NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 2 – 2013
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 : 24 October 2013 **Parent's Signature:** _____

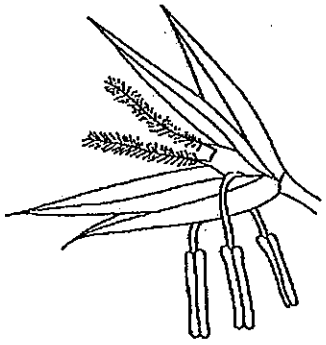
Section A: **(30 x 2marks = 60marks)**
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Living things cannot survive without water. Why is water important to living things?

   A Water is where many living organisms live in.
   B Water is needed by plants to carry out photosynthesis.
   C Water is needed by living things to carry out life processes.

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

2.



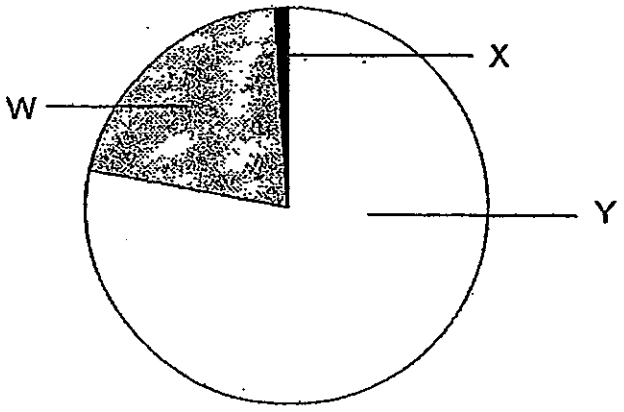
Based on the picture above, the flower is pollinated by wind because it _____

(1) is dull-coloured
(2) has short filaments
(3) has feathery stigmas
(4) is not sweet-smelling

3. After a pollen grain lands on the stigma, it _____.

   (1) fuses with the ovule to form a fertilised egg
   (2) develops a pollen tube that fuses with the ovum
   (3) releases the male sex cell to fuse with the ovary
   (4) develops a pollen tube that grows through the style

4. The amount of different gases in the air is shown in the pie chart below.



Which of the following statements are true?

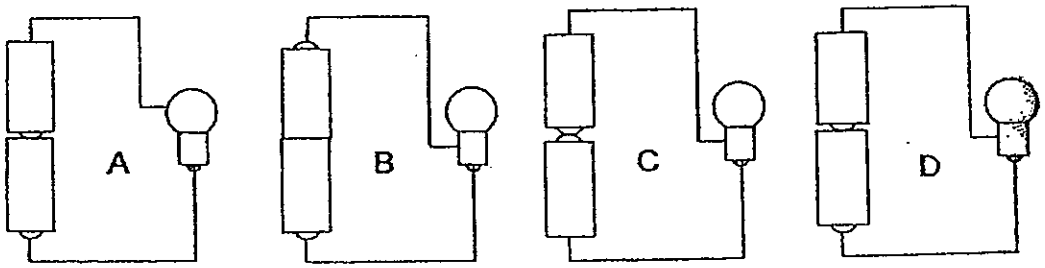
A Plants take in Y during photosynthesis.
B Plants produce W during photosynthesis.
C Animals only breathe out X during gaseous exchange.
D Animals breathe in W, X and Y during gaseous exchange.

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

5. Which statement about a multi-cellular organism is **not** true?

(1) Cell division happens throughout its lifetime.
(2) The cells in its body do not need water and food
(3) The cells in its body have different shapes and functions.
(4) During growth, the number of cells in the body increases.

6. Study the circuits below.



Which of the following circuit will light up?

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

7. Which of the following statement(s) show the energy flow from the Sun to the organisms correctly?

A Animals that eat plants get energy stored in the plants.
B Plants trap light energy from the Sun to make their own food.
C Energy does not flow from the Sun to animals that do not eat plants.
D Fungi do not receive energy from the Sun since they feed on dead matter.

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

8. The diagram below shows a floating plant, the water hyacinth, and its parts labelled A, B, C and D.

Mary has stated the functions of the parts as shown below.

Part	Function
A	Helps in reproduction
B	Traps light to make food
C	Helps the plant to float on water
D	Holds the plant firmly to the soil

Which part(s) of the plant is **wrongly matched** to its function?

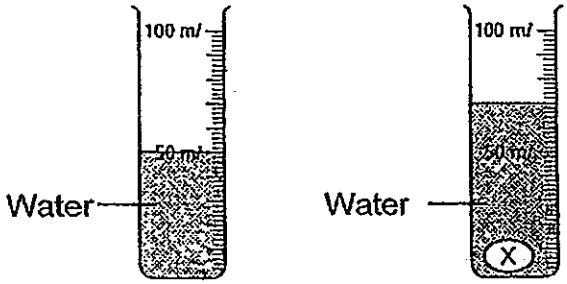
(1) C only
(2) D only
(3) A and B only
(4) B and D only

9. Which of the following statement(s) about the food we eat is/are **false**?

A Digestion ends in the small intestine.
B Our teeth in the mouth can help to speed up the process of digestion.
C All the food that enters the small intestine can be absorbed by our body.
D Digestive juices are added to the food in the mouth, gullet and small intestine.

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

10. An unknown object, X, is dropped into a measuring cylinder filled with 50 ml of water. The water level then rises to 70 ml.



Based only on this observation, which of the following conclusions can Jeff make?

A X is flexible.
B X occupies space.
C X has a fixed mass.

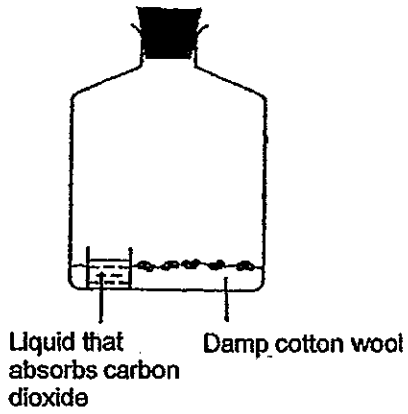
(1) B only
(2) A and C only
(3) A and B only
(4) B and C only

11. Two-thirds of the Earth's surface is covered with water. However, there are still many campaigns in Singapore to educate the people in conserving water. What are the possible reason(s) for these campaigns?

A Only 1% of the Earth's water is fresh water.
B Water is important for the survival of all living things.
C People living in Singapore are not using water wisely.
D Although Singapore is surrounded by sea, the seawater cannot be use directly.

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

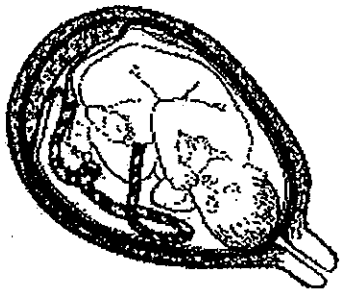
12. Seeds were put in a bottle as shown below. The set-up was placed in a freezer.



It was noticed that the seeds did not germinate after a few days. What can be done to allow germination to occur?

(1) Place the bottle in a bright place.
(2) Change the damp cotton wool to dry ones.
(3) Pour away the liquid that absorbs carbon dioxide.
(4) Place the bottle in a place with slightly higher temperature.

13. The diagram shows a foetus.

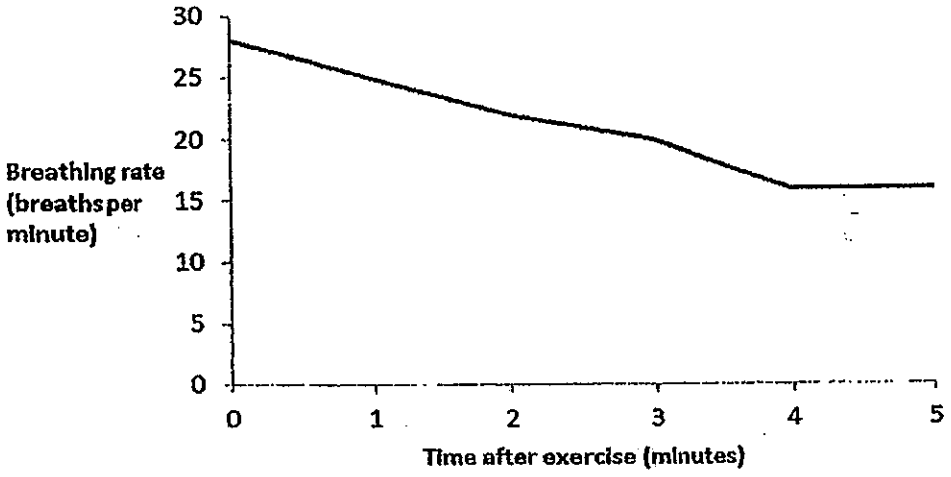


Which of the following statement is true?

(1) The foetus develops in his mother's womb for 12 months.
(2) The foetus does not carry out life processes until his mother gives birth to him.
(3) The foetus has cells containing genetic information from his mother and father.
(4) The foetus developed from a fertilised egg produced by the ovary of his mother reproductive organ.

Gerald has just finished exercising. Questions 14 and 15 study his breathing rate and pulse rate after exercise respectively.

14. The graph below shows the breathing rate of Gerald during his rest after exercise.

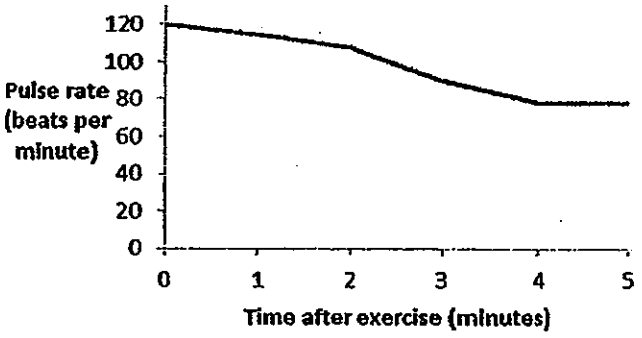


Why did Gerald's breathing rate decrease gradually?

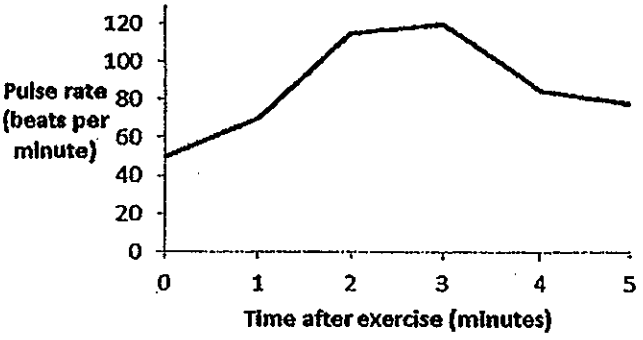
(1) There is an excess storage of air in the lungs.
(2) He does not need any energy when he is resting.
(3) He returns to his normal breathing rate as less oxygen is needed.
(4) Less oxygen is taken in since the cells in in his body have been overworked.

15. Which of the following graphs show Gerald's pulse rate during his rest after exercise?

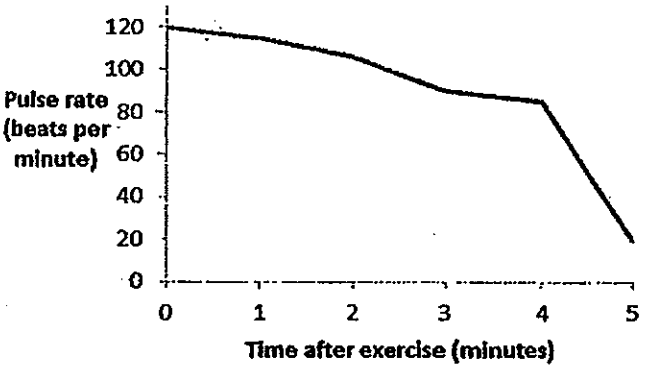
(1)



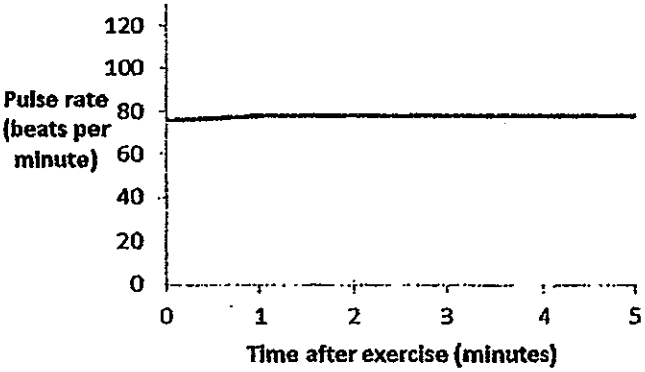
(2)



(3)



(4)

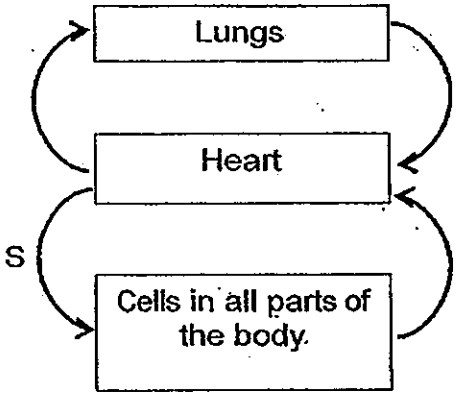


16. Which of the following system(s) is/are responsible for breaking down food into the simplest forms and transporting it to the cells in all parts of the body?

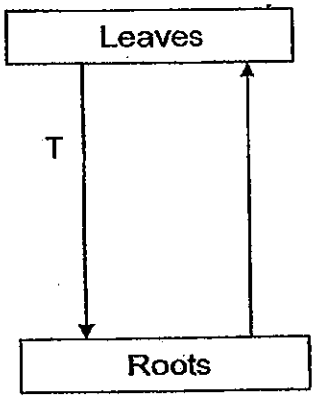
A Skeletal system
B Digestive system
C Circulatory system
D Respiratory system

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

17. The diagrams show the paths of substances moving in the human and plant transport system.



Human Transport System

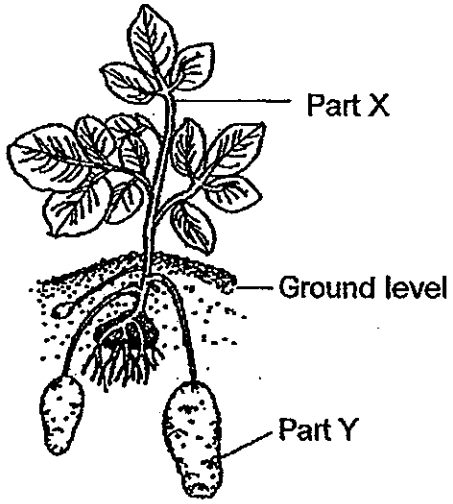


Plant Transport System

Which of the following substances are mostly found in S and T respectively?

	Substance found in S	Substance(s) found in T
(1)	Oxygen	Food
(2)	Oxygen	Water and mineral salts
(3)	Carbon dioxide	Food
(4)	Carbon dioxide	Water and mineral salts

18. The diagram below shows a potato plant. It is a green plant with underground storage stems.

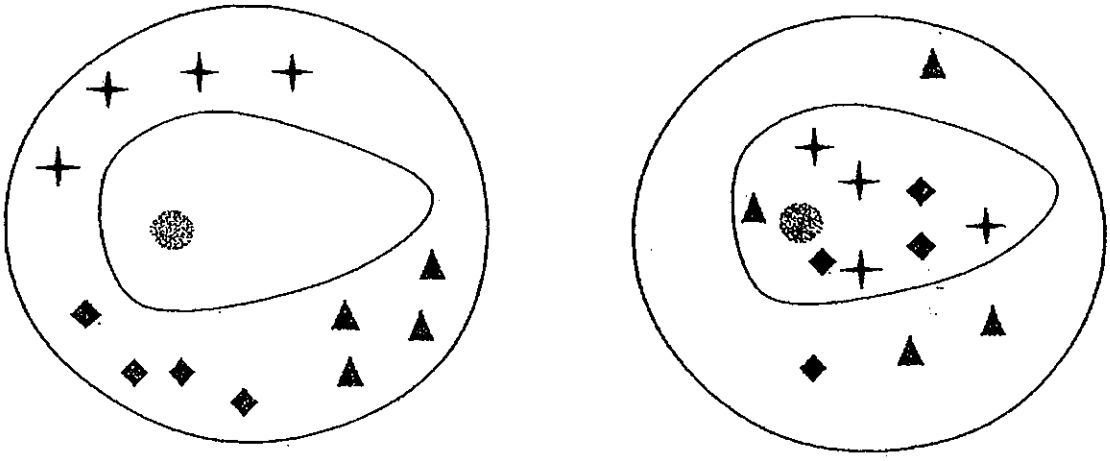


Cell	Cell wall	Chloroplasts	Cell Membrane
P		√	√
Q	√		√
R			√
S	√	√	√

Which cells in the above table represent the cells of Part X and Part Y?

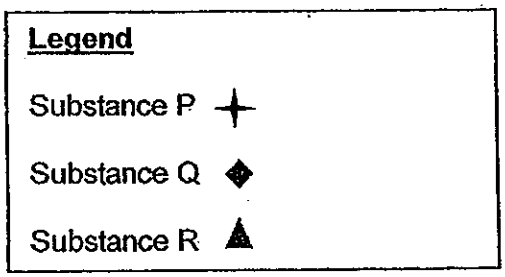
	Part X	Part Y
(1)	P	R
(2)	S	P
(3)	Q	S
(4)	S	Q

19. The diagram below shows an animal cell Vera wants to know which substances are able to pass through the cell membrane. She placed a cell in a plate of solution with substances, P, Q and R, for a period of time.



Before

After

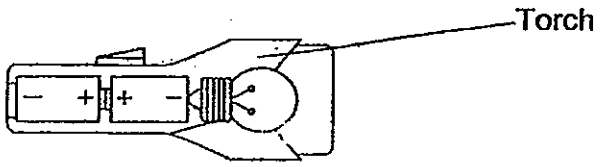


At the end of the experiment, traces of the different substances could be found in the cytoplasm. What can Vera conclude from the experiment?

A The cell membrane is most permeable to substance P.
B All three substances can pass through the cell membrane.
C Substance Q is more likely to move into the cell than substance R.
D Substance R is more likely to move out of the cell than move into the cell.

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

20. Peter's torch did not light up when he tried to turn on the torch.



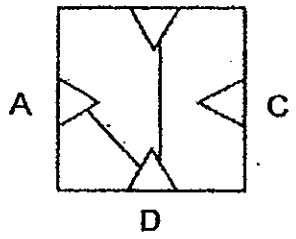
With reference to the picture above, what is a possible reason why the torch did not light up?

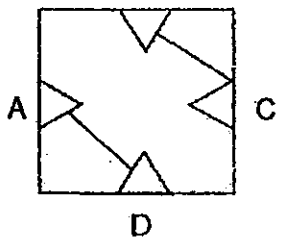
(1) There is a gap between the batteries.
(2) The batteries are connected in parallel.
(3) The metal tip of the bulb is not connected to one end of the batteries.
(4) The positive terminal of one battery is not connected to the negative terminal of the next battery.

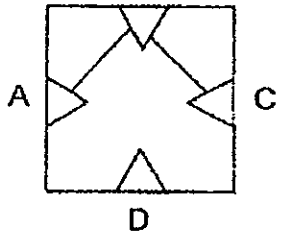
21. A circuit card is tested with a circuit tester. The results are recorded in the table below.

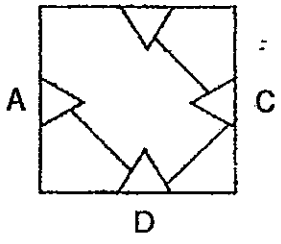
Clips tested	Bulbs of circuit tester
A and B	Lights up
A and D	Does not light up
B and C	Lights up
B and D	Does not light up
C and D	Does not light up

Which of the following represents the circuit card that was tested?

(1)


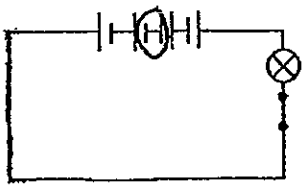
(2)


(3)


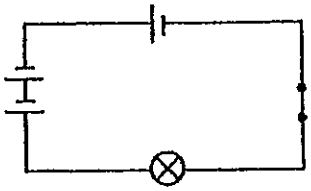
(4)


22. Identical switches, bulbs and dry cells are used in the circuits below. Which bulb is the brightest?

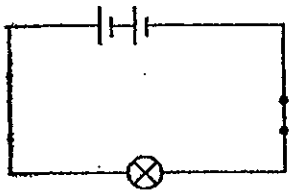
(1)



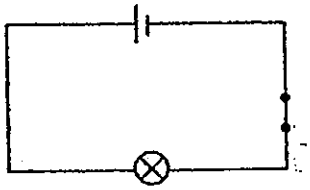
(2)



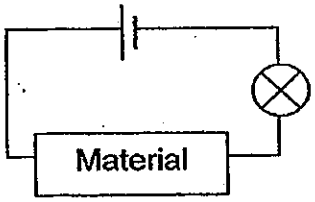
(3)



(4)

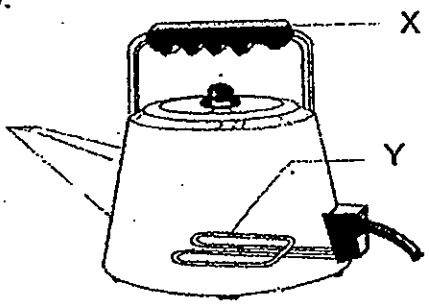


23. Lily had four different materials, A, B, C and D. She connected the material, one at a time, to the circuit shown below and observed if the bulb lighted up.



She recorded her observations in the table below.

Material	Bulb
A	Lighted up
B	Did not light up
C	Did not light up
D	Lighted up



Study the diagram of the kettle above. Which of the following materials are most suitable to make parts X and Y of the kettle?

	Part X	Part Y
(1)	B	C
(2)	C	A
(3)	D	B
(4)	A	D

24. Electricity can be very dangerous when handled incorrectly. Which of the following safety rules should users follow when handling electrical appliances?

A Do not insert sharp objects into power points.
B Make sure that our hands are dry when we switch on or off electrical appliances.
C Repair any exposed electrical wires when doing regular checks on electrical appliances.
D Make sure that the power points are switched off when we plug in or remove electrical appliances.

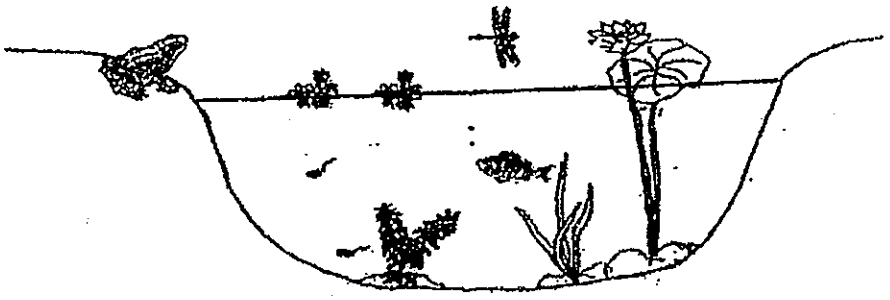
(1) A only
(2) B and D only
(3) A, B and C only
(4) A, B, C and D

25. Energy is defined as the ability to do work. Which of the following organism(s) has/have energy?

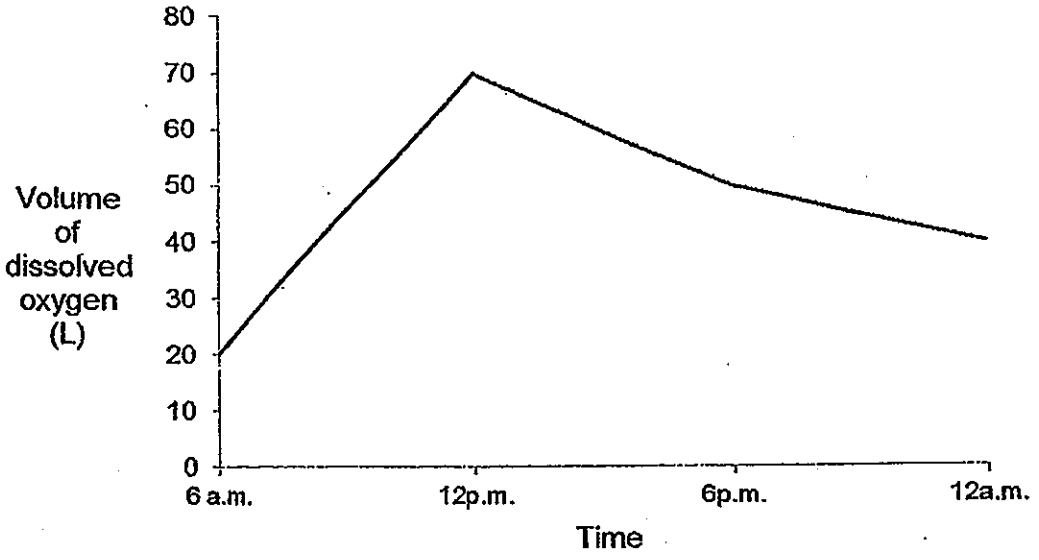
A A germinating seed
B A boy watching television
C A bee pollinating a flower

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

26. The diagram below shows a pond.



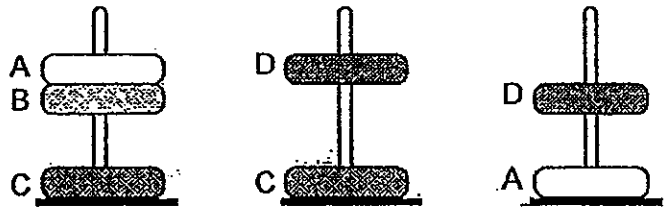
The graph below shows the changes in the amount of dissolved oxygen in the pond in a day.



Based on the graph above and your knowledge of photosynthesis, which of the following statement can be inferred from the graph above?

(1) Photosynthesis occurs throughout the day.
(2) The rate of photosynthesis was the highest at 6 a.m..
(3) The amount of sunlight affects the rate of photosynthesis.
(4) As the amount of dissolved oxygen increases, the rate of photosynthesis decreases.

27. The following setups show four ring magnets, A, B, C and D, of the same size and mass.



Based on the observations, what conclusion(s) can you make?

A A magnet has the strongest attraction at its two poles.
B The like poles of all the magnets are facing each other.
C Magnet A has a stronger magnetic strength than Magnet B
D Magnet C has a stronger magnetic strength than Magnet A

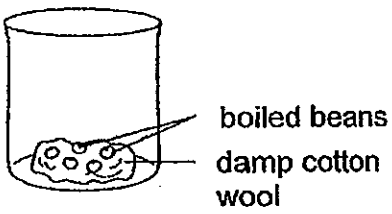
(1) A only
(2) D only
(3) B and C only
(4) C and D only

28. In what way(s) are the life cycles of the cockroach and the frog similar?

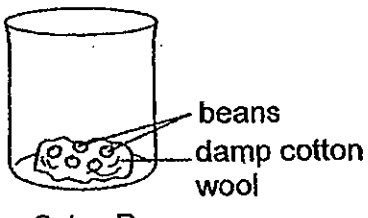
A Both have three stages in their life cycles.
B Both spend parts of their life cycles in water
C Both their young do not resemble the adults.

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

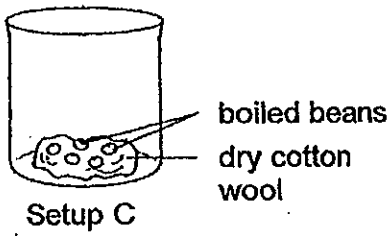
29. Study the four setups as shown below.



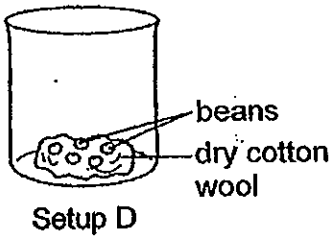
Setup A



Setup B



Setup C



Setup D

In which setup will the seeds germinate into seedlings?

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

30. The table below shows the freezing points of three substances, P, Q and R.

Substance	Freezing Point (°C)
P	7
Q	32
R	120

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

(1) P is a solid at 5°C.
(2) P and Q are both liquids at 30°C.
(3) Q and R are both solids at 135°C.
(4) R can be a liquid or a gas at 120°C.

NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 2 – 2013
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

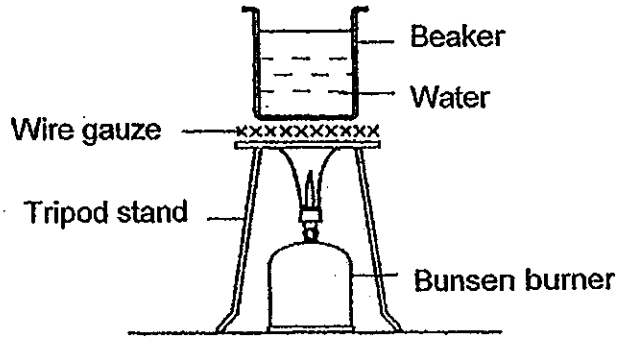
Section B		/40

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

Date : 24 October 2013 **Parent's Signature:** _____

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

31. Eric sets up the experiment as shown below.



(a) What is the state of water in the beaker? [1]

_____

_____

(b) List 2 observations of the water in the first 15 minutes.

_____

_____

_____

Score	/ 3

32. Ahmad found three Shorea fruits on the forest floor during his hike one morning.

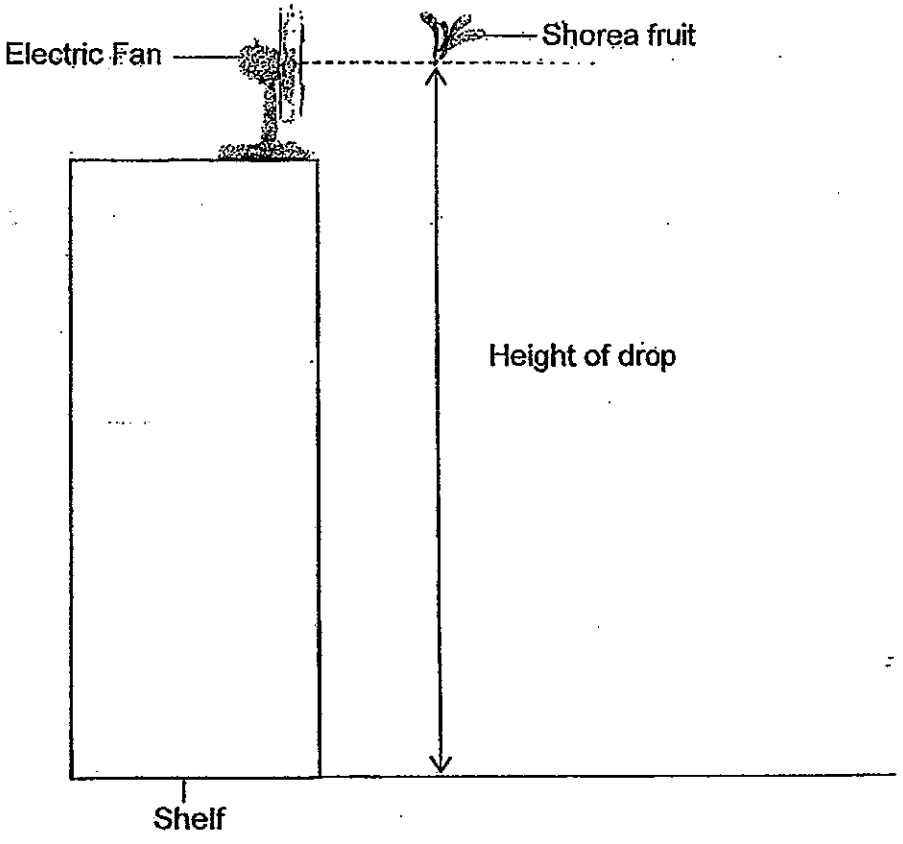
Fruit A
(2 wing-like structures)

Fruit B
(3 wing-like structures)

Fruit C
(4 wing-like structures)

The Shorea fruits are about the same size and mass but they have different number of wing-like structures. Ahmad wanted to find out how the number of wing-like structures affects the time taken for a fruit to land on the ground.

He carried out an experiment with the set-up below.



(a) State two constant variables in this experiment. [1]

_____

In each experiment, he dropped a Shorea fruit and measured the time taken for it to reach the ground using a stopwatch. He recorded the time taken for Fruit A, B and C to reach the ground in the table below.

	Fruit A	Fruit B	Fruit C
Time taken(s)	4.0		

(b) Predict and fill in the time taken for Fruit B and Fruit C to reach the ground in the table. [1]

(c) Explain your predictions. [2]

_____

_____

_____

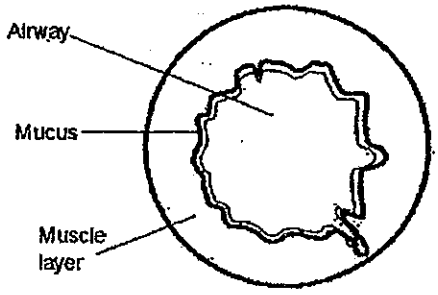
_____

Score	
	4

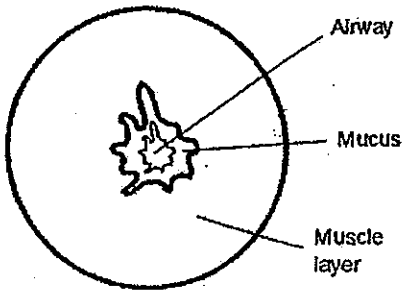
33. People with asthma can suffer an attack when certain substances in the air, such as smoke or pollen grains, enter the respiratory system. During an attack, a person will experience difficulty in breathing.

Mucus is a sticky liquid found on the walls of the air tubes to trap dust and bacteria.

The diagram below compares the air tube in a person's lungs before and during an asthma attack.



Air tube before an asthma attack

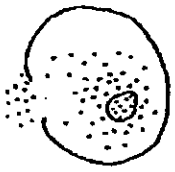


Air tube during an asthma attack

Based on the diagram, explain why a person suffering asthma attack will find it more difficult to breathe. [2]

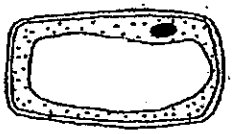
Score	2

34. When we place an animal cell in pure water, water will enter the cell and cause the cell to burst.



Animal cell in pure water

However, when we place a plant cell in pure water, the cell only swells but does not burst.



Plant cell in pure water

Why do animal and plant cells behave differently when placed in pure water? Explain your answer. [2]

_____

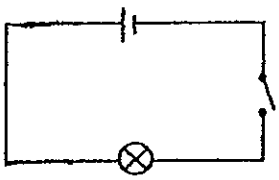
_____

_____

_____

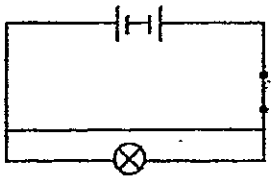
Score	/ 2

35. The bulbs in the circuits below do not light up.



Circuit A

Circuit B



Circuit C

Observe each circuit diagram carefully and state a reason why each of the bulbs does not light up. [3]

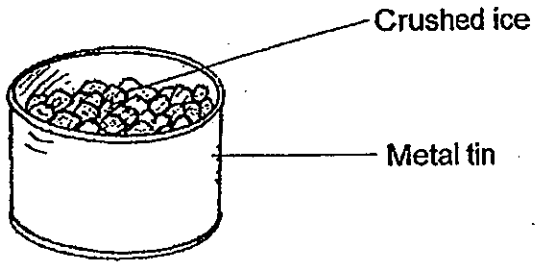
Circuit A:

Circuit B:

Circuit C:

Score	3

36. Tom wrapped some ice cubes in a cloth and crushed them with a hammer. They are put into a metal tin as shown below.



(a) After some time, what will Tom observe on the metal tin? [1]

_____

_____

(b) Explain your observations in (a). [2]

_____

_____

_____

_____

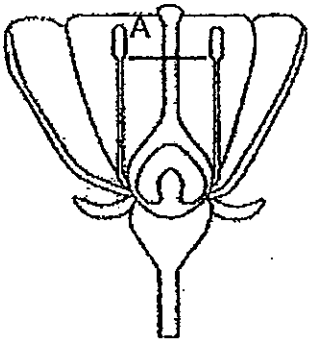
(c) Tom's mother told him that the crushed ice cubes are better in making his soft drinks cool faster. Explain. [1]

_____

_____

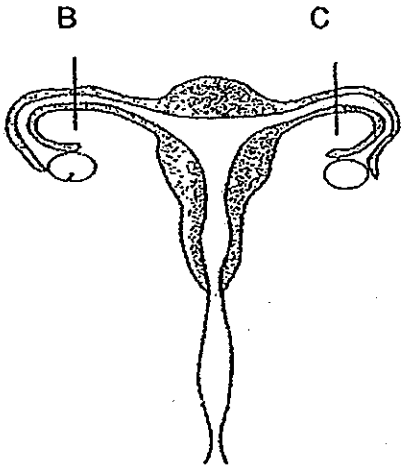
Score	/ 4

37. Fertilisation in flowering plants and human beings can be prevented using man-made methods.



(a) Explain how cutting the flower at Point A prevents fertilisation of the flower. [1]

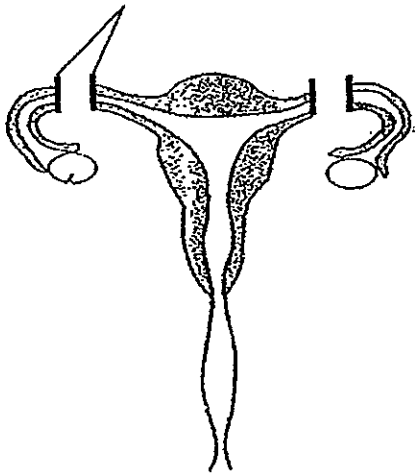
Unlike the flower, the human female reproductive system must be cut at two points (Points B and C) to prevent fertilisation from taking place.



(b) With reference to the diagrams above, explain the difference in the number of cuts made between the flowering plant and the human reproductive system to prevent fertilisation from taking place. [1]

Score	/ 2

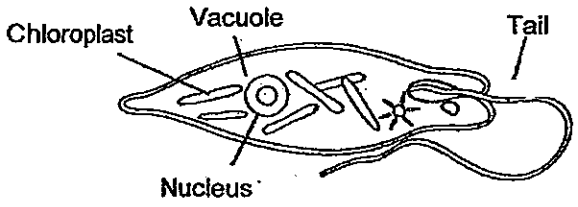
Fallopian tubes are sealed.



(c) After the fallopian tubes are cut, the ends of the tubes are sealed. Explain how fertilisation in human is prevented by sealing the tubes. [2]

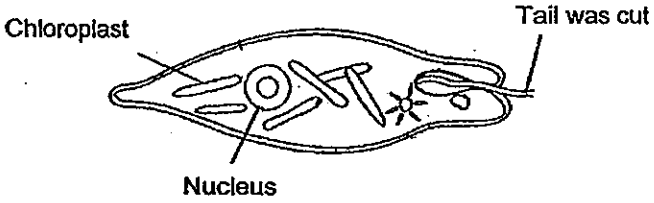
Score	/ 2

38. A scientist discovered a single-cell organism, Organism X, in a freshwater pond. The diagram below shows how Organism X looks like under the microscope.



(a) The scientist concluded that Organism X does not need to feed on other organisms.
Do you agree with him? Explain your answer. [2]

The scientist continued to study the function of the nucleus in Organism X. He cut away the tail of Organism X as shown.



A few days later, a new tail was formed in Organism X.

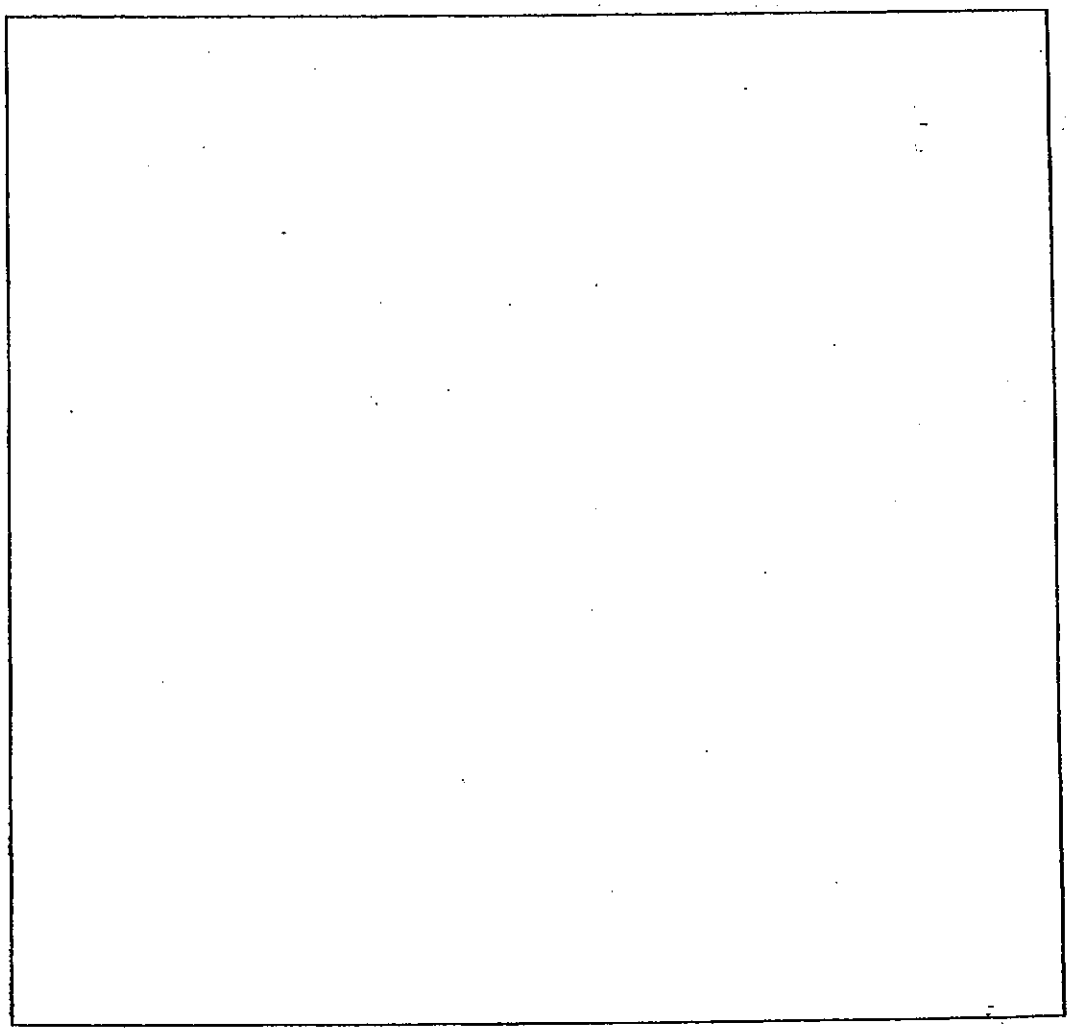
(b) Based on this observation, what can the scientist infer about the function of the nucleus in Organism X? [1]

Score	
	3

39. Alvin was given 3 dry cells, 4 bulbs and some wires and switches. He has to construct a circuit with the following conditions:

- When one bulb fuses, the rest of the bulbs will continue to light up
- All bulbs can be controlled independently.
- There is a master switch which can control all the bulbs.
- All the 3 dry cells must be used.
- All the 4 bulbs must be used.

Draw a circuit diagram in the box below that is able to meet the requirements above. [2]



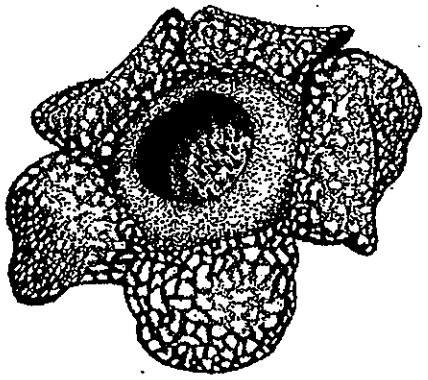
Score	/ 2

40. Betty wanted to find out how the number of bulbs arranged in series will affect the brightness of the bulbs. She was given 2 dry cells, 3 bulbs and some wires. Using the materials given to her, write down the steps that Betty has to perform in order to test the aim of her experiment. Remember to number your steps.

[3]

Score	/ 3

41. The Rafflesia shown below is a special plant as it does not have any leaf, stem or roots. It grows on another green plant by spreading an organ into the food-carrying and water-carrying tubes of the plant.



a) The Rafflesia does not photosynthesise. Based on the information given, suggest how the Rafflesia gets its energy to carry out life processes? [1]

_____

_____

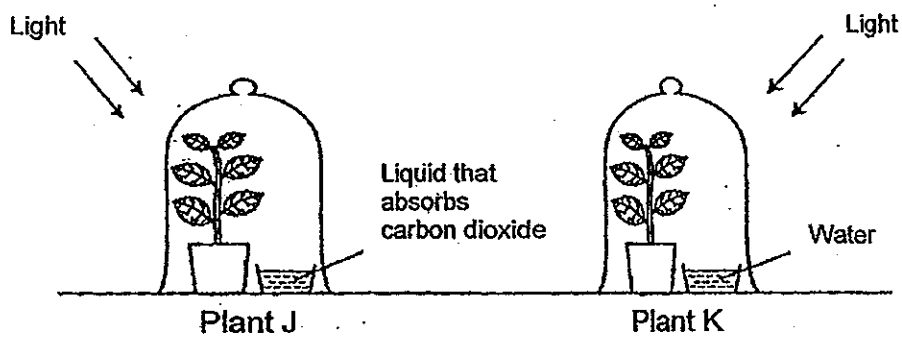
b) The green plant that the Rafflesia grows on has a slow growth rate. Explain why this is so. [1]

_____

_____

Score	/2

42. Paul wanted to study about photosynthesis. He placed two plants in a dark room for 48 hours. The plants were then used in the set-ups as shown below for two days. He watered each pot of plant with equal amount of water daily throughout the experiment.



(a) What is the aim of Paul's experiment? [1]

_____

(b) A starch test is carried out on a leaf of Plant J and a leaf of Plant K. State the colour of the iodine solution at the end of the test for the leaf of each plant. [2]

Iodine solution on leaf of Plant J: _____

Iodine solution on leaf of Plant K: _____

Score	
	3

43. Mabel wanted to find out if four bar magnets of the same size have the same magnetic strength. She brought a paper clip nearer and nearer to each bar magnet until the paper clip was attracted to the magnet. She recorded the distance as shown below.

Bar Magnet	Distance when the paper clip was attracted (cm)
A	2.9
B	3.2
C	1.1
D	2.7

(a) What is the relationship between the strength of a magnet and the distance when the magnet attracts the paper clip? [1]

_____

_____

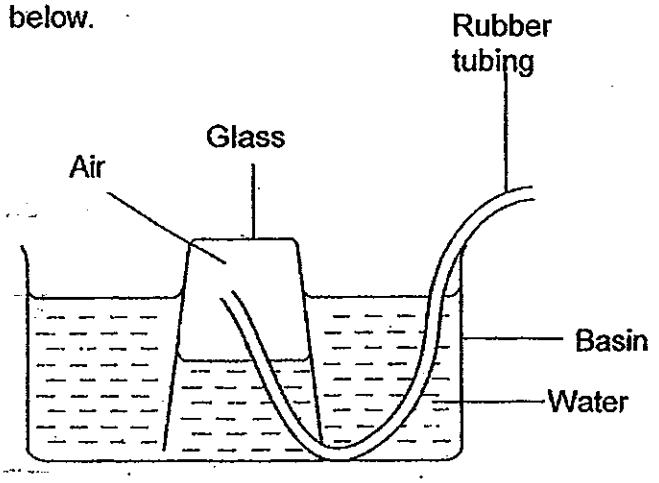
(b) Which magnet is most suitable to be used to hold some paper onto the refrigerator door? Explain your answer. [1]

_____

_____

Score	/ 2

44. Study the setup below.



(a) What will happen when air in the glass is sucked out through the rubber tubing? Explain your answer. [2]

(b) What property about air does this experiment demonstrate? [1]

End of paper

Score	3

Answer Ke

EXAM PAPER 2013
SCHOOL : NAN HUA
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA2

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

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

31)a)Liquid state.
b)The water level decreases there were bubbles in the water.

32)a)The height of which the shorea fruits are dropped and the type of Electric fan.
b)6.0 / 8.0
c)Fruit A took only 4 seconds to reach the ground, Fruit B, which has more wings than Fruits A, will take a longer time to drop to the floor as the surface area of the wings in contact with air is more. Fruit C has the most number of wings, which means it has the most surface area of the wings in contact with air.

33)The muscle layer in the air tube swells becomes thicker and more mucus is secreted, causing the airway to be narrower resulting in each breath.

34)Animal cells have no cell wall to prevent it from bursting, however, plant cells have a cell wall to protect and prevent it from bursting.

35)Circuit A: The switch in the circuit is open electricity cannot flow in a circuit, so the bulb did not light up.

Circuit B: There is no battery in the circuit to supply energy to the bulb, so the bulb did not light up.

Circuit C: The batteries negative terminal are facing each other, so electrical energy could not flow to the bulb, so the bulb did not light up.

36)a)Water droplets are formed on the outer surface of metal tin.

b)The ice cubes cool the tin can and the water droplets vapour in the surrounding comes in contact with the cooler surface of the metal tin and condenses to form water droplets.

c)The crushed ice tubes have a bigger surface area for the soft drink lose heat to the soft drink faster.

37)a)The stigma is removed and the pollen grains cannot land on the stigma of the flower.

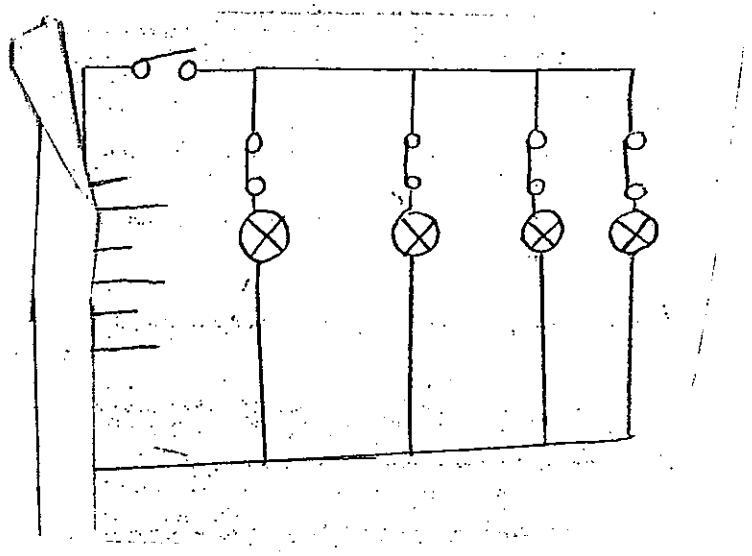
b)The human/ female reproductive system has two varies while the flower has only are ovary corrected to the stigma.

c)When eggs are produced, they cannot pass through the fallopian tube and the sperms from the male cannot fertilise with the egg.

38)a)Yes, I agree. Organism X has chloroplasts which contain chlorophyll to trap sunlight for photosynthesis.

b)The nucleus controls the growth of the tail parts of X.

39)



40)1)Construct a closed circuit with one bulb, one battery and some wires.
2)Construct another closed circuit with one battery, some wires and two bulbs arranged in series arrangement.
3)compare the brightness of the bulbs in both circuit.
4)record your results.

41)a)The Rafflesia flower gets energy from the food found in food-carrying tubes of another green plant that the Rafflesia is growing on.
b)The green plant does not have enough food and water as the Rafflesia plant has absorbed some of its food and water.

42)a)It is to find out carbon dioxide is needed for photosynthesis.
b)J: Yellowish-brown
K: Dark blue

43)a)When the strength of the bar magnet increases, the distance when the magnet attracts the paper clip is further.
b)Magnet B. It attracted the paper clip at the furthest distance.Magnet B is the strongest magnet and is most suitable for holding paper onto the refrigerator door.

44)a)The water level in the glass increases and the water level in the basin decreases. When the air in the glass is sucked out the water from the basin will enter the glass to occupy the space left by the air.
b)Air occupies space.