NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2012
PRIMARY 5

SCIENCE

BOOKLET A

30 Multiple Choice Questions (60 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

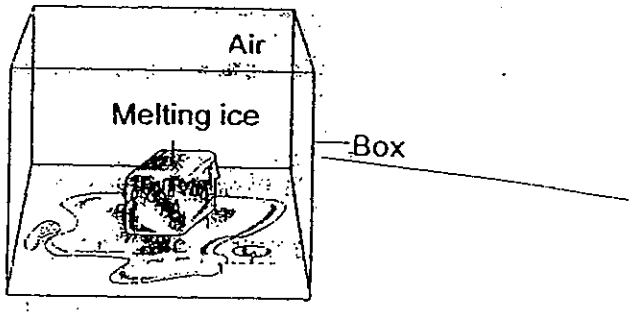
Booklet A		**/ 60**
Booklet B		**/ 40**
Total		**/100**

Name: _____ ( ) **Class: P 5** _____

Date : 3 May 2012 **Parent's Signature:**_____

Section A: (30 x 2marks = 60marks)
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.

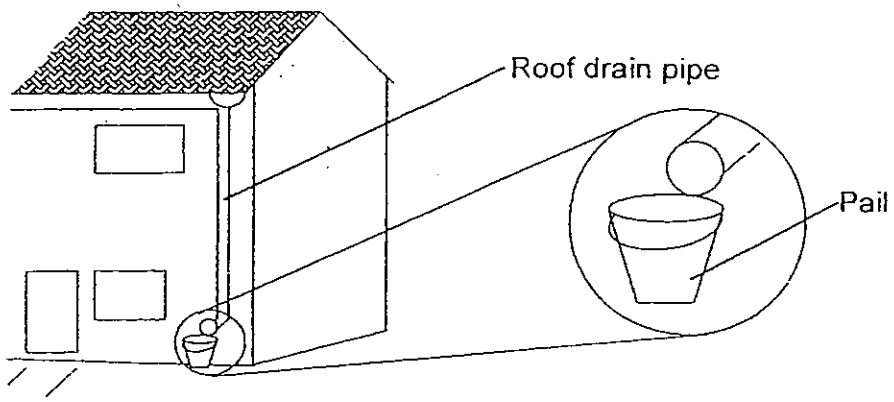
1. A block of melting ice is placed in a box as shown in the diagram below.



What will happen to the temperature of the air and melting ice in the box during the process of melting?

	Temperature of	
	Air	**Melting ice**
(1)	Remains the same	Increases
(2)	Increases	Remains the same
(3)	Decreases	Remains the same
(4)	Decreases	Decreases

2. The diagram below shows how rainwater can be collected from the roof drain pipe of a house.



What can the rain water collected in the pail be used for?

A Watering the plants
B Washing the driveway
C Filling up a marine aquarium

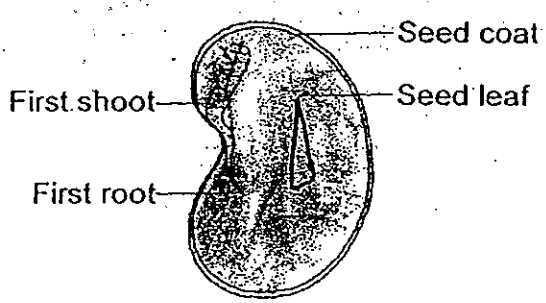
(1) A only
(2) A and B only
(3) B and C only
(4) A , B and C

3. Which of the following characteristics of Staghorn fern spores and Durian seeds is/are similar?

A Both are dispersed by wind.
B Both are stored in a spore bag.
C Both enable the reproduction of plants
D Both are formed from the ovules of flowers.

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

4. The diagram shows a seed of a young plant.



Which part will develop and make food for the plant in future?

(1) First root

(2) Seed leaf

(3) First shoot

(4) Seed coat

5. Susan wants to find out if the husk of a coconut helps it to float. She prepares two coconuts and two basins with the same amount of water. Which of the following variables is the independent variable?

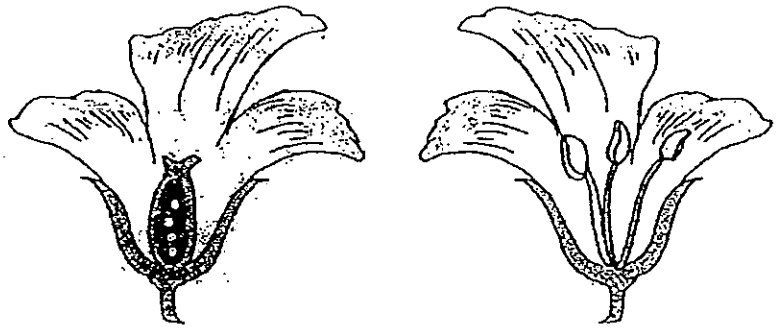
(1) The size of the basins.

(2) The size of the coconuts.

(3) The presence of the husk.

(4) The temperature of the water in the basin.

6. The diagram shows a cross section of 2 different flowers, Flower X and Y.



Flower X Flower Y

Which of the statement below is/are **false**?

A Both flowers can grow into fruits
B Both plants will receive pollen grain.
C Both flowers have male and female parts

(1) A and B only

(2) B and C only

(3) A, B and C

(4) None of the above

7. Why does the male animal produce many sperms during fertilisation?

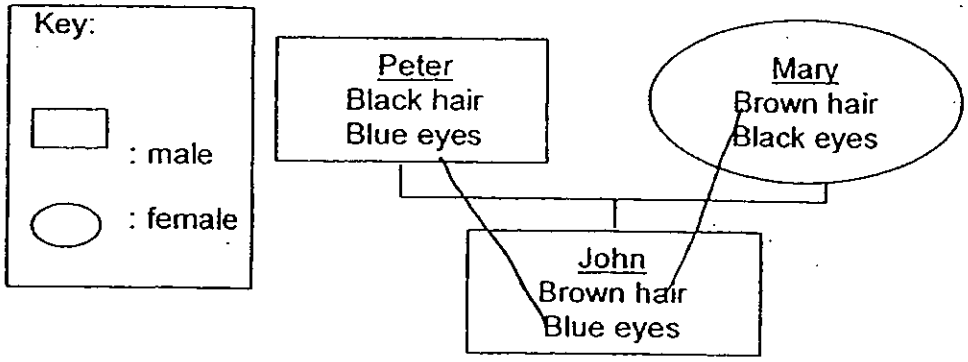
(1) To show that it is healthy.

(2) To shorten the time to fertilise the egg

(3) To fertilise the numerous eggs in the female..

(4) To increase the chance of a sperm fertilising the egg.

8. Look at the family tree below.



What trait(s) has John inherited from his father?

(1) Blue eyes
(2) Brown hair
(3) Blue eyes, brown hair
(4) Black eyes, brown hair

9. Weiming likes to breathe through his mouth, saying that he gets more air in that way. However, Siti says that it is not very healthy to breathe that way. Why does Siti say that?

(1) His heart will have to pump more blood.

(2) His lungs need to expand bigger and he will feel the pain.

(3) His mouth does not have hair to trap dust and dirt particles.

(4) His mouth will get bad breath because germs can enter his mouth easily.

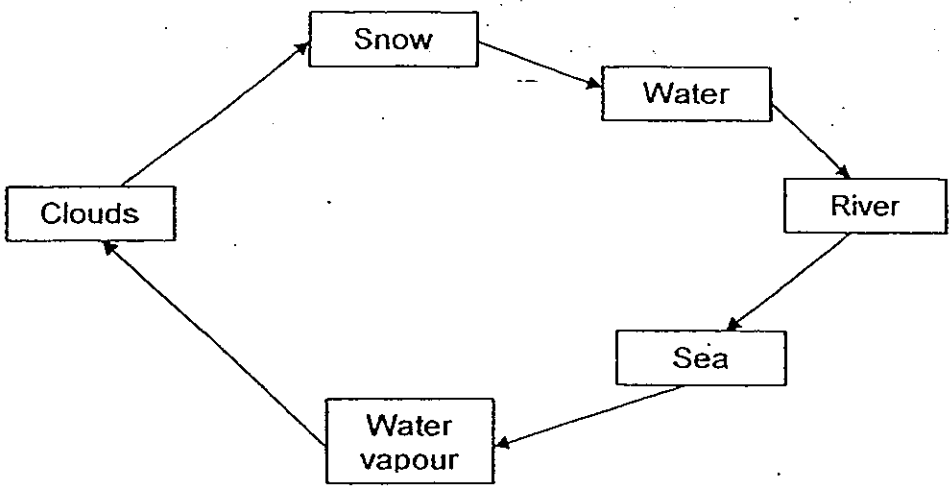
10. Which of the following are carried by the blood in the circulatory system?

A Oxygen
B Digested food
C Carbon dioxide
D Waste products

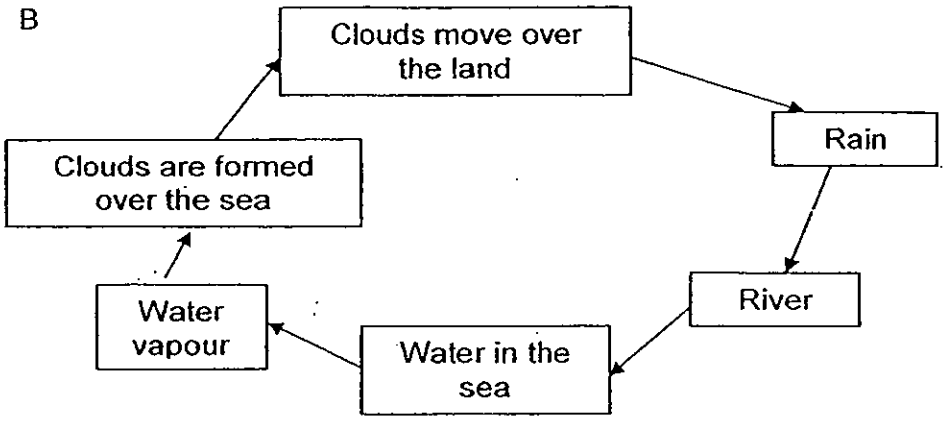
(1) A and C only
(2) B and D only
(3) A, C and D only
(4) A, B, C and D

11. Which of the cycle(s) below involve evaporation and condensation?

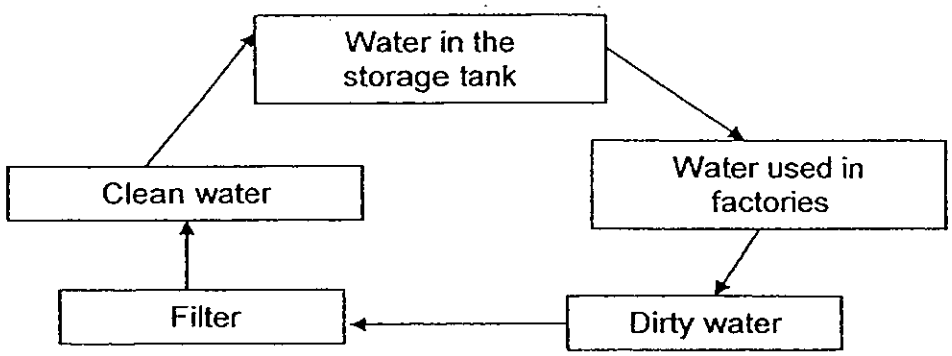
A



B



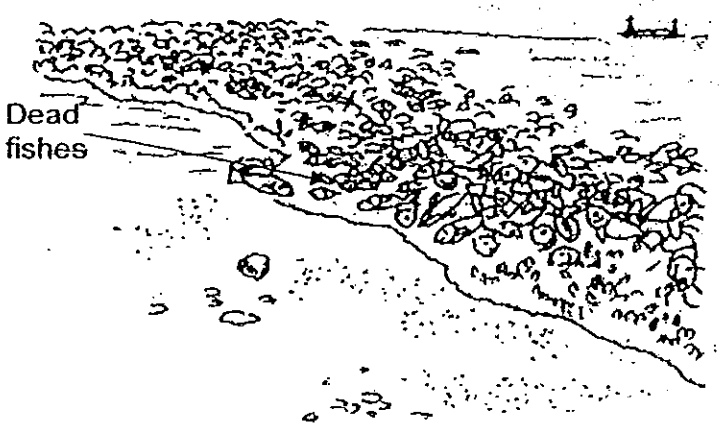
C



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

41

12. Study the picture below.



Which of the following could be the causes of what had happened?

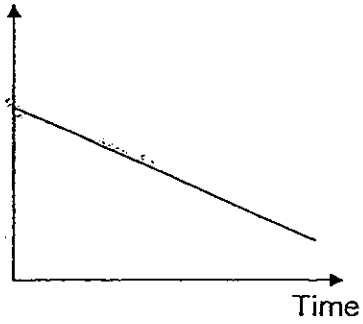
A Too much rainwater
B Oil spillage from ships.
C Too much algae in the sea.
D Release of industrial wastes in the sea. _____

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

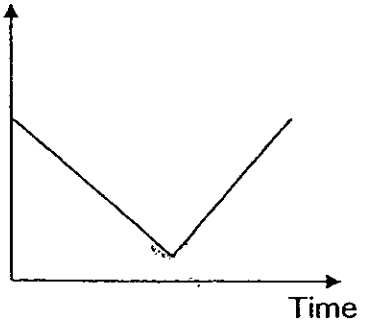
13. In a farm, Plant X is pollinated only by butterflies. Recently, the farmer found that the caterpillars are eating the leaves of his vegetables. In order to protect his vegetables, the farmer sprayed pesticide to kill the caterpillars.

Which graph below correctly shows the population of Plant X after the farmer has started spraying pesticide to kill the caterpillars?

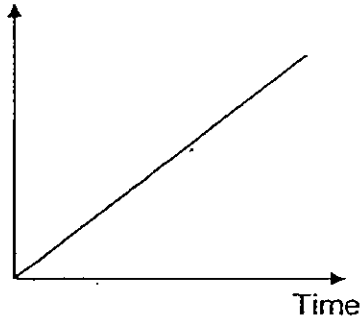
(1) Population of Plant X



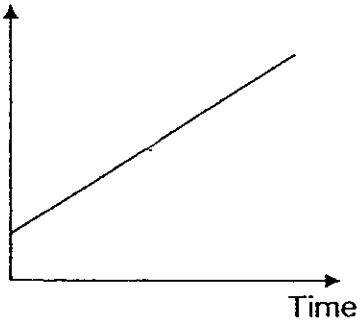
(2) Population of Plant X



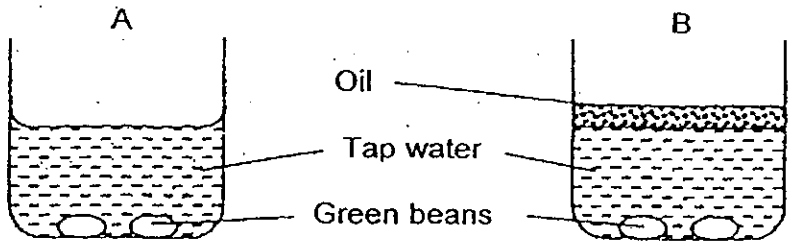
(3) Population of Plant X



(4) Population of Plant X



14. Michael prepares the set-ups as shown below. He hypothesises that oxygen is needed for seeds to germinate to become seedlings. He wants to test his hypothesis by using the set-up below.



Two days later, the seeds in both beakers germinated. He repeated the experiment and got the same results. Which of the following explains why his experiment failed to test his hypothesis?

(1) There was too much oil in Beaker B.
(2) Both beakers contain water with dissolved oxygen.
(3) There was too much dissolved oxygen in Beaker A
(4) The oil in Beaker B contained dissolved oxygen for the green bean seeds to germinate.

15. The table below records the characteristics of four flowers, A, B, C and D.

Flower	Petals		Smell
	Size	Colour	
A	large	white	scented
B	small	white	unscented
C	large	brightly coloured	unscented
D	small	brightly coloured	scented

Which flower is most likely to be pollinated by wind?

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

16. Which one of the following descriptions about the sexual organs of humans is correct?

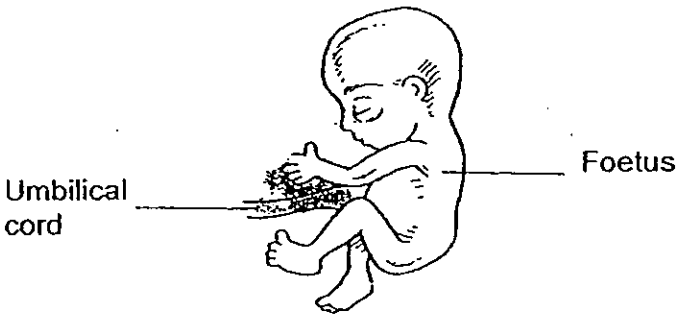
	Testes	Ovaries
(1)	They fertilize the ovaries.	They receive the eggs.
(2)	They produce sperms.	They produce eggs.
(3)	They store a few male sperms.	There is only one egg in each ovary.
(4)	There are two testes in each male.	There is only one ovary in each female.

17. Which of the following characteristics can be a result of both heredity and environmental conditions?

A Obesity
B Short fingernails
C Height
D Detached ear lobes

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

18. Study the diagram below carefully.



Which of the following statements about the developing foetus are true?

A It does not need food and water.
B It is developed from a fertilised egg.
C It is developing in the fallopian tube of its mother.
D It carries genetic information from both its parents.

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

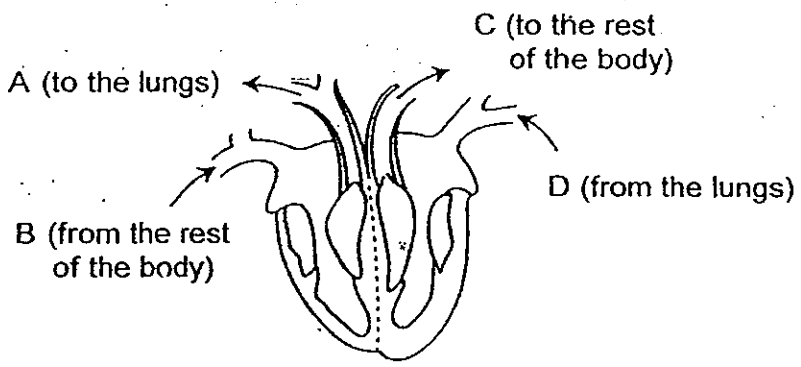
19. The table below shows the mixture of gases we inhale from the surrounding air.

Nitrogen	Oxygen	Carbon Dioxide	Other gases
78%	21%	0.03%	0.97%

What is the mixture of gases when we exhale from our body?

	Nitrogen	Oxygen	Carbon Dioxide	Other gases
(1)	78%	15%	5.83%	1.17%
(2)	78%	15%	0.03%	6.97%
(3)	50%	21%	5.83%	23.17%
(4)	50%	21%	0.03%	28.97%

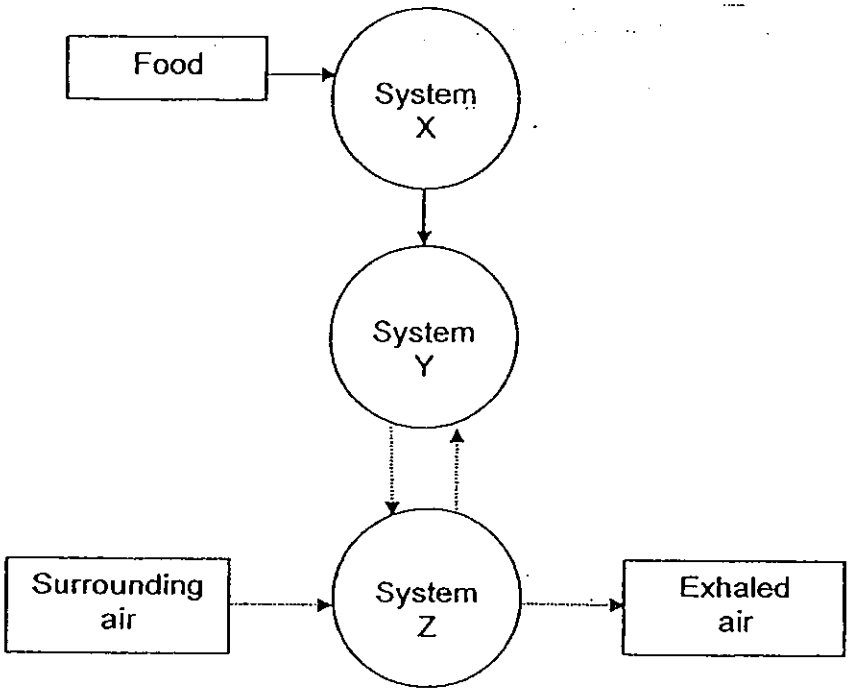
20. The diagram below shows how blood is circulated in our body.



Which one of the following rows correctly shows the amount of oxygen in our blood at A, B, C and D?

	Oxygen-rich blood	Blood with less oxygen
(1)	A and B	C and D
(2)	A and D	B and C
(3)	B and D	A and C
(4)	C and D	A and B

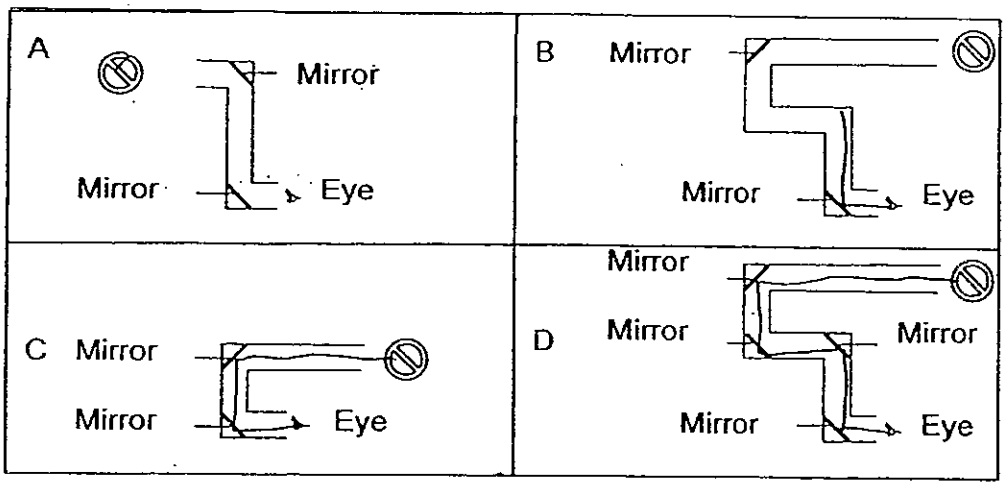
21. The diagram below shows how food and various gases are transported in the human body.



Which systems do X, Y and Z represent?

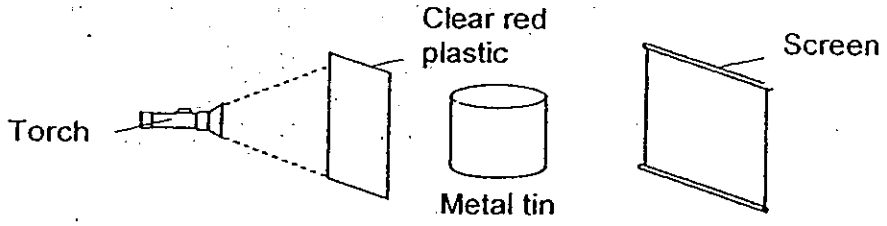
	System X	System Y	System Z
(1)	Circulatory	Respiratory	Digestive
(2)	Digestive	Respiratory	Circulatory
(3)	Circulatory	Digestive	Respiratory
(4)	Digestive	Circulatory	Respiratory

22. Which of the following apparatus allows Alvin to see the sign ⊘ behind him without turning his head?



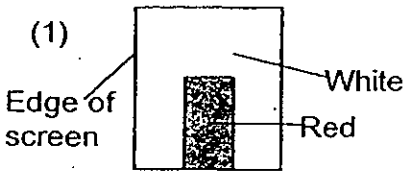
(1) C only
(2) A and C only
(3) C and D only
(4) A, B and D only

23. A metal tin is placed between a clear red plastic sheet and a screen as shown in the diagram below.

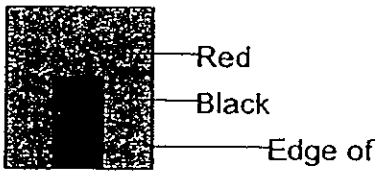


Which of the following images will be seen on the screen?

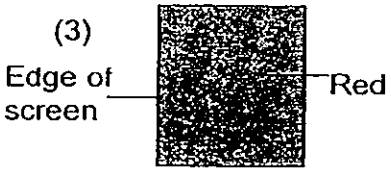
(1)



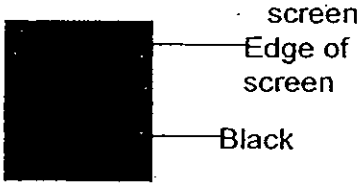
(2)



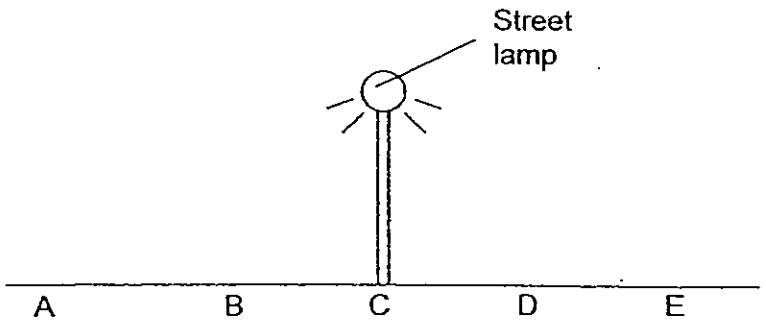
(3)



(4)

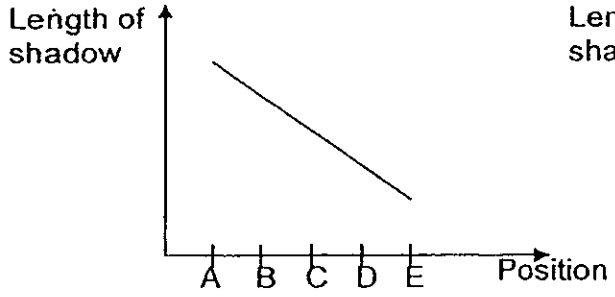


24. Bernice walked past a lit street lamp from A to E on a dark night as shown in the diagram below.

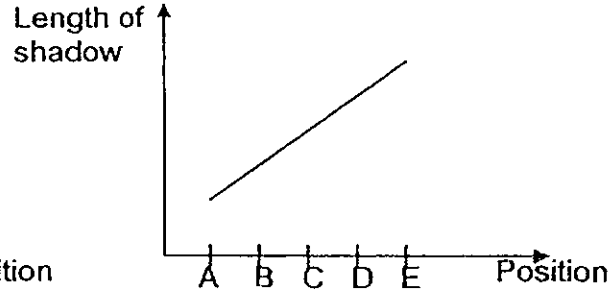


Which of the following graphs shows the likely changes in the length of Bernice's shadow when she walked past the lit street from A to E?

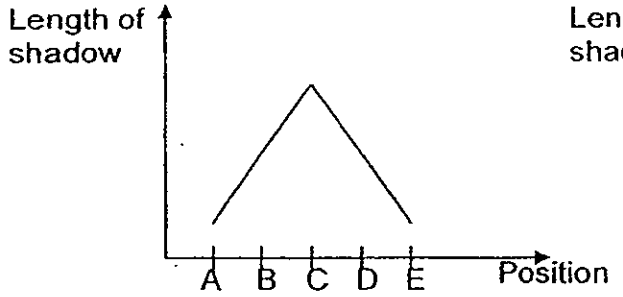
(1)



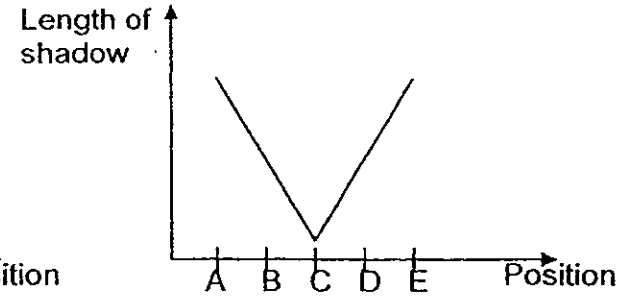
(2)



(3)



(4)



51

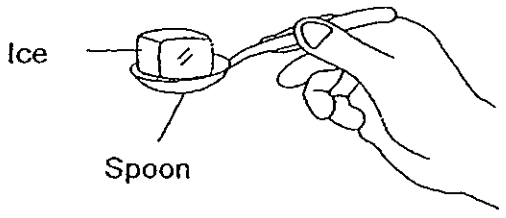
25. Peter filled four identical beakers with some tap water. Then he heated the beakers of tap water with four identical Bunsen burners. He recorded the time taken for each beaker of water to boil in the table below.

Beaker/Time	0 min	2 min	4 min	6 min	8 min	10 min	12 min	14 min	16 min
P	25°C	43°C	67°C	81°C	95°C	100°C	100°C	100°C	100°C
Q	25°C	37°C	54°C	67°C	79°C	90°C	100°C	100°C	100°C
R	25°C	34°C	46°C	58°C	71°C	85°C	92°C	100°C	100°C
S	25°C	31°C	43°C	52°C	60°C	71°C	84°C	93°C	100°C

What could have resulted in the difference in the length of time required to boil the water in the various beakers?

(1) There were different amounts of water in the beakers.
(2) The water in the beakers have different boiling points.
(3) The water in the beakers have different initial temperature.
(4) Different amounts of water in the beakers had changed from liquid state to the gaseous state.

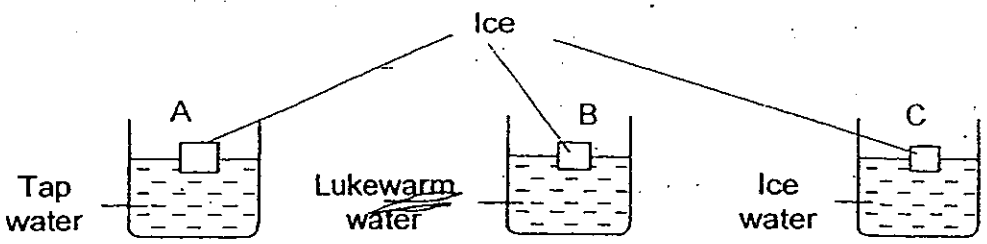
26. Kimberly was holding a metal spoon with a cube of ice as shown. After some time, she felt that the spoon was cold.



Which of the following correctly explains why Kimberly felt that the spoon was cold?

(1) The spoon lost heat to the ice and to her fingers
(2) The spoon gained heat from the ice and from her fingers
(3) The spoon lost heat to the ice and gained heat from her fingers.
(4) The spoon gained heat from the ice and lost heat to her fingers.

27. Three identical pieces of ice were subjected to different conditions as shown in the diagram below.



Arrange the three pieces of ice according to the time they take to melt completely from the longest time to the shortest time.

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

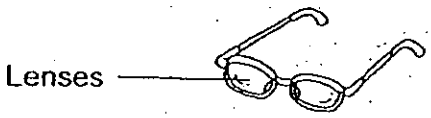
28. Study the table below.

Statements	Object A	Object B	Object C
Breaks into pieces when dropped	√	x	√
Can be seen through	x	x	√
Can be scratched with a plastic ruler	x	√	x

Which of the following can these three objects be?

	Object A	Object B	Object C
(1)	Ceramic tile	Metal ruler	Glass bottle
(2)	Ceramic tile	Paper bag	Glass bottle
(3)	Glass bottle	Paper bag	Ceramic tile
(4)	Glass bottle	Plastic bottle	Paper bag

29. The lenses of spectacles are either made of glass or plastic.

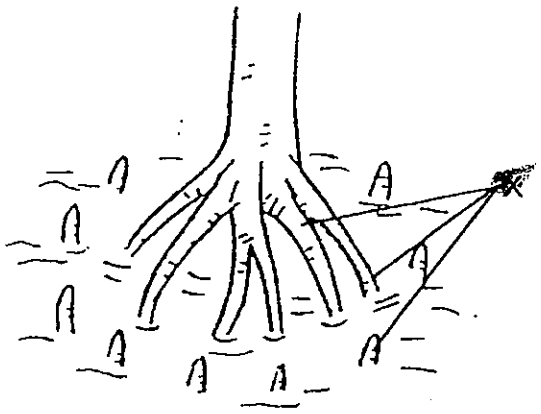


Parents usually prefer to have plastic lenses for their children's spectacles. What are the possible reasons?

A Plastic is lighter than glass.
B Plastic is waterproof but glass is not.
C Plastic does not break as easily as glass.
D Plastic is more flexible than glass.

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

30. The diagram below shows a plant that grows in a mangrove swamp.



What are the functions of part X?

A Takes in air.
B Makes food
C Holds the plant firmly
D Takes in water and dissolved mineral salts

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

NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2012
PRIMARY 5

SCIENCE

BOOKLET B

14 Open-ended questions (40 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

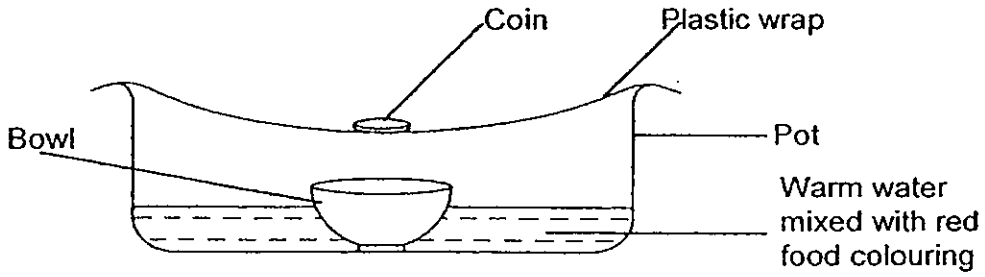
Section B		/40

Name: _____ ( ) **Class: P 5** _____

Date : 3 May 2012 **Parent's Signature:** _____

Section B: (40marks)
Write your answers to question 31 to 44.
The number of marks allocated is shown in brackets [ ] at the end of each question or part question.

31. Josef set up an experiment as shown in the diagram below. He wanted to collect some liquid in the bowl after an hour.



a) What is the colour of the liquid collected in the bowl? Put a tick in the appropriate box. [1]

☐ Clear water

☐ Red-coloured water

b) Explain how the liquid is collected in the bowl in the set-up above. [2]

_____

_____

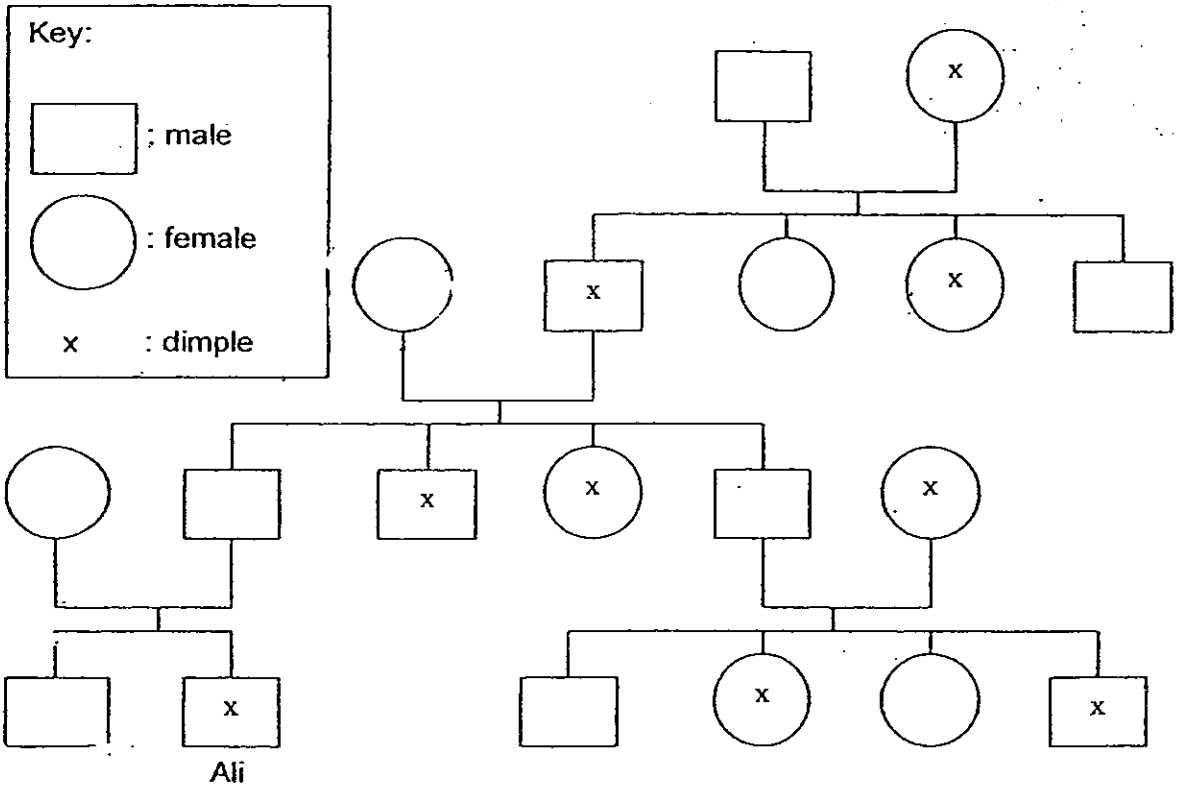
c) Josef collected 30 ml of liquid after an hour. What can he do to the set-up to increase the amount of liquid he can collect in an hour? [1]

_____

_____

Score	4

32. The diagram below shows Ali's family tree from his paternal side of his family. Study it carefully and answer the questions that follow.



a) How many sibling(s) does Ali have? [1]

_____

b) Circle his grandmother in the family tree shown above. [1]

c) Both of Ali's parents do not have dimples but Ali has dimples. Explain why Ali has this characteristic based on the family tree. [1]

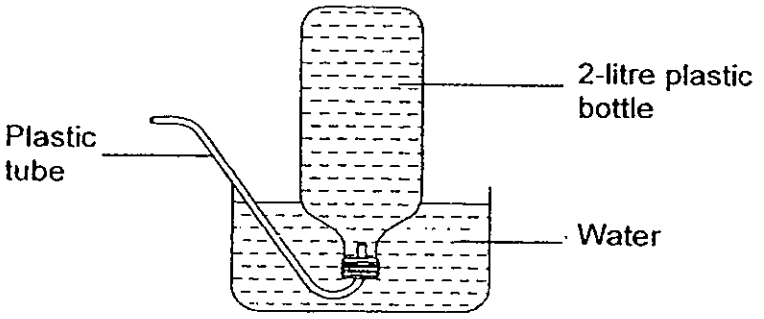
_____

_____

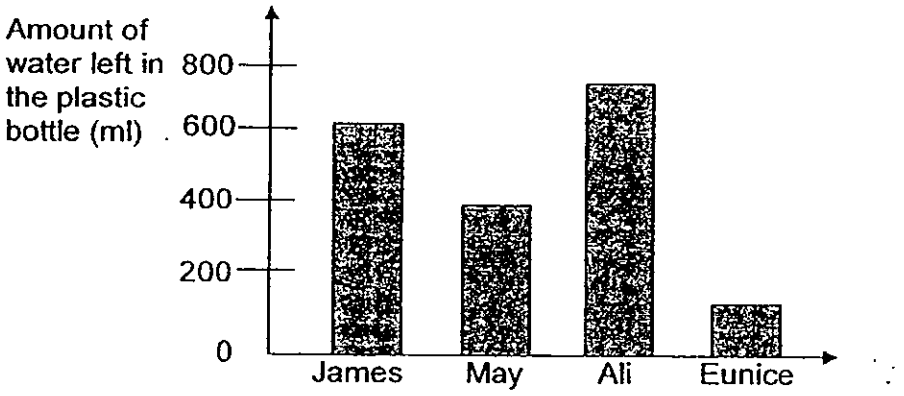
Score	3

57

33. A group of pupils set up an experiment as shown in the diagram below to find out whose lungs can hold the most air.



Each pupil took a deep breath and exhale as much as he or she could into the plastic tube. The graph below shows the results they obtained.



a) Arrange in order with the pupil having the largest lung capacity to the pupil with smallest lung capacity. [2]

b) Explain how this set-up is able to measure their lung capacity. [1]

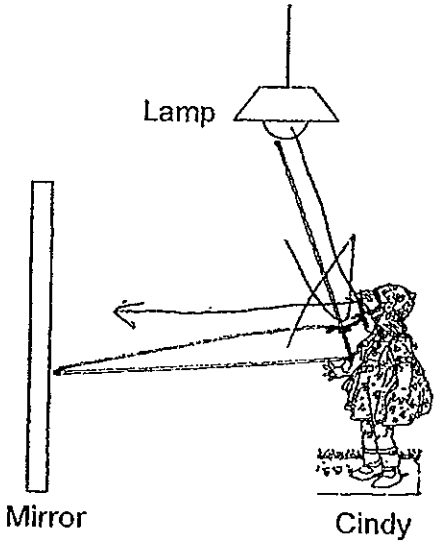
_____

_____

Score	3

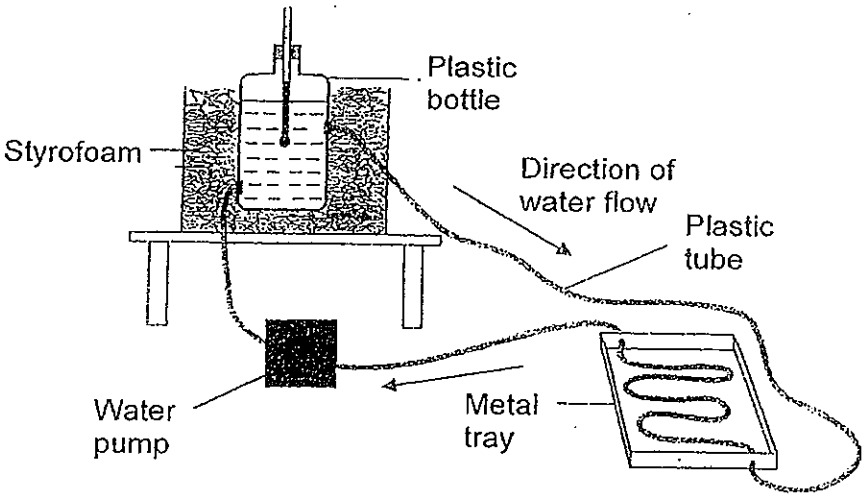
34. Study the diagram below.

Draw the light rays to show how light travels so that Cindy can see herself in the mirror. [2]



Score	2

35. The set-up below shows a model of a solar water heater. A water pump is used to circulate the water in the set-up.



The plastic bottle and plastic tube are filled with cold water. The metal tray is left in the sun for 30 minutes while the plastic bottle is kept in the shade.

a) Explain how the water in the plastic bottle becomes hot after 30 minutes. [2]

_____

_____

_____

_____

b) What is the purpose of putting styrofoam around the plastic bottle? [1]

_____

_____

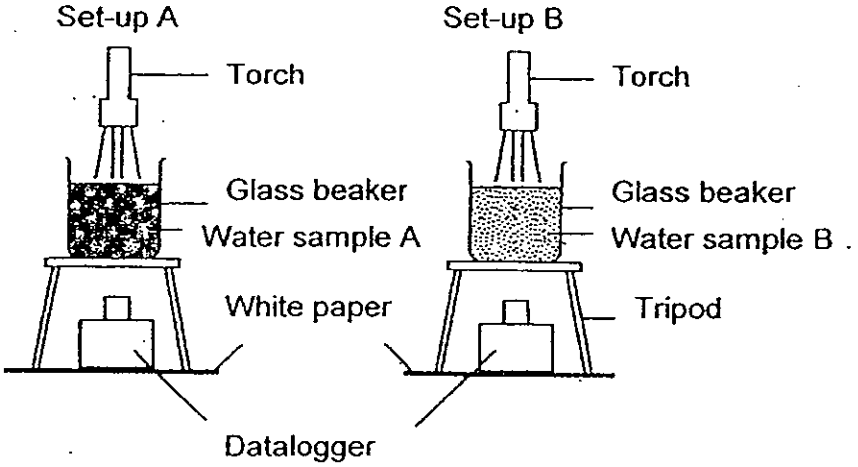
c) His friend suggests that he increases the number of coils on the tray without changing the length of the plastic tube to make the water heat up faster. Do you agree with his friend? Explain your answer. [1]

_____

_____

Score	
	4

36. Roger set up the experiment below. All the variables used were the same except for the clarity of the water. He shone a light through the water sample in each beaker and observed the amount of light that passed through with a datalogger.



He recorded the amount of light detected in the table below.

	Amount of light detected (lux)
Set-up A	75
Set-up B	15

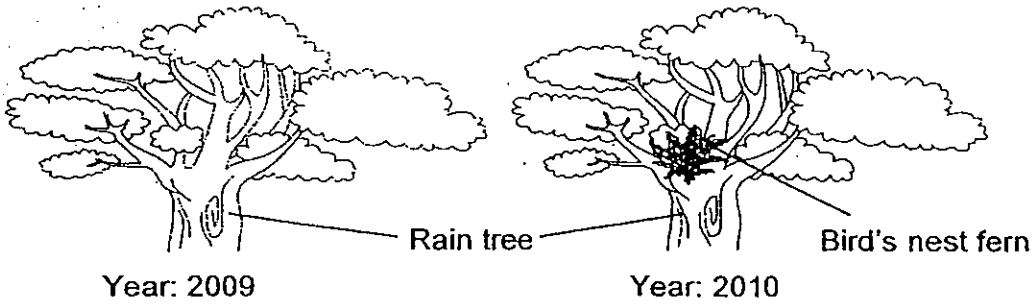
a) What is the aim of his experiment? [1]

b) Which water sample, A or B, should he use to grow his water plants? Explain your answer. [1]

Score	/ 2

61

37. The diagrams below show a rain tree at two different times.



In the year 2010, a Bird's nest fern was found growing on the rain tree.

a) How does the Bird's nest fern reproduce? [1]

_____

b) Decribe how the Bird's nest fern got to the rain tree? [1]

_____

_____

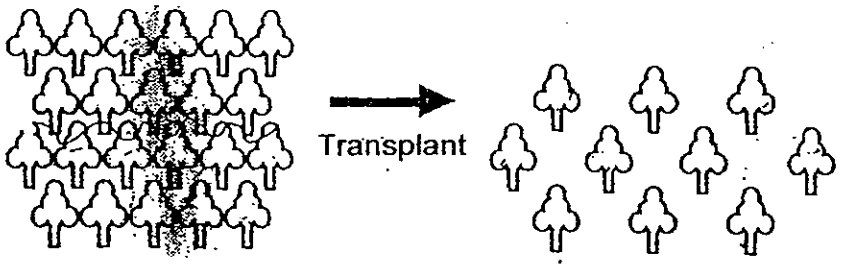
c) Explain why the Bird's nest fern has an advantage if it grows on the rain tree. [1]

_____

_____

Score	3

38. Charlene visited her uncle's farm. She saw her uncle transplanting some young mango trees to another part of the farm as shown below.



Plot A Plot B

a) What would happen to the young mango trees if they were not transplanted from Plot A to Plot B in two months? [1]

_____

_____

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

_____

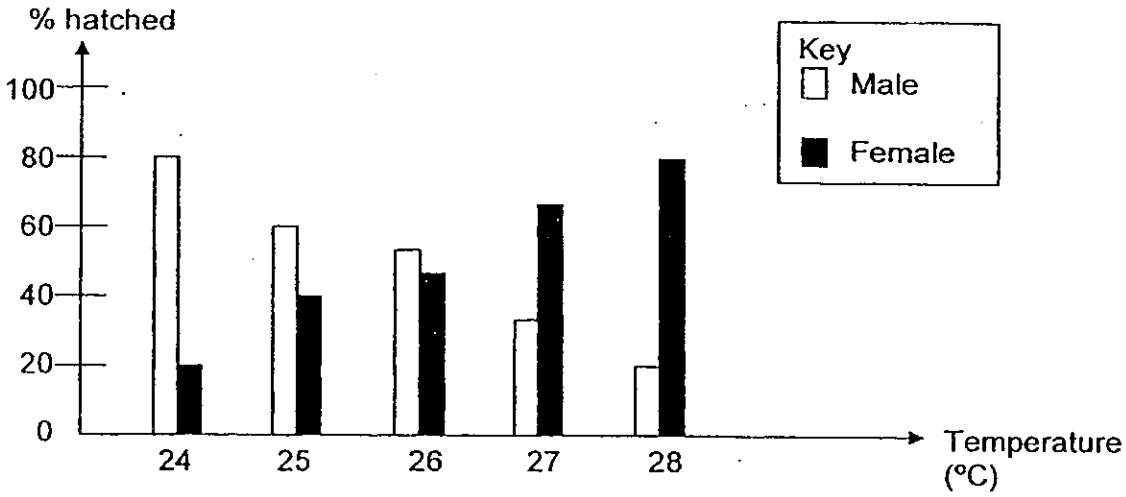
_____

_____

_____

Score	2

39. Tim studied the percentage of males and females hatched from the eggs of a certain species of crocodiles at different temperatures. His results are shown in the graph below.



a) What is the relationship between the percentage of males hatched and the temperature? [1]

_____

_____

b) Based on results in the graph above, give a reason why this type of crocodile is not suitable to live in Singapore? [1]

_____

_____

Score	
	2

40. Figure 1 and 2 show how gases are transported in the circulatory system of a tadpole and a human respectively.

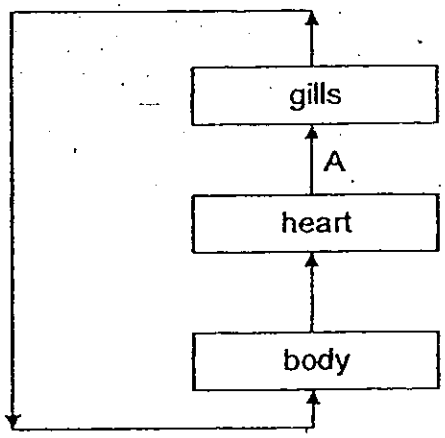


Figure 1 (Tadpole)

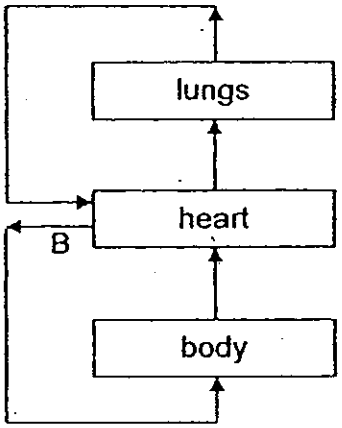


Figure 2 (Human)

a) State one difference between the direction of flow of blood in a tadpole and in a human. [1]

_____

_____

b) State one difference between the gases found in the blood flowing at A and B. [1]

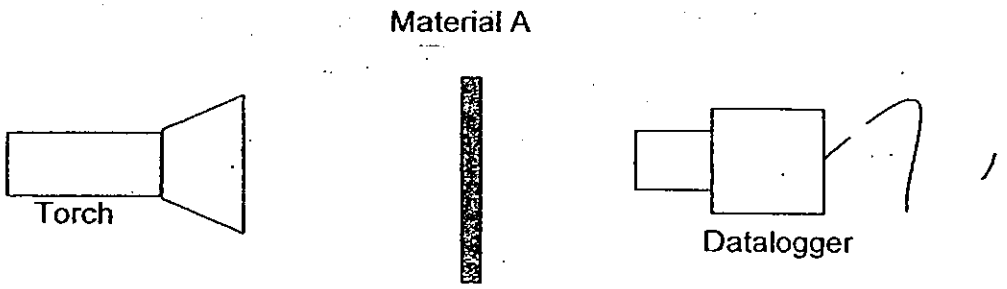
_____

_____

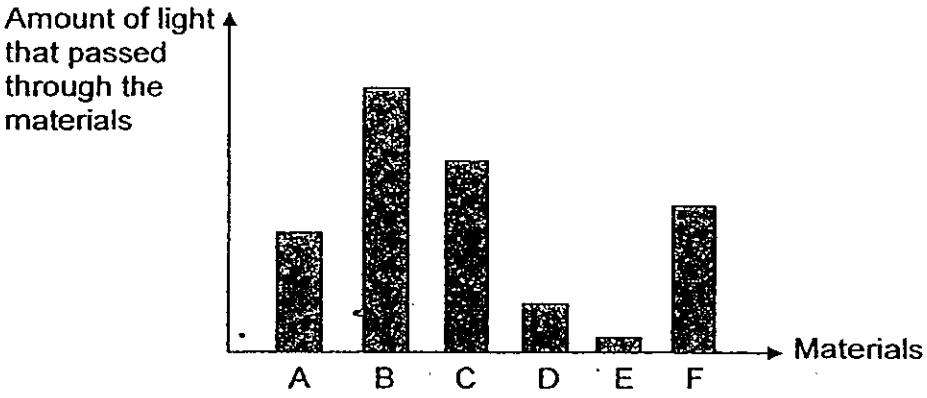
Score	2

65

41. Alvin conducted an experiment to measure the amount of light that can pass through six different materials. He used a datalogger to do so.



He recorded the results in the table below.



Based on the results given in the bar chart above, answer the following questions. Read the statements and tick in the appropriate boxes below.

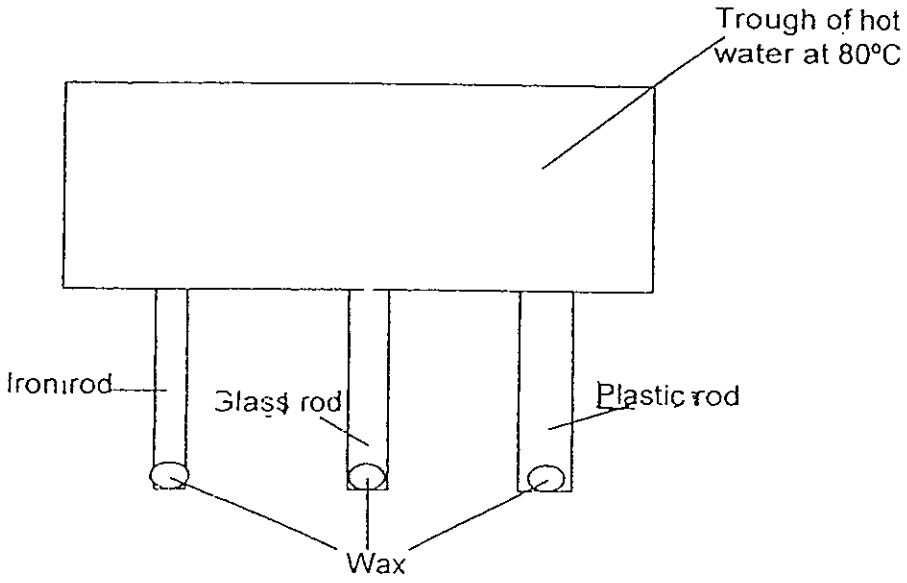
[3]

Statements	True	False	Not possible to tell
Material C allows more light to pass through than Material F.			
Material A has a lighter shadow than Material B			
Material E is darker in colour than Material D			
Material A is able to partially block light.			
Material E could be a mirror.			
Material B is opaque.			

Score	3

42. Carrie wanted to investigate if the time taken for heat to travel from one end of a rod to the other end would be affected by its thickness.

She used three rods of different thickness but of the same length. She put a ring of wax around one end of each rod, and then heated the other end of each rod as shown below.



a) What is the dependent variable in this experiment? [1]

_____

b) What would happen to the wax when one end of the rod was heated by the hot water? Explain your answer [1]

_____

_____

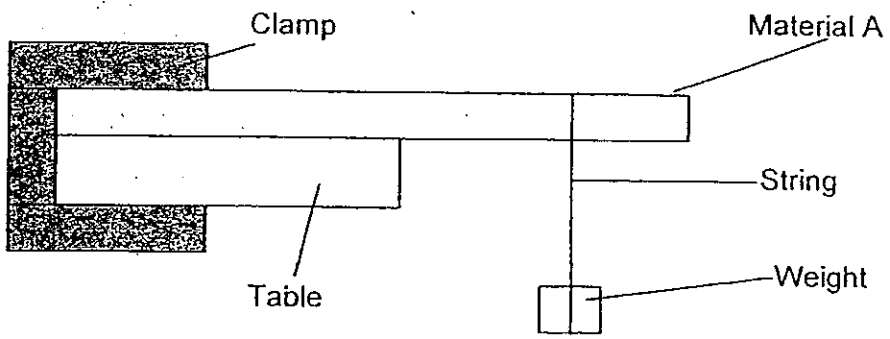
c) Her classmates told her that if was not a fair test. Do you agree with them? Explain your reason. [2]

_____

_____

Score	
	4

43. Jeryl wanted to test the strength of two materials, A and B, with the setup below.



Weights were added until the material bent. He recorded his findings in the table below.

Material	Weight hung till material bent (g)
A	614
B	310

a) Which material is the stronger material? [1]

_____

_____

b) Jeryl wants to make a model aeroplane to compete in a model aeroplane flying competition that requires the model aeroplane to stay in the air for the longest time. Could the results of the experiment above help Jeryl decide which material is more suitable in making the aeroplane? Give a reason for your answer. [1]

_____

_____

Score	
	2

44. Ernest wanted to find out if the number of leaves would affect the amount of water the plant takes in. He prepared the apparatus below to help him conduct the experiment.

2 similar balsam plants with 10 similar leaves each 2 beakers 500 ml of water 100 ml of oil

a) Ernest had some problems coming up with the steps to conduct the experiment. Write down the steps for Ernest to allow him to conduct a fair test. Number your steps. [3]

_____

_____

_____

_____

b) Based on his experiment, he found out that the plant with more leaves took in more water. Would such plants be able to survive in an environment with very little rainfall, for example the Sahara Desert? Give a reason for your answer. [1]

_____

_____

End of Paper

Score	
	4

ANSWER SHEET

EXAM PAPER 2012

SCHOOL : NAN HUA
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA1

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

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

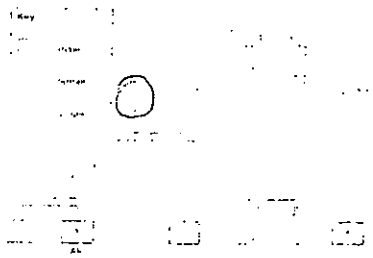
31)a)Clear water

b)The warm water in the pot will evaporate to form water vapour. The water vapour raises up to touch the plastic wrap ,the water vapour loses heat to the plastic wrap and condonse to form water droplets. The water droplets accumulate and dripped into the bowl.

c)He could heat up the water to 100℃.

32)a)One.

b)

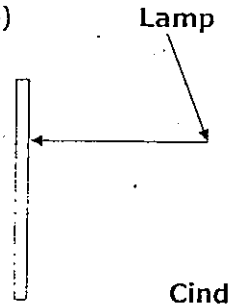


c)Ali grandfather pass the characteristic to his father and his father passed it to him.

33)a)Eunice , May , James , Ali

b)When the pupils exhale, the exhaled air will occupy the space in the plastic bottle, pushing the water out of the plastic bottle.The one with the least amount of water in the bottle has the largest lung capacity.

34)



Cindy

35)a)The cold water will go through the plastic tube and gain heat from the metal tray and go through the water pump and at the same time the metal tray will gain heat from the sun and after 30 minute of repeating this process the water will hot.

b)The Styrofoam is a poor conductor of heat to reduce the heat loss of the heat water to the surrounding.

c)Yes. When the number coils on the tray are increase there is more contact surface between the tubes and the tray so the water in tubes will gain heat faster.

36)a)To find out if the clarity of water affects the amount of light that passes through it.

b)Water sample A. The fully submerge plant can still use the chlorophyll to tray light photosynthesis as light can pass through the water.

37)a)It reproduce by spores.

b)A spore another Bird Nest fern was carried by the wind to the brunch of the rain tree the new Bird's nest fern grew from the spore that landed on the rain tree.

c)The Bird's nest fern will get more sunlight compared to growing on the ground.

38)a)They will not grow healthily.

b)The young plants will be overcrowded and they would need to compete for space, water and sunlight.

a. 39) The percentage of males hatched decrease as the temperature increase.

b. This type of crocodiles can only survive within a low range of temperature between 24°C – 28°C however, the temperature range in Singapore is higher which can reach as high as 32°C hence it is not suitable for this type of crocodile to live in.

OR:

38)a)The young mango trees will not grow well.

b)The young plants would face the problem of overcrowding. The would complete for space, nutrients, water and sunlight.

40)a)The flow of blood in the tad pole is in one direction but the flow of blood in human is two directions.

b)Blood at A is low in oxygen but blood at B is high in oxygen.

41)

Statements	True	False	Not possible to tell
Material C allows more light to pass through than Material F.	✓		
Material A has a lighter shadow than Material B		✓	
Material E is darker in colour than Material D			✓
Material A is able to partially block light	✓		
Material E could be a mirror.		✓	
Material B is opaque.		✓	

42)a)The time taken for the wax to melt.

b)The wax would melt. The rod will gain heat from the hot water. The wax will gain heat from the rod and melt.

c)Yes. In a fair test there should only be one independent variable which is the thickness of the rod. The materials of the rods were changed too and that can affect the result as well.

43)a)Material A.

b)No. The model plane has to be made of a light material for it to be able to stay in the air the longest. A strong material may not necessarily be light.

44)a)1)Add 200ml of water into one beaker.

2)Add 25ml.of oil into the beaker.

3)Out the plant with 10 leaves in the same beaker.

4)Repeat steps 1-2 for the second beaker.

5)Remove 5 leaves from the other plant and place it in the second beaker.

6)Record the amount of water left in both beakers everyday for 5 days.

7)The beaker with the lesser water shows that the plant has taken in more water.

b)No. Plants with many leaves will not survive as they will not have enough water to taken in.