Name: _____ ( )

Class: Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

SIMPLE IN VIRTUE

STEADFAST IN DUTY

德 纯 义 淑

Primary 6

Semestral Assessment 1 – 2011

SCIENCE

BOOKLET A

12th May 2011

Total Time for Booklets A and B: 1 hour 45 minutes

30 questions
60 marks

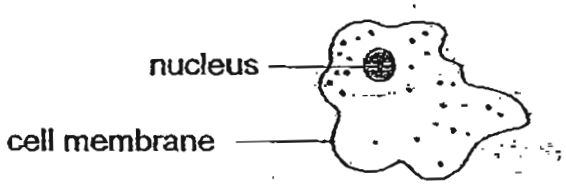
Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

This paper consists of 18 printed pages.

Section A : (30 x 2 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.

1. The diagram below shows the cell of an organism.

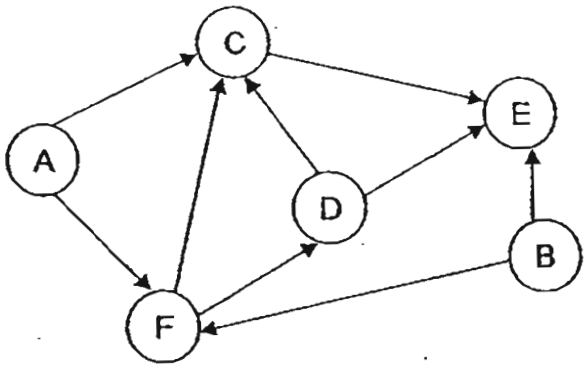


It is **unlikely** to be the cell of a/an _____.

A plant
B animal
C fungus
D amoeba

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

2. Study the food web below carefully.



How many omnivores are there in the above food web?

(1) Two
(2) Three
(3) Four
(4) Five

3. Samat had two pots of soil, X and Y. He placed 10 bean seeds in each pot. He put Pot X in a dark room and Pot Y in a well-lit area. He watered the two pots of soil daily. He observed the growth of the seedlings and recorded the average height in the table below.

Day	Average height of seedlings (cm)	
	Pot X	Pot Y
1	0	0
2	0	0
3	0.5	0.4
4	1.2	1
5	3	2
6	6	3
7	8.5	4

Based on the information given above, which of the following conclusions can we draw?

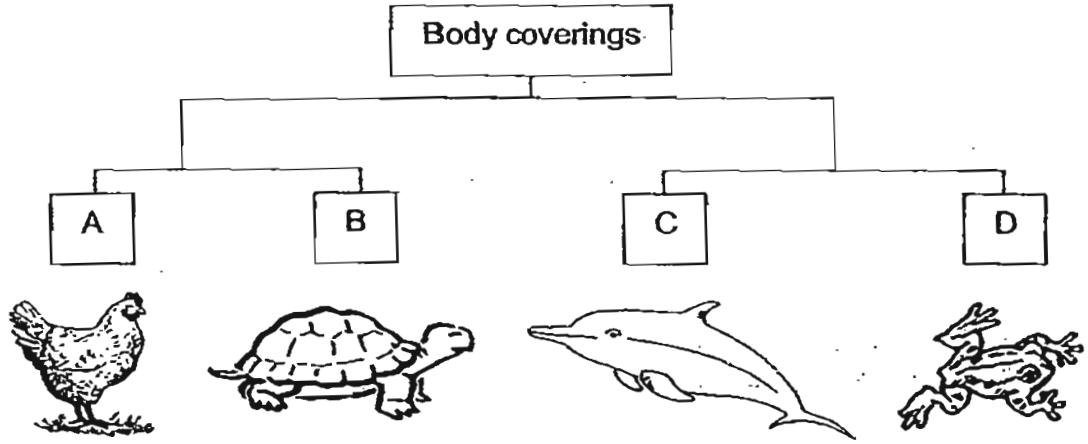
A All the seeds germinated by day 3.
B The average height of the seedlings grown under light are shorter than those grown in the dark.
C Light is not necessary for the germination of bean seeds.
D The difference in the average height of the seedlings between those grown in the dark and those grown under light increases with the number of days.

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

4. In a garden community, the size of the aphid population will depend on the size of the _____ populations.

(1) bee and moth
(2) plant and ladybird
(3) grass and earthworm
(4) butterfly and mosquito

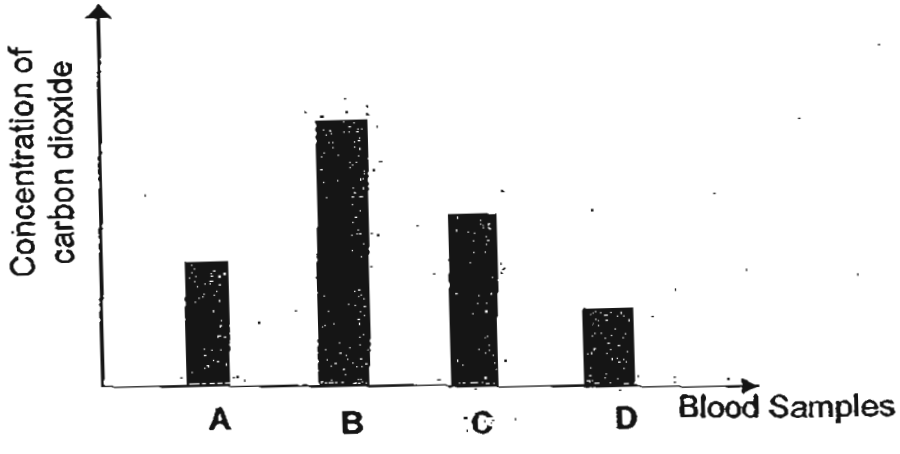
5. The classification chart below shows how some animals can be grouped according to their body coverings.



In which group would you put the **penguin** in?

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

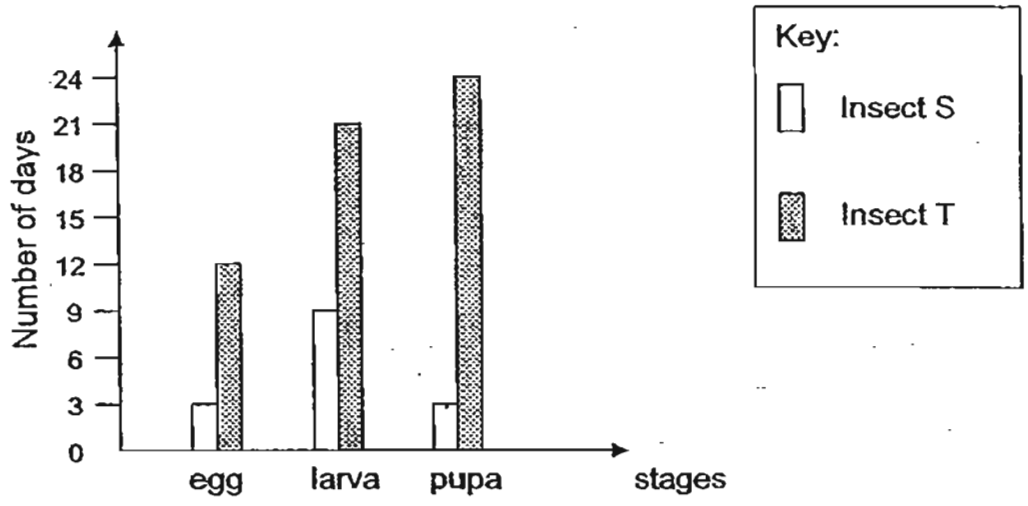
6. The graph below shows concentration of carbon dioxide in 4 blood samples taken from different blood vessels in the circulatory system.



Which sample is most likely to be taken from the blood vessel which carries blood from the heart to the lungs?

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

7. The graph below shows the number of days taken at various stages of the life cycles of insects S and T.



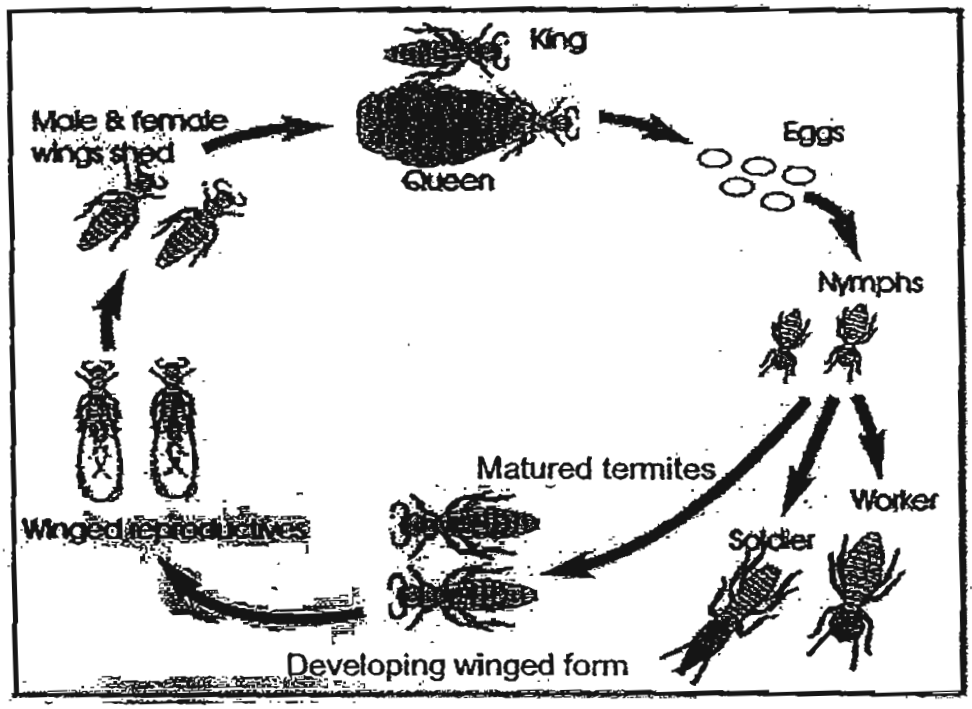
At which stage respectively, would insects, S and T, be on the 20th day after the eggs were laid?

	Insect S	Insect T
(1)	pupa	larva
(2)	pupa	pupa
(3)	adult	larva
(4)	adult	pupa

8. Fandi wanted to find out whether chemical X can help to keep cut flowers fresh for a longer period of time. He used two similar vases, A and B, and similar carnation flowers for his investigation.
In vase A, he put in 300 mℓ of tap water at 28°C, 5 mℓ of chemical X and 10 stalks of carnation flowers. How should he set up the control in vase B?

	Tap water (mℓ)	Temperature of water (°C)	Chemical X	Carnation flowers (stalk)
(1)	150	28	5	10
(2)	300	28	5	5
(3)	300	28	0	5
(4)	300	28	0	10

9. The diagram below shows the life cycle of termites.



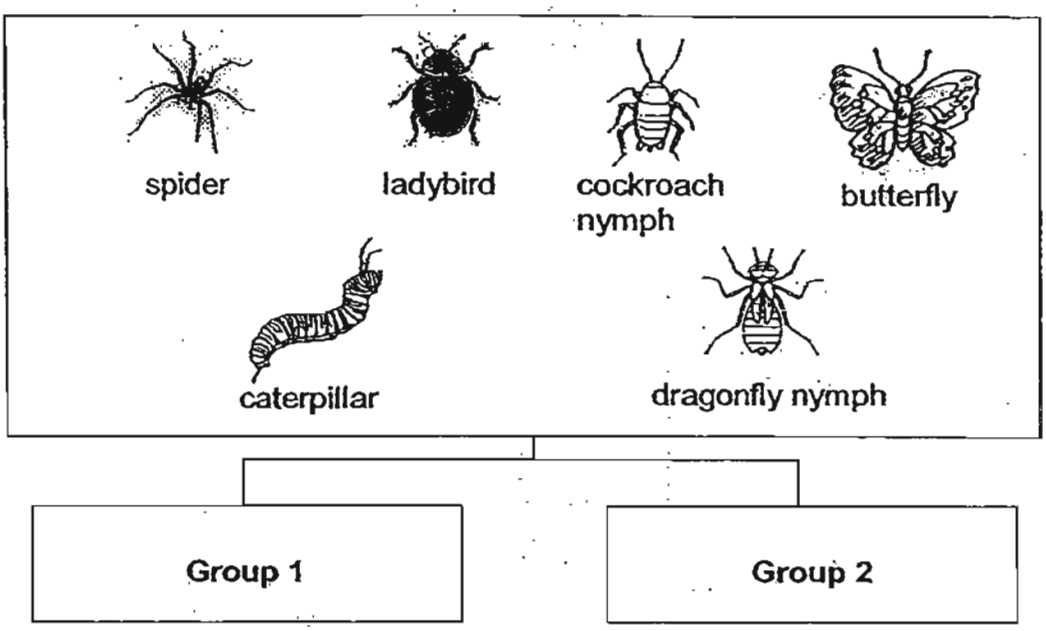
How many stages are there in the life cycle of termites?

(1) 3 stages
(2) 4 stages
(3) 7 stages
(4) 9 stages

10. The table below shows the differences between the transport system in plants and the human circulatory system. Which one of the comparisons is <u>not</u> correct?

	Differences	
	Transport system in plants	**Human circulatory system**
(1)	No circulating cells	Contains circulating cells
(2)	Carries oxygen and mineral salts	Carries oxygen and digested food
(3)	Does not have a pumping organ	Has a pumping organ
(4)	Liquid does not move around continuously	Liquid moves around continuously

11. The diagram below shows six animals. Alan classified them into two groups. In each group, there were exactly three animals.



Which of the following ways of grouping could he get exactly three animals in each group?

	Group 1	Group 2
A	Can fly	Cannot fly
B	Insects	Non-insects
C	Adult	Young
D	Predators	Non-predators

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

12. The table below shows the structures of three cells, X, Y and Z. A tick (√) in the box indicates the presence of the part in the cell.

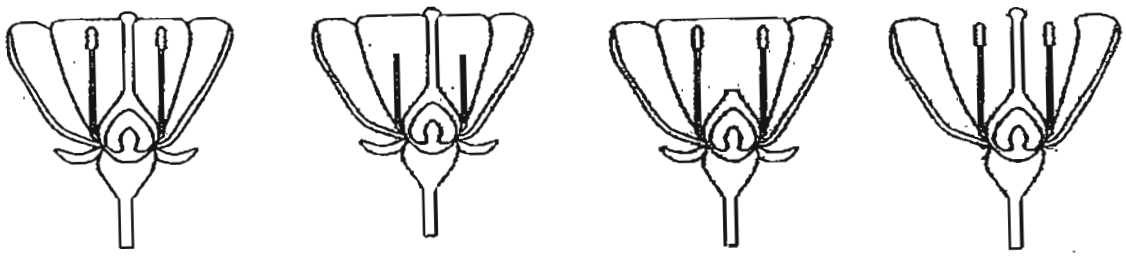
Cell type	Nucleus	Cell wall	Cytoplasm	Chloroplast	Cell membrane
X	√	√	√		√
Y	√	√	√	√	√
Z		√	√		√

Which of the following statements about the cells above are correct?

A Cell Z is a red blood cell.
B Cell X is definitely a plant cell.
C Cell Y is able to photosynthesize.
D Cell Z is not able to photosynthesize.

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

13. The diagrams below show the same type of flowers found in a garden. Flowers, B, C and D, have some parts removed from them.

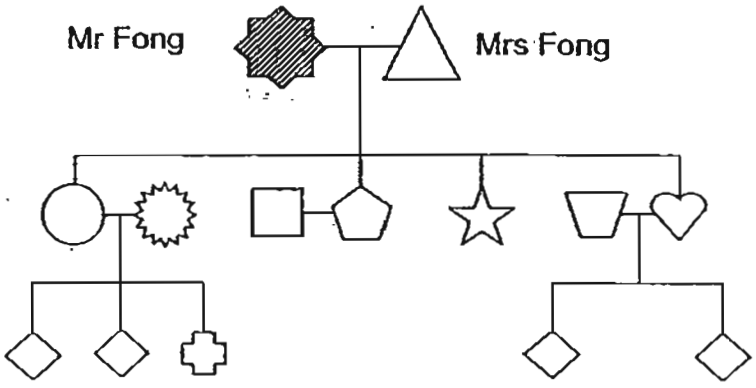


flower A flower B flower C flower D

Which flower(s) could possibly develop into a fruit?

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

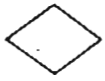
14. The chart below shows the family tree of Mr and Mrs Fong.



Mr and Mrs Fong had four children. They had two sons who were married. One of them had three children while the other had none. One of their daughters was married and had two sons.

Which one of the following symbols represents their son who had **no** children?

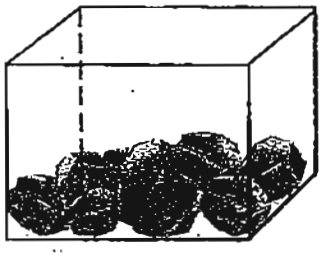
(1) 

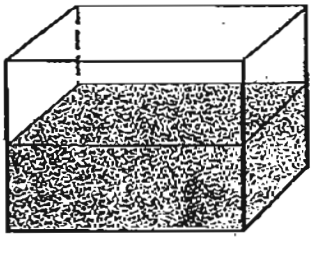
(2) 

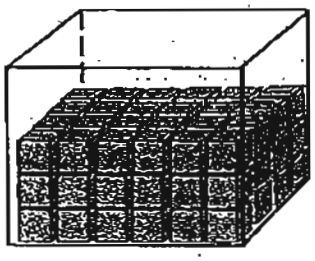
(3) 

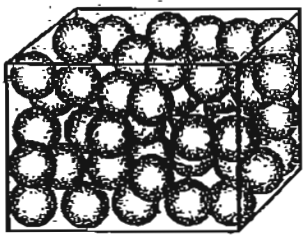
(4) 

15. Johnson had four boxes as shown in the diagrams below. All of the boxes were the same size. Each box with its contents weighed 200g. If all the boxes were filled to the top, which box would be the heaviest?

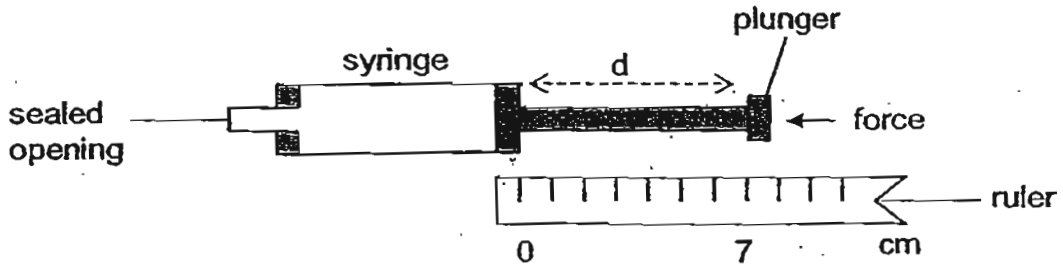
(1) 

(2) 

(3) 

(4) 

16. Aminah carried out an experiment with two identical syringes. Each syringe was completely filled with either matter X or matter Y.



She pushed each plunger as hard as she could. She then measured the distance d and recorded the results in the table below.

	d (cm)	
	Syringe with matter X	**Syringe with matter Y**
1st try	4	7
2nd try	3	7
3rd try	3	7

Which one of the following pairs of matters correctly represents matter X and matter Y?

	Matter X	**Matter Y**
(1)	water	oxygen
(2)	flour	water
(3)	oxygen	nitrogen
(4)	carbon dioxide	fine sugar

17. Below are some examples of how energy is transferred from one living thing to another.

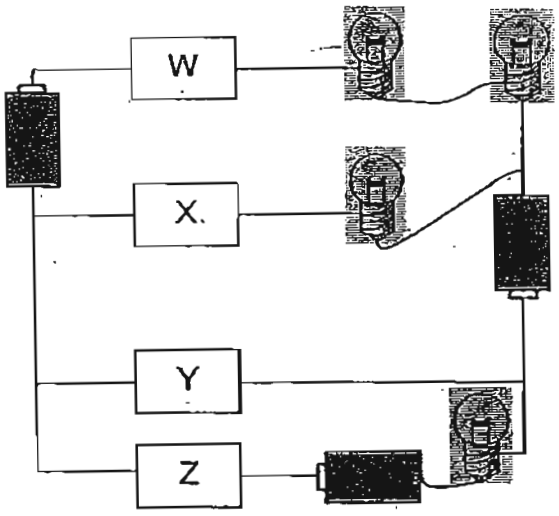
plant →	insect →	bird
hydrilla →	fish →	dolphin
maize →	chicken →	man

Based on the food chains above, which of the following statements about energy transfer are correct?

A The transfer of energy always begins with a plant.
B All carnivores get their energy indirectly from the plant.
C Only herbivores get their energy directly from the plant
D The main source of energy for the food chains is the Sun.

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

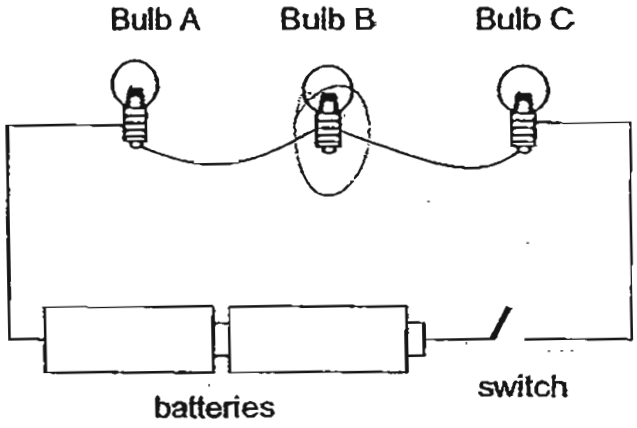
18. Alex set up the following circuit with four materials, W, X, Y and Z, of similar size.



He observed that only one bulb was lit. Which one of the following correctly represents materials, W, X, Y and Z, in the above circuit?

	Material W	Material X	Material Y	Material Z
(1)	aluminium	glass	porcelain	copper
(2)	carbon	copper	glass	steel
(3)	silver	iron	copper	aluminium
(4)	porcelain	aluminium	nichrome	styrofoam

19. The three bulbs in the circuit below are identical.



What will happen when the circuit is closed?

(1) Only bulb C will light up.
(2) All the bulbs will light up.
(3) None of the bulbs will light up.
(4) Only bulbs A and C will light up.

20. Muthu described the conversion of energy of an appliance as follows:

Kinetic energy → Electrical energy

Which one of the following appliances was she describing?

(1) 

ceiling fan

(2) 

electric iron

(3) 

electric kettle

(4) 

dynamo

21. Three different rods of similar size, A, B and C, are placed on a block of ice as shown in diagram1. The rods are heated with identical burners for five minutes. Diagram 2 shows the results after five minutes.

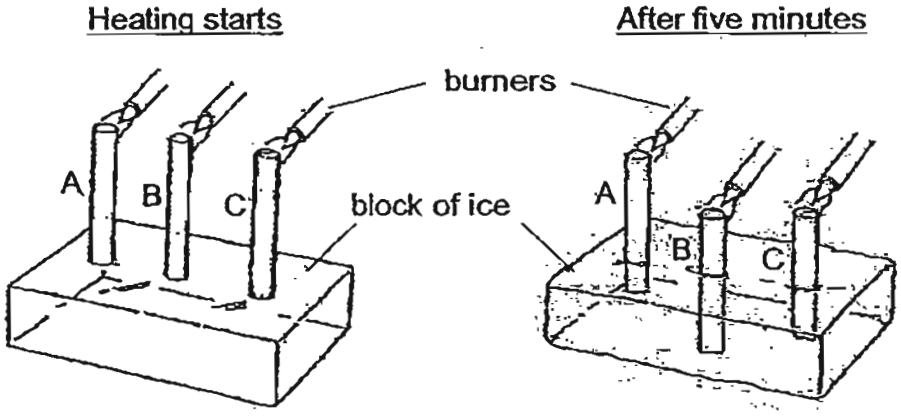


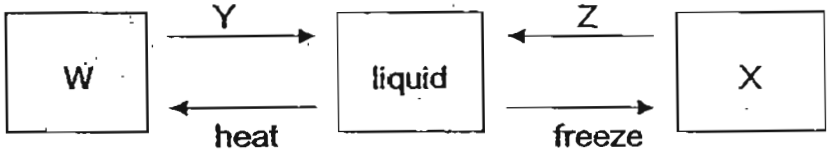
Diagram 1 Diagram 2

Which one of the following correctly shows what materials the rods are made of?

	Rod A	Rod B	Rod C
(1)	glass	copper	iron
(2)	copper	iron	glass
(3)	iron	glass	copper
(4)	copper	glass	iron

22. Matter can be solid, liquid or gas, depending on temperature.

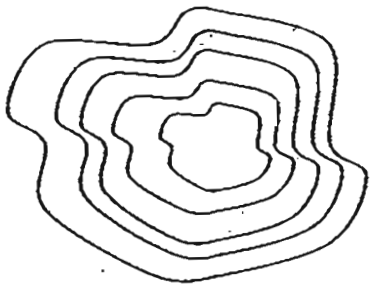
The diagram below shows how matter can change from one state to another.



What could W, X, Y and Z represent?

	W	X	Y	Z
(1)	gas	solid	cool	heat
(2)	gas	solid	heat	cool
(3)	solid	gas	heat	cool
(4)	solid	gas	cool	heat

23. Lawrence carried out an experiment to investigate the factors that affect the evaporation rate of water. He carried out his investigation on the tennis court. He created two puddles of water at the same time using the same volume of water. After each hour, he drew a line with a marker on the tennis court around the perimeter of each of the puddles until all the water had evaporated. The floor of the tennis court did not absorb the water. The diagram below shows the results of his investigation.



puddle 1

puddle 2

Based on the results of his experiment, what conclusion can he draw?

(1) The water from puddle 1 and puddle 2 evaporated at the same rate.
(2) The water from puddle 1 evaporated at a slower rate than the water from puddle 2.
(3) The greater the volume of water in the puddle, the slower it evaporated.
(4) The greater the surface area of the puddle, the faster the water evaporated.

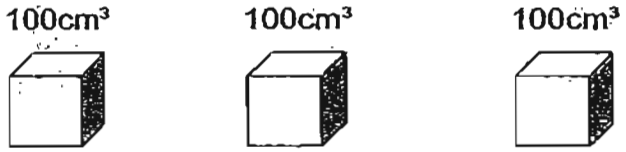
24. Alex compared the hardness of 4 rocks, P, Q, R and S, by scratching them with different pointed rods. He recorded his observations in the table below. A tick (√) indicates the presence of scratch marks on the rocks.

Rock	Presence of scratch marks made by:		
	plastic rod	wooden rod	iron rod
P	✓	✓	✓
Q			✓
R			
S		✓	✓

Which one of the following correctly shows the four rocks arranged in descending order of hardness?

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

25. The diagram below shows three cubes of the same size but different materials.

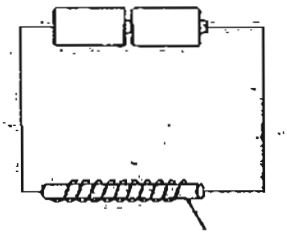


Based on the information given above, which one of the following statements about the three cubes is correct?

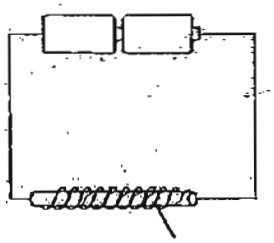
(1) They have the same mass.
(2) They occupy the same amount of space.
(3) The iron cube takes up less space than the wooden cube.
(4) The iron cube is heavier than the total weight of the plasticine and the wooden cubes.

26. Which one of the following rods will be able to attract the most number of paper clips?

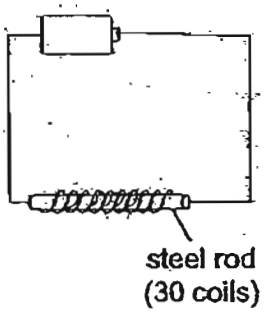
(1)



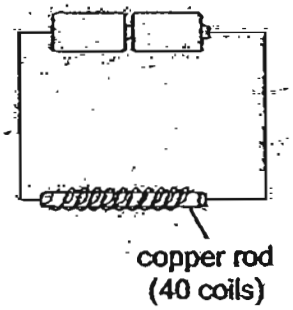
(2)



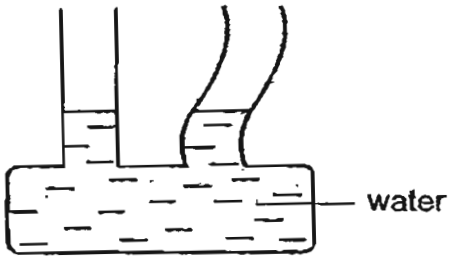
(3)



(4)



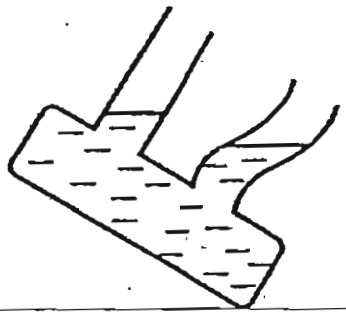
27. The communicating vessel below is filled with some water.



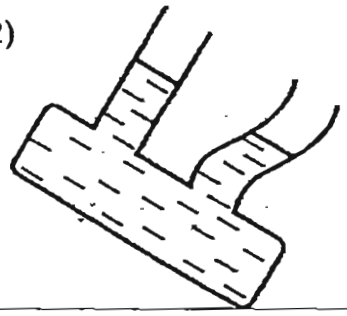
Communicating vessel

Which one of the following diagrams shows the correct position of the water in the vessel when it is tilted?

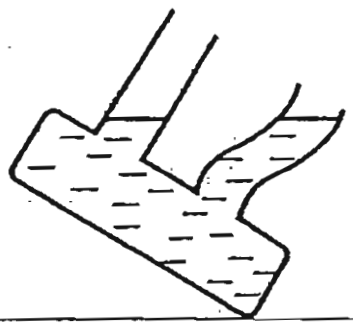
(1)



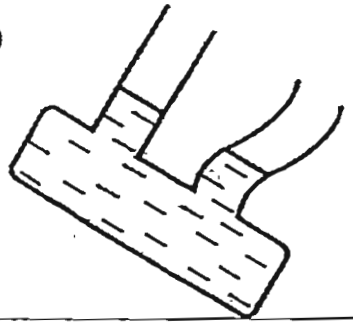
(2)



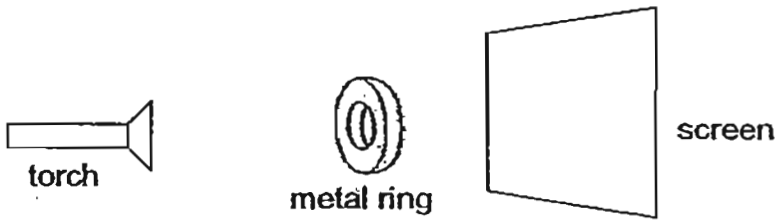
(3)



(4)



28. The diagram below shows a torch and a metal ring in front of a screen.

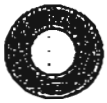


Which one of the following **cannot** be the shadow formed on the screen above?

(1) 

(2) 

(3) 

(4) 

29. Sam wanted to compare the properties of porcelain, steel, copper and iron. He did a series of experiments and recorded his observations in a table.
Which one of the following tables shows the most likely observations he had made?

(1)

Material	Magnetic	Good Conductor of Heat
Porcelain	✓	
Steel	✓	✓
Copper	✓	✓
Iron	✓	✓

(2)

Material	Magnetic	Good Conductor of Heat
Porcelain		✓
Steel	✓	✓
Copper		✓
Iron	✓	✓

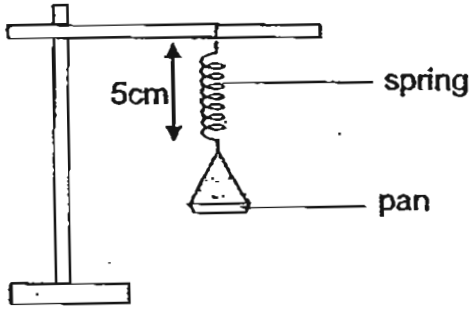
(3)

Material	Magnetic	Good Conductor of Heat
Porcelain		
Steel	✓	✓
Copper		✓
Iron	✓	✓

(4)

Material	Magnetic	Good Conductor of Heat
Porcelain		✓
Steel	✓	✓
Copper	✓	✓
Iron		✓

30. An experiment was conducted to determine how much a spring would extend when objects of different masses were placed in the pan. The diagram below shows the set-up before the objects were placed in the pan.



Object placed in the pan	Length of spring (cm)
300g mass	7
An exercise book	6.5
A box of marbles	9
A packet of beans	11
A pen	6

Which one of the objects has a mass of about 600g?

(1) A pen
(2) A box of marbles
(3) An exercise book
(4) A packet of beans

~~~ End of Section A ~~~

Name: _____ ( )

Class: Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

SIMPLE IN VIRTUE

STEADFAST IN DUTY

慈 纯 义 坚

Primary 6

Semestral Assessment 1 – 2011

SCIENCE

BOOKLET B

12th May 2011

Booklet A	60
Booklet B	40
Total	100

Total Time for Booklets A and B: 1 hour 45 minutes

14 questions
40 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

This paper consists of 13 printed pages.

_____
Parent's Signature/Date

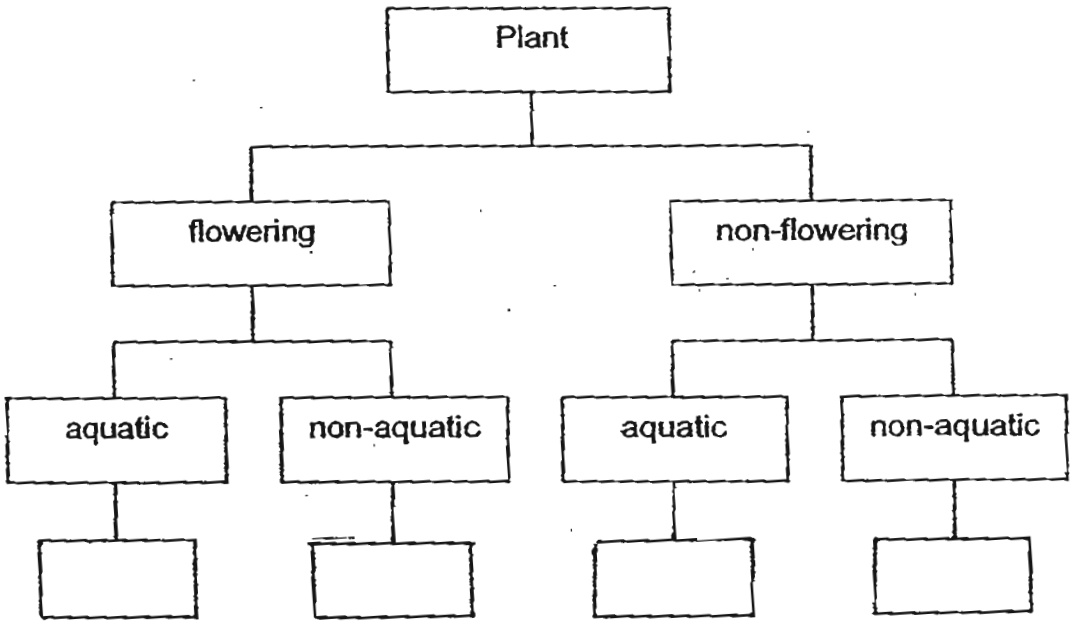
Section B (40 marks)

For questions 31 - 44, 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 following table gives information on four plants, A, B, C and D, based on two characteristics. A tick (√) shows that the plant has the characteristic.

Characteristic \ Plant	A	B	C	D
Bears fruit		√		√
Grows on land	√			√

(a) From the information above, classify the four plants by writing the letters, A, B, C and D, in the correct boxes in the classification chart below. [2]

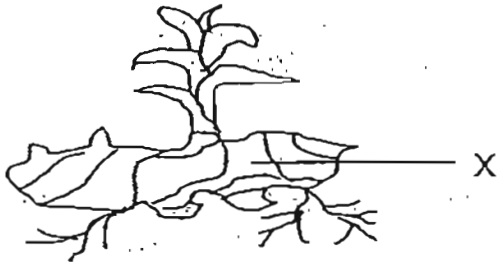


(b) The conifer trees grow from seeds found in cones.
Using the classification chart in (a) above, state two characteristics of a conifer tree. [1]

_____

_____

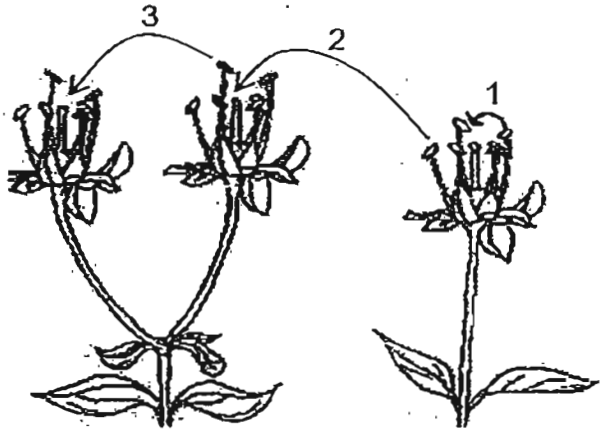
32. The diagram below shows a ginger plant.



(a) The part marked X helps the plant to store food. State two other functions of part X. [2]

(b) In term of food storage, how is a ginger plant different from a carrot plant? [1]

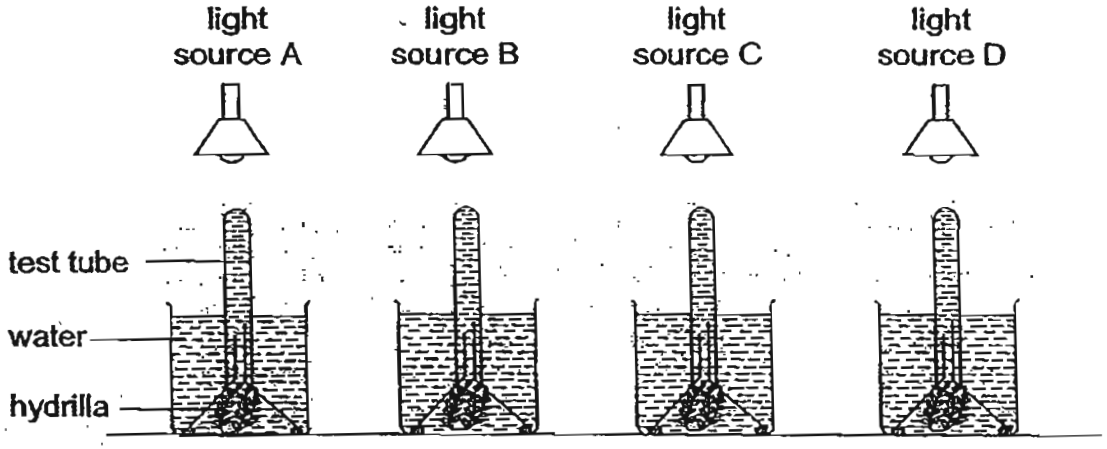
33 The diagram below shows two plants, A and B, of the same species. The three arrows, 1, 2 and 3, show the process of pollination in plants.



(a) Which arrow(s) show(s) cross-pollination? [1]

(b) Will the flowers develop into fruits after pollination? Explain your answer. [1]

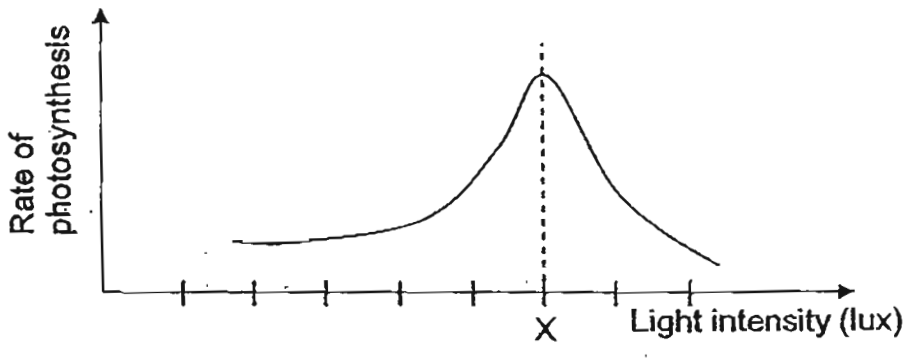
34. John carried out an experiment to find out the effect of light intensity on the rate of photosynthesis. He used the same amount of hydrilla plants in each set-up and set up his experiment in a dark room as shown in the diagram below. He turned on the light sources, A, B, C and D, each with a different intensity, for 5 minutes and monitored the rate of photosynthesis.



(a) What must he measure in order to find the rate of photosynthesis of the hydrilla? [1]

_____

The graph below shows the relationship between the rate of photosynthesis of the hydrilla plant and the intensity of light.

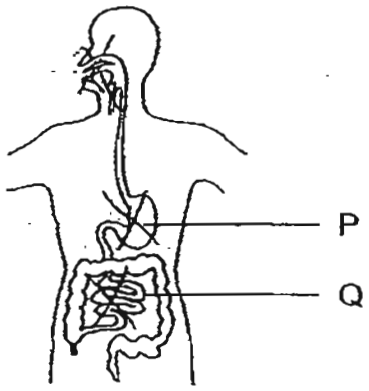


(b) Based on the graph above, what conclusion can you draw about the effect of light intensity on the rate of photosynthesis? [2]

_____

_____

35. The diagram below shows the digestive system.



(a) State one similarity and one difference between part P and part Q of the digestive system. [2]

Similarity: _____

Difference _____

Edwin described the function of one of the organs in the digestive system as follows: "Food moves from one organ to the next through muscle action. This organ does not produce digestive juice even though digestion is taking place here. Its muscle contracts to create a narrowing and then propels the food and fluid in front of it to the next organ."

(b) Which part of the digestive system was he describing? [1]

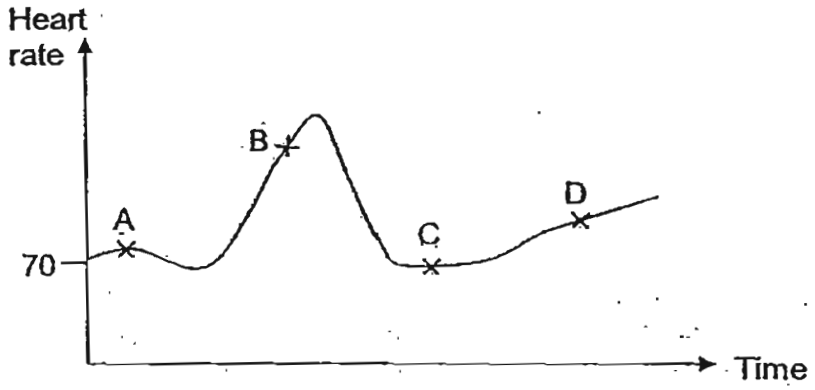
_____

(c) What is the function of the digestive juice? [1]

_____

36. The heart rate of a person who is resting is about 70 beats per minute.

The graph below shows the heart rate of a boy engaged in various activities over a few hours.



The table below shows some of the activities he was engaged in.

Activity	sleeping	jogging	walking	reading
Parts of the graph				

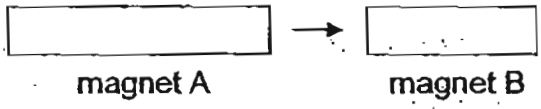
(a) Match the activity with the appropriate parts of the graph by writing the letters, A, B, C and D, in the table above. [2]

(b) Why does our breathing rate increase when we exercise? [1]

_____

_____

37. When Azlan pushed magnet A towards magnet B as shown in the diagram below, magnet B moved away.



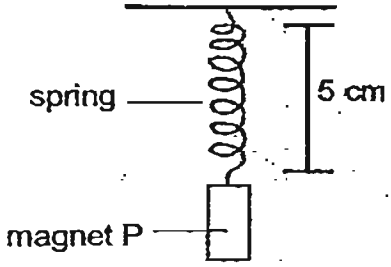
(a) What type of force caused magnet B to move away? [1]

_____

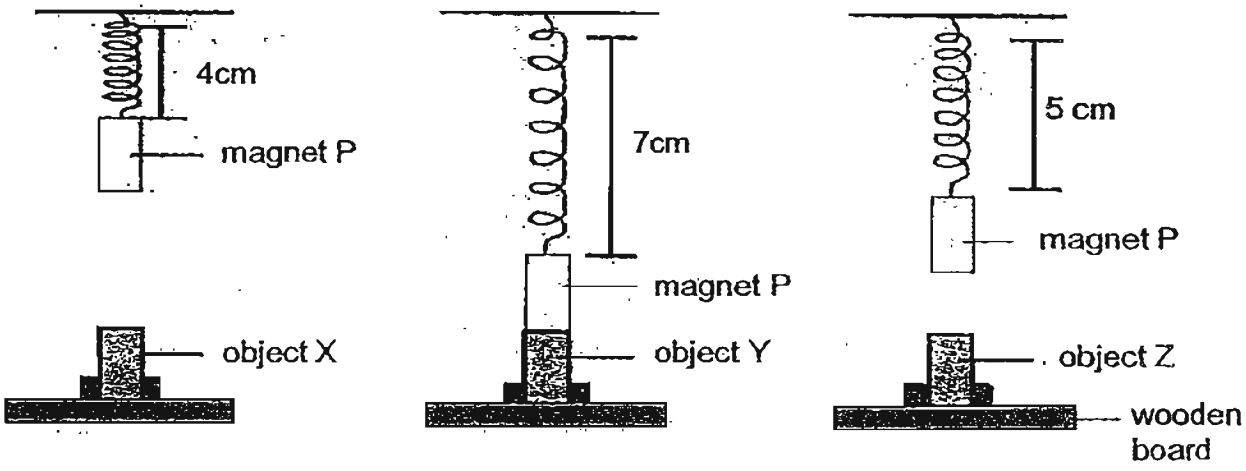
(b) How is the force in (a) above different from frictional force? [1]

_____

38. Magnet P was hung on a spring above the ground as shown in the diagram below.



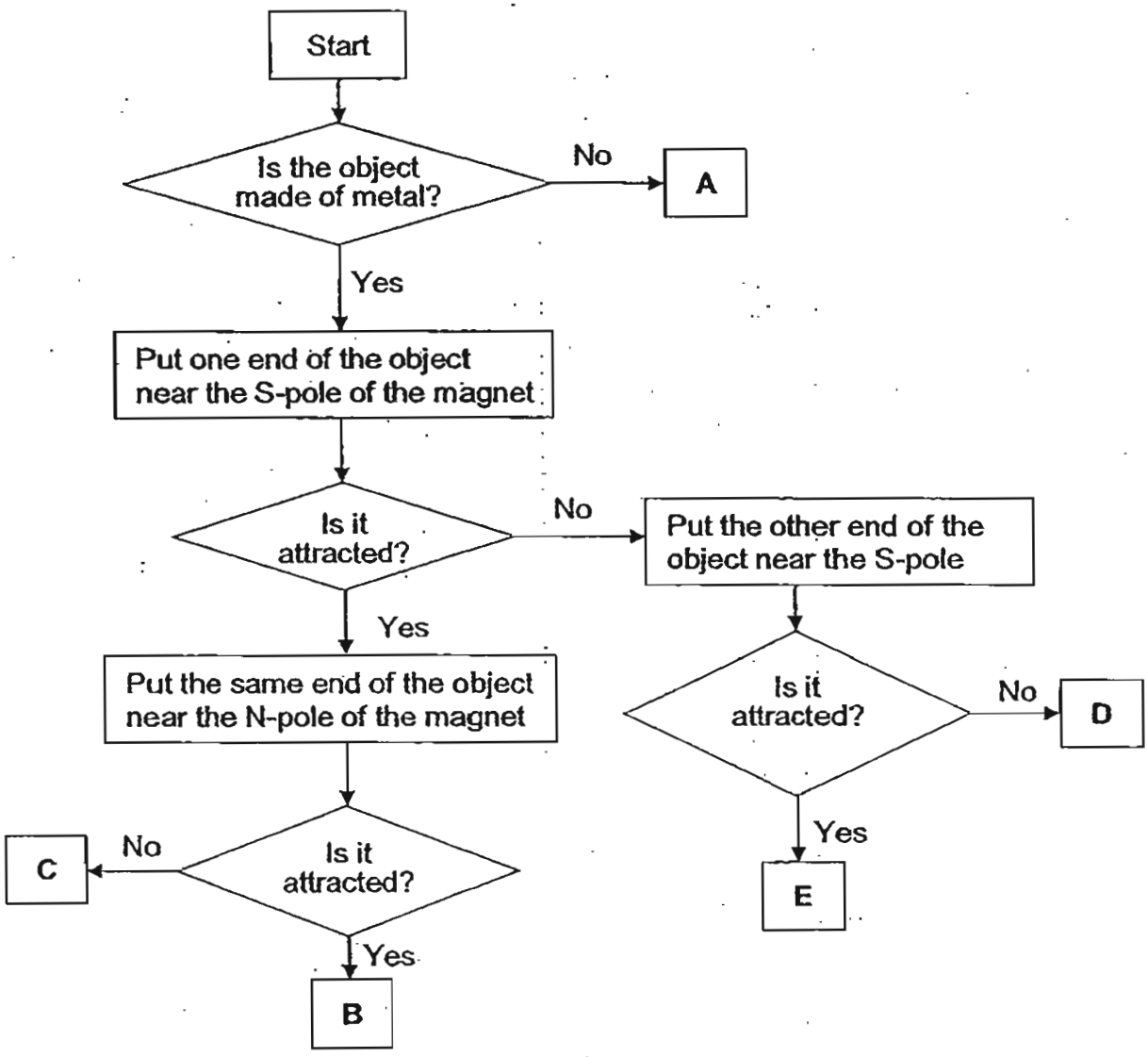
Three objects, X, Y and Z, secured on a board, were placed one at a time directly below magnet P. The diagrams below show the results when each of the objects was placed below magnet P.



Based on the above observations, state whether each of the following statements is **True (T), False (F) or Not Possible to tell (NP).** [2]

	Statement	Answer
(i)	Object X is a magnet.	
(ii)	Object Y is a magnet.	
(iii)	Object Y is made of iron.	
(iv)	Object Z is a magnetic material.	

39. The following flowchart shows the process of finding out the magnetic properties of objects. The points, A, B, C, D and E, are called 'exit' points.
Mei Shan was given a magnet, a carbon rod and an iron nail. She was asked to go through the process of the flowchart beginning from "Start".



(a) Which 'exit' point would the carbon rod and the iron nail end up at? [2]

Carbon rod: _____

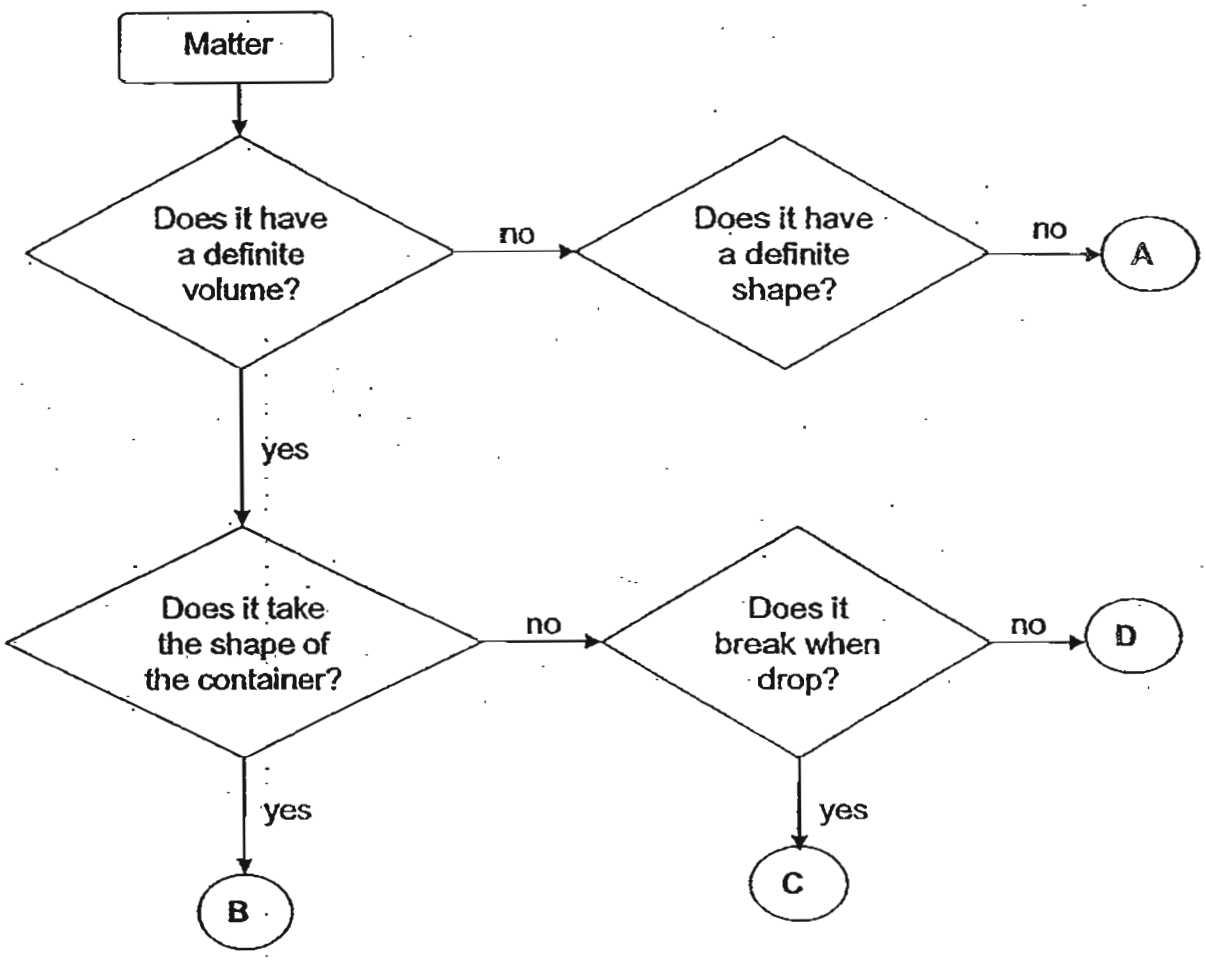
Iron nail: _____

(b) Can a magnetized iron rod end up at exit point E? Explain your answer. [2]

_____

_____

40. The flowchart below shows the properties of matters, A, B, C and D.



Study the flowchart carefully and state whether each of the following statements is **True**, **False** or **Not Possible to Tell (NP)**. Put a tick (√) in the appropriate boxes. [2]

	Statement	True	False	NP
1	Matter A and matter B have no definite shape.			
2	Matter A can be compressed while matter B cannot.			
3	Sand is represented by matter D.			
4	Matter C is a liquid.			

41. Donny filled a glass cylinder with some water. He noticed that the water level in the jar rose each time he put in a marble. Diagram B below shows the water level after two marbles were put into the glass cylinder.

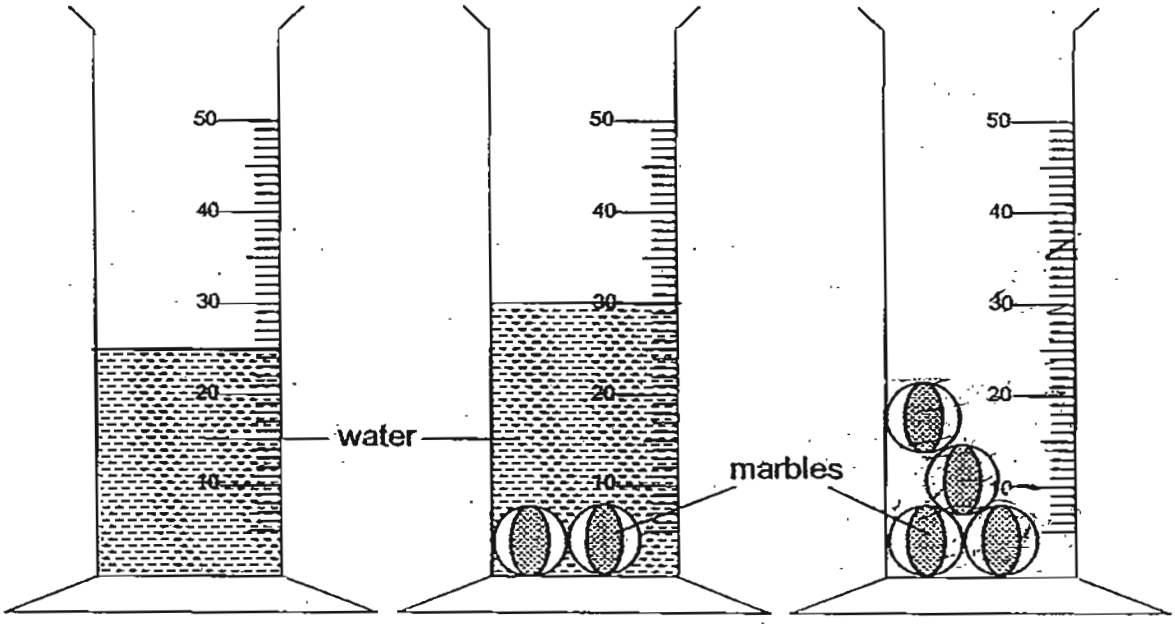
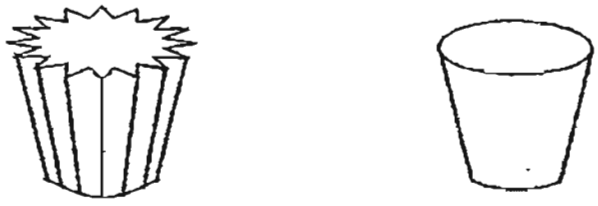


diagram A diagram B diagram C

(a) Draw the new water level in the glass cylinder in diagram C when he put in four marbles. [1]

(b) What does this experiment show you about the properties of a solid? [2]

42. The diagram below shows two cups of the same material and diameter. The cups were filled with the same amount of hot water at 90°C.



cup A cup B

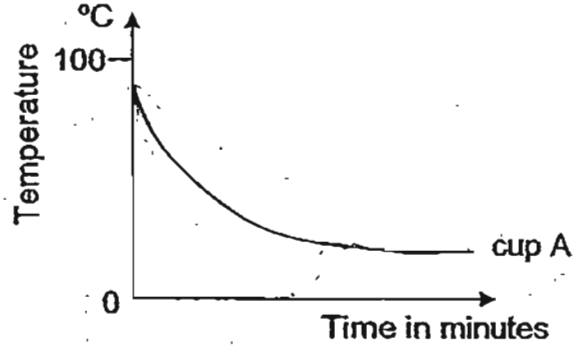
Alan wanted to find out the length of time he could hold onto each cup with his bare hand until it was too hot for him to hold. The diagram below shows the position of his hand when he held each cup up.

Positions of Alan's hand

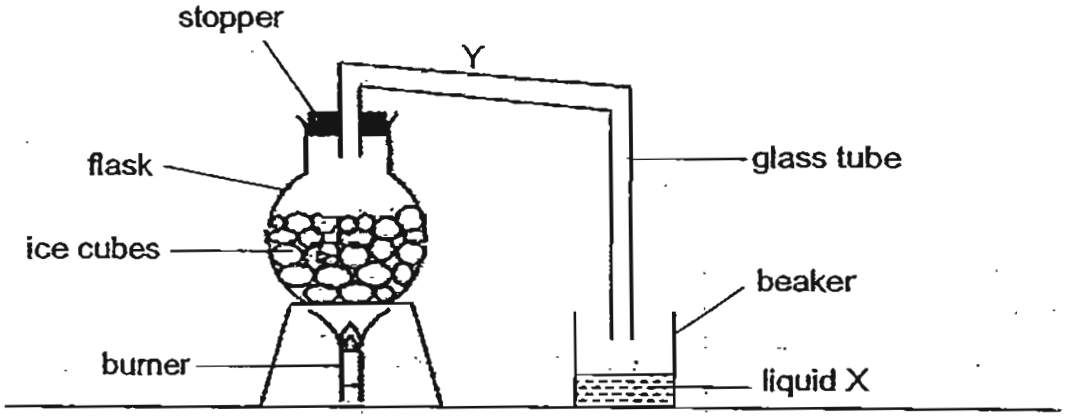
(a) Which cup could he hold for a longer period of time before it was too hot for him to hold on? Explain your answer. [2]

Alan carried out another experiment with the two cups of hot water. He left them on a table and measured the change in temperature of the hot water every two minutes for an hour. He plotted a graph for the change in temperature of the hot water in cup A as shown in the diagram below.

(b) On the same axes below, draw and label another graph to show the change in temperature of the hot water in cup B. [1]



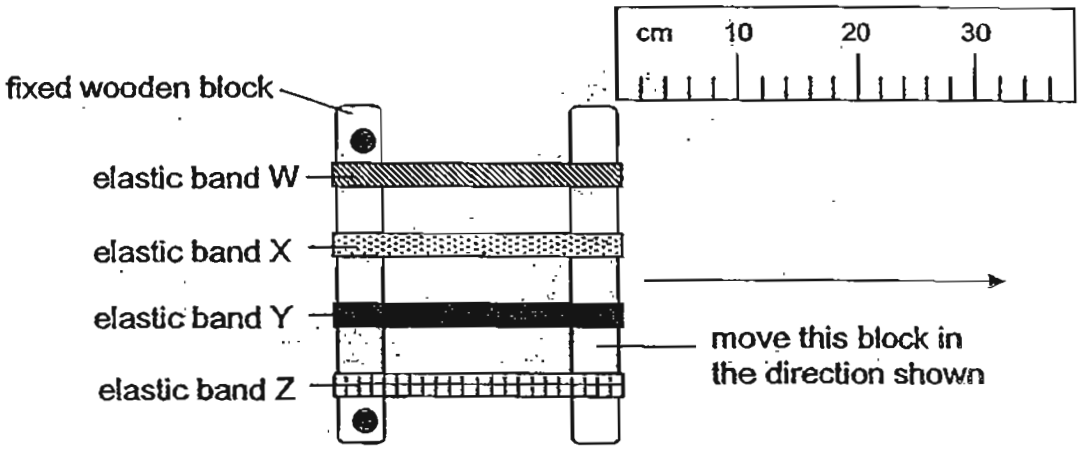
43. Some ice cubes in a flask were heated as shown in the diagram below. After a while, some liquid X was collected in the beaker.



(a) Explain clearly how liquid X is collected in the beaker. [2]

(b) Will more liquid X be collected in the beaker if a cold wet towel is used to wrap the glass tube at part Y? Explain your answer. [2]

44. Raja set up the investigation shown below with four different types of elastic bands, W, X, Y and Z, of the same size and thickness. He wanted to find out which type of elastic band would stretch furthest before breaking.



Raja made the following predictions about his investigation before the experiment.

A Band W would stretch further than band Z before breaking.

B No elastic band would stretch further than 30cm before breaking.

C At least one of the elastic bands would tear away from the wooden block before breaking.

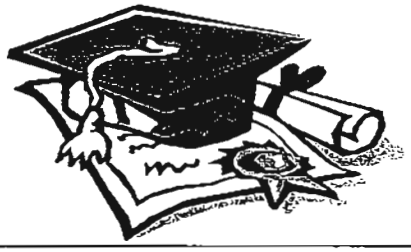
(a) Which prediction(s) can Raja test with his set-up? [1]

_____

(b) What is the energy conversion when the elastic bands were stretched? [1]

_____

~~~ End of paper ~~~
~~~

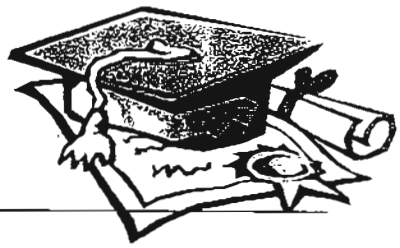


ANSWER SHEET

EXAM PAPER 2011

SCHOOL : CHIJ PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA1



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

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

31)a)B,D,C,A
b)It is non-flowering and non-aquatic.

32)a)Transports food from the leaves to the roots.
b)The ginger plant stares food in the underground stem but the carrot stores food in its roots.

33)a)2
b)No. Fertilization must take place before they develop into fruits.

34)a)The number of bubbles produced by the hydrilla in the test tube.
b)The greater the light intensity, the greater the rate of photosynthesis up to an optimal point(X). After which, the rate of photosynthesis would decrease.

35)a)Similarity: Both contains digestive jukes.
Difference: The digested food enters the bloodstream through Q but the food does not enter the bloodstream through P.
b)Gullet.
c)To break down food into simpler substances.

36)a)C,B,D,A
b)When we exercise we need energy so need to breathe harder to taken in more oxygen to be sent to the cells in the body to convent more food into more energy.

37)a)Magnetic force of repulsion.
b)Magnetic force can act from a distance but frictional force cannot.

38)i)T ii)NP iii)NP iv)F

39)a)Carbon rod: A Iron nail: B

b)Yes. When the iron nail is magnetized, it will have the north and south poles, where as one of the poles will be attracted to S-pole of another magnet while the other pole will repel away from S-pole of that magnet.

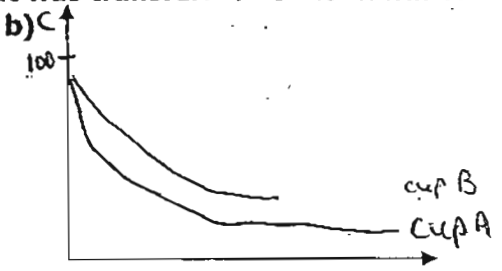
40)1)T 2)T 3)T 4)F

41)a)Draw: 35ml

b)Solids occupy space and have a definite volume.

42)a)A his hand was in contact with a smaller surface area of cup A than B so less heat was transferred to his hand. Thus be can hold A for a longer time.

b)



43)a)The burner heat up the ice cubes until they melt into water. Then the water is not enough the hot water vapour from the hot water rises up the tube and touches the cool surface of the tube, condenses into water droplets and drips down the beaker into the beaker.

b)Yes. When the hot water vapour rises up the tube and touches part Y which is very cold, it will condense into more water droplets and will result in more water collected.

44)a)A,B,C

b)Kinetic energy→elastic potential energy.