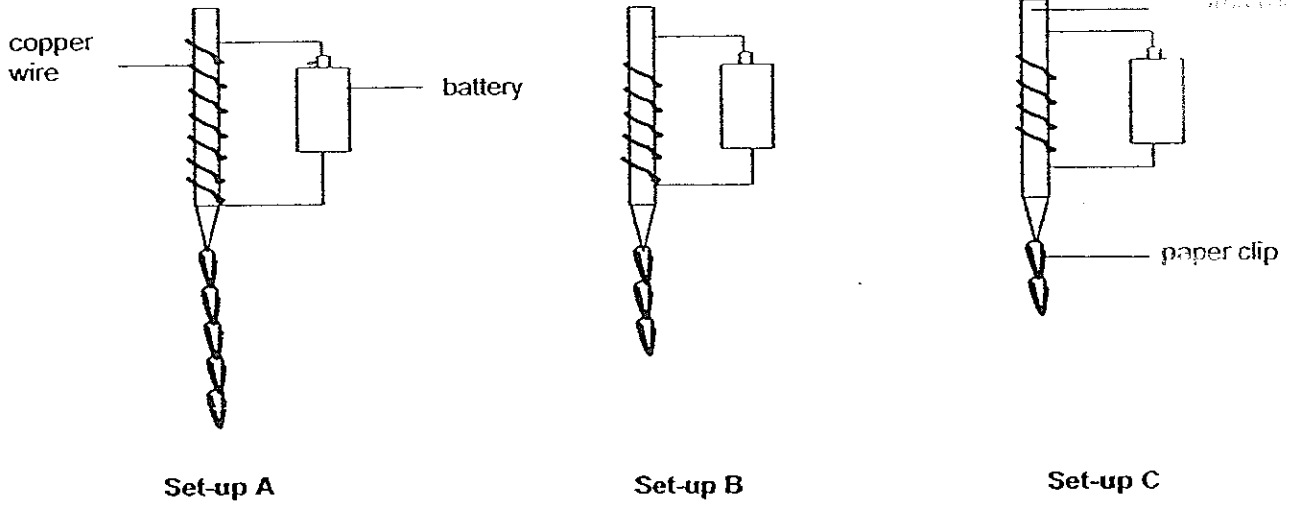
- (c) Blood vessel P has thinner walls than blood vessel M. Explain why P has thinner walls. [1]

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B - 11

Score	
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43 Jake carried out an investigation using the same batteries, iron rods and paper clips. The results of his test are shown below.



(a) Explain why the number of paper clips attracted by the iron rod in each set-up was different. [1]

(b) Later, Jake's friend Peter, removed the paper clips from Set-up B and tried to find out if Set-up B can attract more paper clips. The results of his test are as follow.

	Number of paper clips attracted by iron rod
First test using Set-up B	1
Second test using Set-up B	1

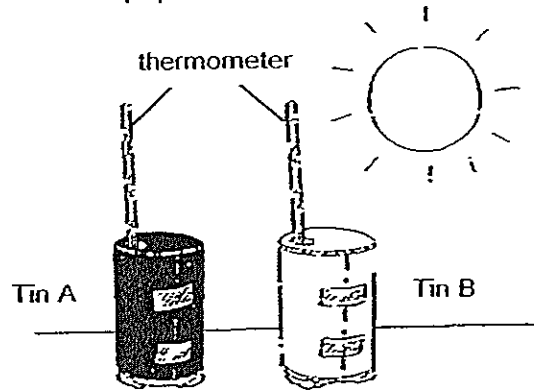
Give a reason why Peter's result is different from Jake's. [1]

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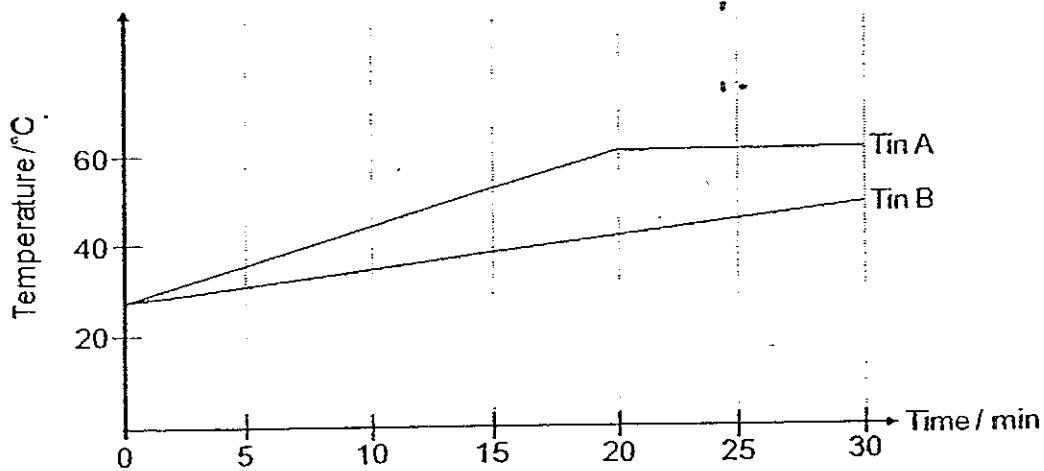
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44

Tony poured equal amounts of tap water into two similar tins, A and B, as shown below. Both tins were made of metal but Tin A was wrapped in black paper while Tin B was wrapped in white paper.



He inserted a thermometer into both tins and placed them in the open field under bright sunlight. Tony then recorded the temperature of the water in both tins every five minutes for 30 minutes and plotted a graph as shown below.



(a) For tin A, what is the relationship between the temperature of the water and the duration the tin was placed in the sun? [2]

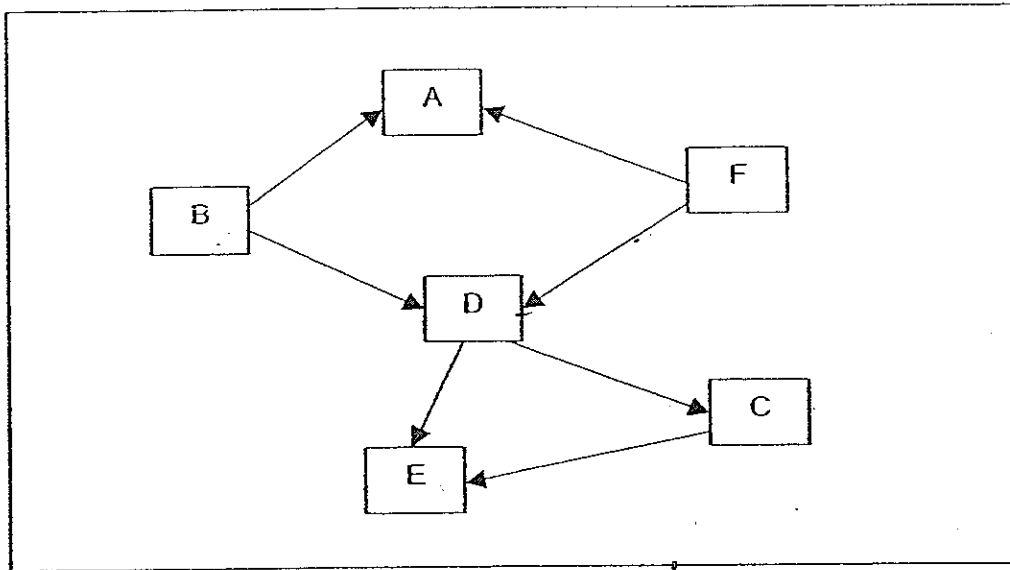
(b) From the results, state the effect of the colour of the can's surface on the can's temperature. [1]

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B - 13

Score	
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45 Study the food web below carefully.



(a) List the food producer(s). [1]

(b) List the carnivore(s). [1]

(c) In the food web, insert another organism X which is an omnivore. Draw 2 appropriate arrows to show that X is an omnivore. [1]

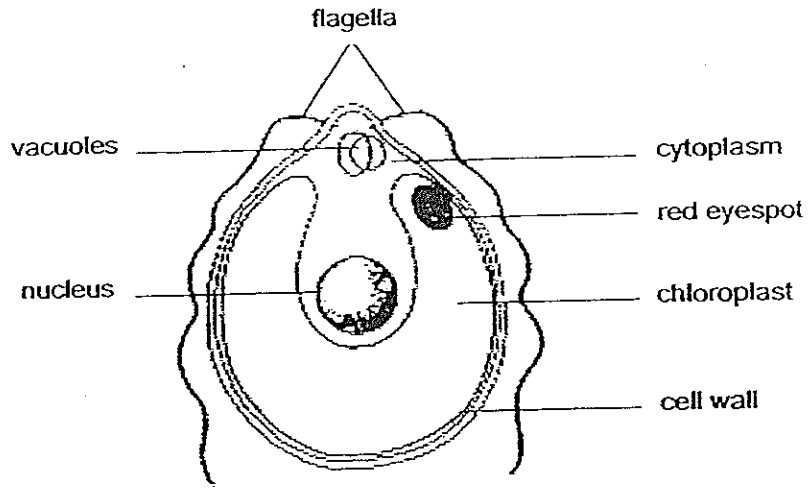
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B - 14

Score	
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230

46 Eugene was looking at a single-celled organism, Chlamydomonas, through a microscope as shown below.



a) State the function of cytoplasm in a Chlamydomonas. [1]

b) Eugene declared that the organism was an animal cell. Is he correct? Explain your answer clearly. [2]

———— The End ————

Score	
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ACS Primary School
Primary 6 Science SA2 (2008)

Answers Key

Qn no.	Ans
1	4
2	3
3	1
4	2
5	1
6	4
7	2
8	4
9	2
10	3

Qn no.	Ans
11	3
12	3
13	4
14	2
15	4
16	3
17	4
18	1
19	3
20	3

Qn no.	Ans
21	2
22	1
23	4
24	2
25	2
26	1
27	1
28	3
29	4
30	2

- 31a. moulting
31b. The larva breathes through breathing tube and the oil blocked, the air from entering the tube and disabled it from breathing.

- 32a. Pollination and fertilization
32b.



- 33a. Air could not leave the can easily.
33b. Yes. This allows air to enter the can easily through the new hole and occupy the space left behind by milk as well as to push the milk out of the second hole.
- 34a. D, M, H
34b. Animal H suckles its young
- 35a. The larger the area of plastic sheet the longer time taken for the toy soldier to reach the ground.
35b. This is to ensure that the headings of the experiment are accurate.
- 36a. Beaker 2
36b. They can be dissolved in water and they are not a magnetic material.
36c. S. Place a magnet near the surface of the dry tray.

- 37(a). Magnet X is at the furthest distance away and can attract paper clip A which is twice as heavy as paper clip B.
 (b). Both setups have 2 variables that are changed the distance between the magnet and the paper clips and the weight of paper clips attracted. To have a fair comparison only one of the variables should be changed.

38a. The circle



39a. E, A, F, B, C, D

40a. Mouth

40b. B

40c. It is important as food is needed to be transported to all parts of the body.

41a. 24 breathes

41b. Activity A

41c. Activity C is a high level activity the person needs more oxygen and that is why more air is taken in.

42a. Heart

42b. The blood in M is rich in oxygen when as the blood in K is rich in carbon dioxide.

42c. It has thin walls where oxygen digested food and water from blood pass easily through the walls.

43a. The numbers of coiling around the copper wire are different.

43b. The distance where Peter placed the paper clips on where different from Jake's placing position.

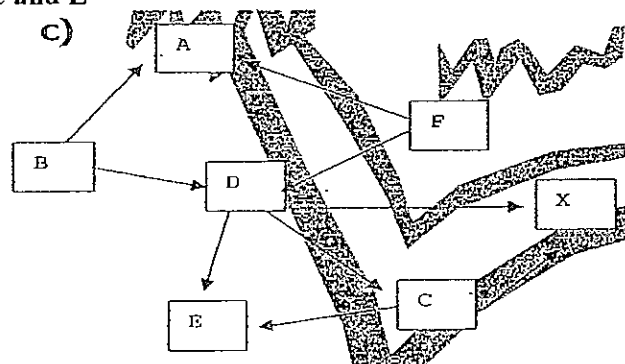
44a. The longer tin A was placed in the sun, the lighter the temperature recorded, until 20 minutes when the temperature remained constant.

44b. The darker the colour of the can's surface, the higher the temperature of the can.

45a. B and F

45b. C and E

45c.



46a. It is from new substances in it.

46b. No. There are cell wall and chloroplast in the cell.