TAO NAN SCHOOL 陶南学校

SINCERITY & PERSEVERANCE

PRIMARY 5 MID-YEAR EXAMINATION 2014

Name : _____ ( ) Date: 19 May 2014

Class : Primary 5 ( ) Time: 8.00 a.m – 9.45 a.m.

Duration: 1h 45min

Parent's Signature : _____ Marks: _____ / 60

SCIENCE
BOOKLET A

INSTRUCTIONS TO CANDIDATES

Write your name, register number and class.

Do not turn over this page until you are told to do so.

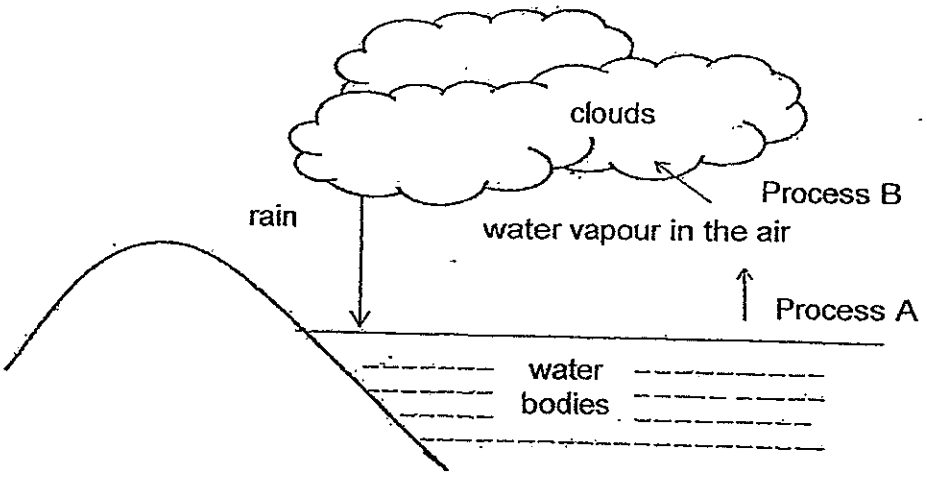
Follow all instructions carefully.

Answer all questions.

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 (OAS) provided.

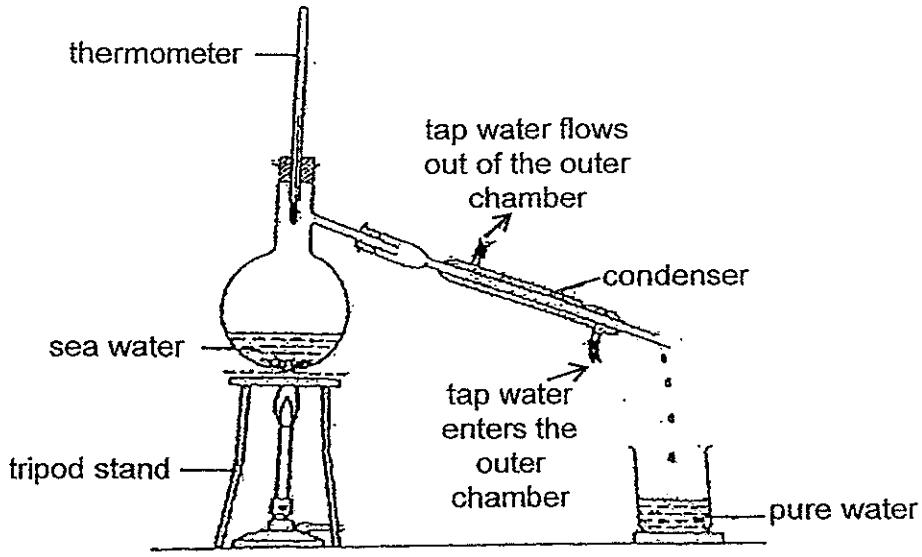
1. Study the water cycle below.



Which of the following describes Process A and Process B?

	Process A	Process B
(1)	condensation	evaporation
(2)	evaporation	condensation
(3)	evaporation	freezing
(4)	boiling	condensation

2. In the set-up below, the sea water is allowed to boil and pure water can be obtained at the end of the process. The steam from the boiling sea water enters the condenser.



The tap water flows around the outer chamber of the condenser and does not mix with the sea water.

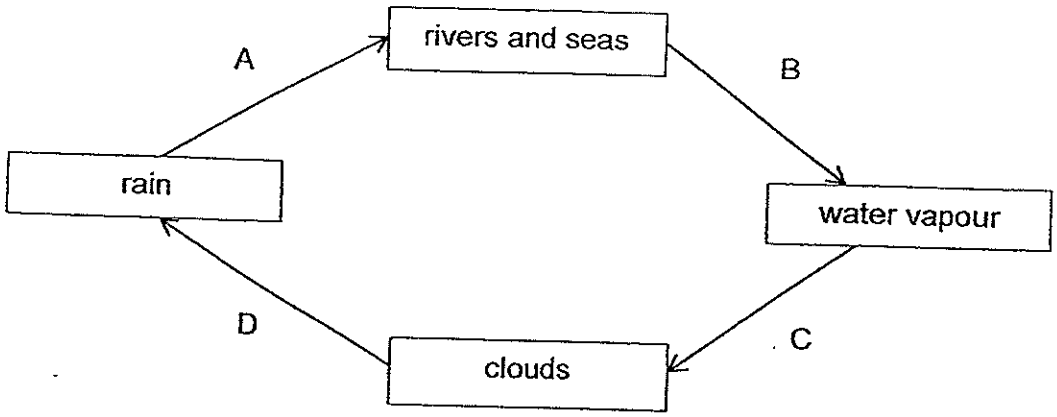
Based on the set-up above, what is the function of the continuous flow of tap water in the outer chamber of the condenser?

(1) It removes all the salt from the sea water.
(2) It controls the boiling point of the sea water.
(3) It allows the steam to lose heat to the tap water.
(4) It allows the steam to gain heat from the tap water.

3. Which of the following actions helps us to conserve water?

(1) Use a water hose to wash the car.
(2) Take a bath instead of a quick shower.
(3) Leave the tap on when brushing teeth.
(4) Wash vegetables in a basin instead of a running tap.

4. The diagram below shows the water cycle.



Which letter, A, B, C or D, represents a process that involves heat gain?

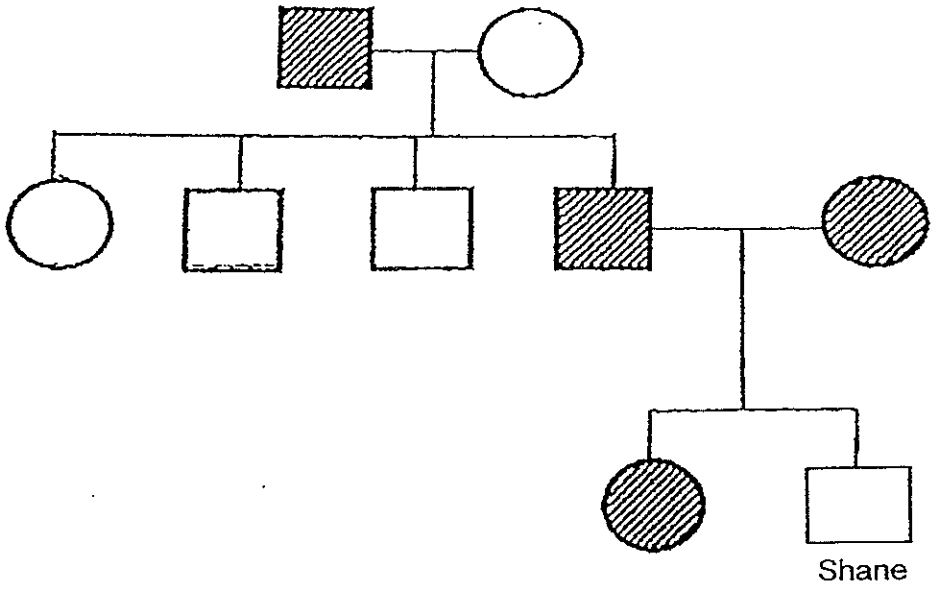
(1) A

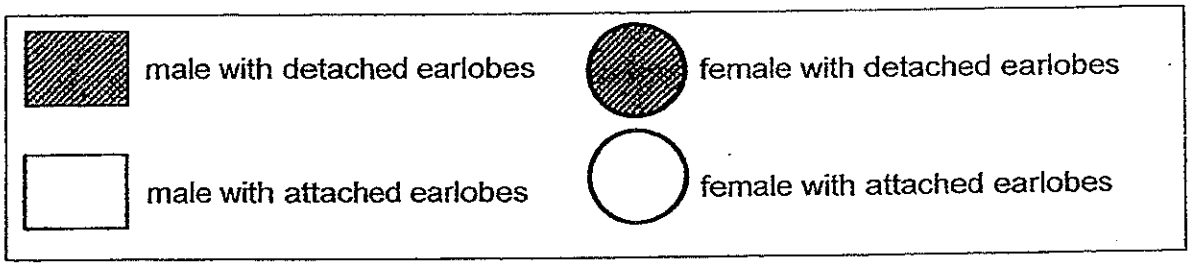
(2) B

(3) C

(4) D

5. The diagram below shows Shane's family tree.

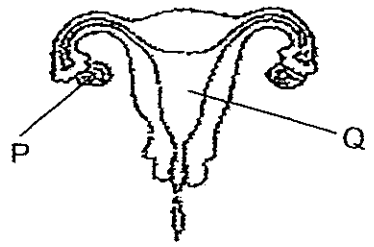
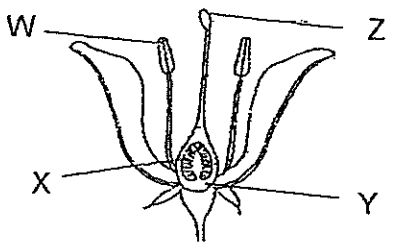




Based on the information above, which one of the following statements is correct?

(1) Shane has 2 aunts with attached earlobes.
(2) Shane has 2 grandparents with detached earlobes.
(3) Shane inherited attached earlobes from his mother.
(4) Shane's sister inherited detached earlobes from her parents.

6. The diagrams below show the human and plant reproductive systems.

Human reproductive system	Plant reproductive system
	

Identify the parts where the female reproductive cells can be found in the human reproductive system and the plant reproductive system above.

	Human reproductive system	Plant reproductive system
(1)	P	X
(2)	P	Z
(3)	Q	W
(4)	Q	Y

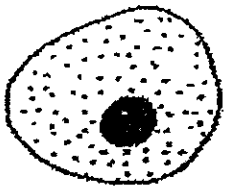
7. Which of the following statements is true about sexual reproduction in animals?

(1) The sperm is produced in the penis.
(2) After fertilisation, the foetus develops in the ovaries.
(3) The large intestine is part of the male reproductive organs.
(4) Fertilisation in humans occurs when a sperm fuses with an egg.

8. Which of the following is a unit of life for all living things?

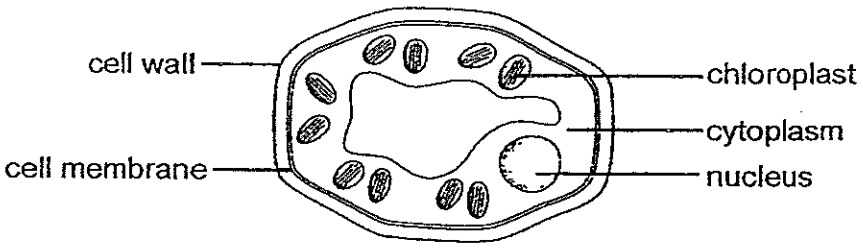
(1) Cell
(2) Organ
(3) Tissue
(4) System

9. What is the cell shown below?



(1) Root cell
(2) Leaf cell
(3) Cheek cell
(4) Bacteria cell

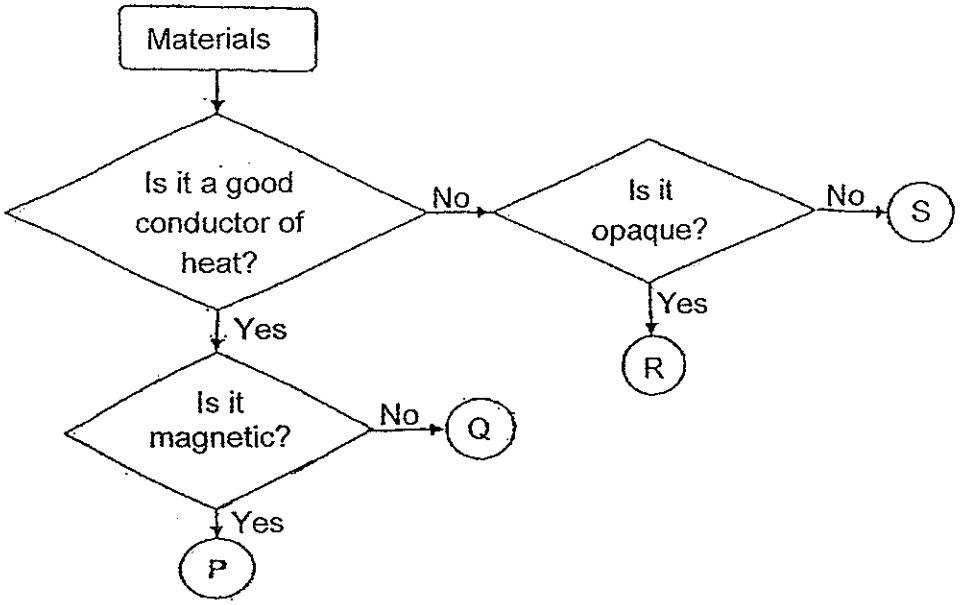
10. The diagram below shows a picture of a cell from a plant.



Which part of the plant is the cell most likely to be taken from?

(1) Root
(2) Leaf
(3) Tree bark
(4) Underground stem

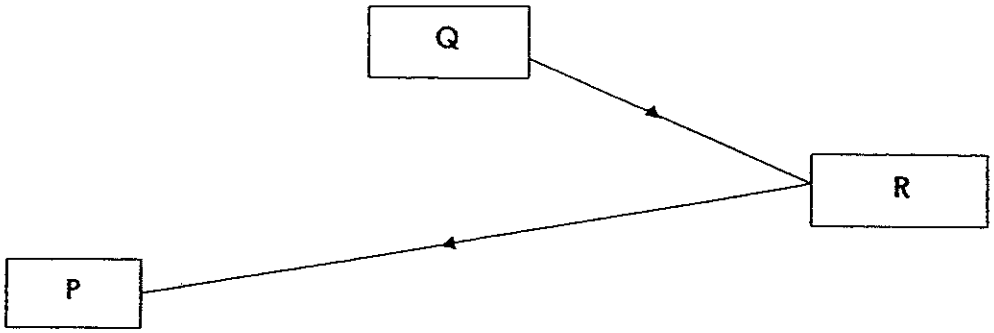
11. Study the flow chart below. Which materials are represented by P, Q, R and S respectively?



P

	P	Q	R	S
(1)	Aluminium	Nickel	Frosted glass	Clear plastic
(2)	Copper	Iron	Porcelain	Wood
(3)	Steel	Copper	Cardboard	Clay
(4)	Nickel	Silver	Leather	Frosted glass

12. The diagram below shows the path of light that enabled Alexander to see the ball while playing soccer at the field.



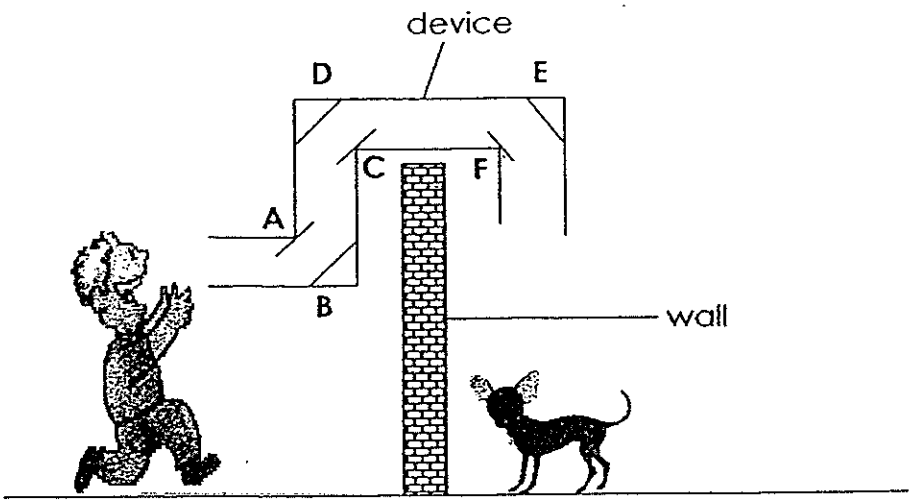
What could **P**, **Q** and **R** be?

	P	Q	R
(1)	Ball	Sun	Alexander
(2)	Alexander	Ball	Sun
(3)	Sun	Alexander	Ball
(4)	Alexander	Sun	Ball

13. Which one of the following is **not** a source of light?

(1) Sun
(2) Stars
(3) Firefly
(4) Moon

14. Wei Ming can hear a dog barking in his neighbour's garden. He wants to look at the dog but is blocked by a wall. He made a device to help him see the dog. A, B, C, D, E and F are mirrors.



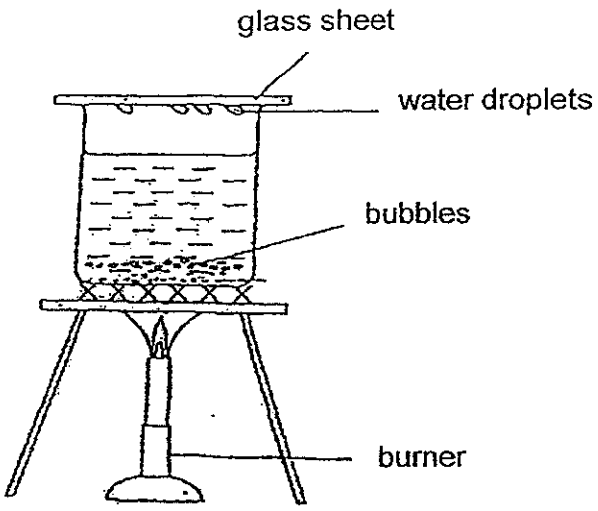
Which mirrors will enable him to see the dog?

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

15. Sam placed both his hands into two containers of water at the same time. His right hand that was placed into container A felt warm. His left hand that was placed into container B felt cold. What were the temperatures of the water in the containers?

	Temperature of the water in container A (°C)	Temperature of the water in container B (°C)
(1)	25	15
(2)	45	40
(3)	15	40
(4)	40	15

15. Study the experiment below.



Why did the water droplets appear on the inner surface of the glass sheet?

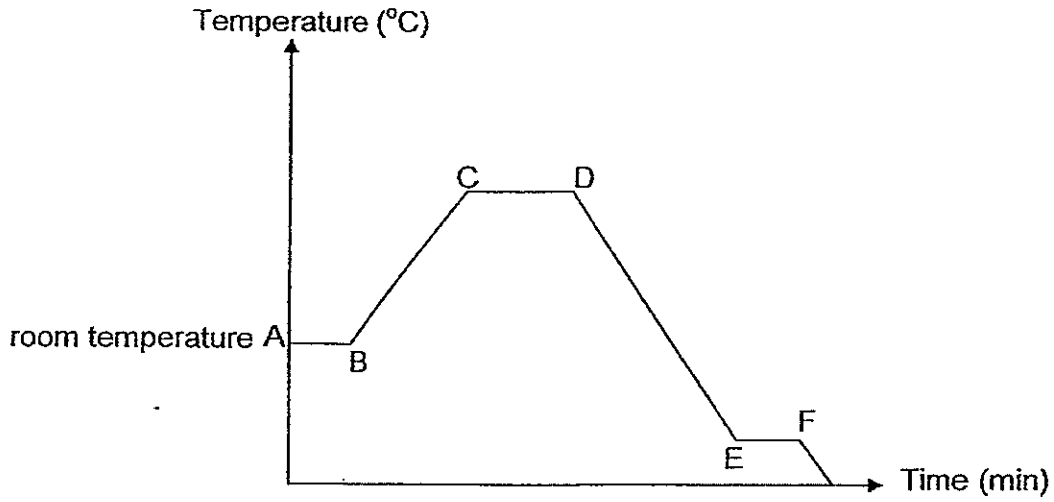
(1) The bubbles rose to the surface of the water and condensed into water droplets.

(2) The water vapour was cooler than the glass sheet and the water vapour condensed into water droplets.

(3) The glass sheet was cooler than the water vapour and the water vapour condensed into water droplets.

(4) The inner surface of the glass sheet was warmer than the outer surface so water droplets formed on it.

16. Veronica filled a beaker with tap water at room temperature and placed it on the stove to boil. She then placed the boiled water into the freezer immediately. She recorded the changes in temperature of the water over time throughout the experiment as shown in the graph below.



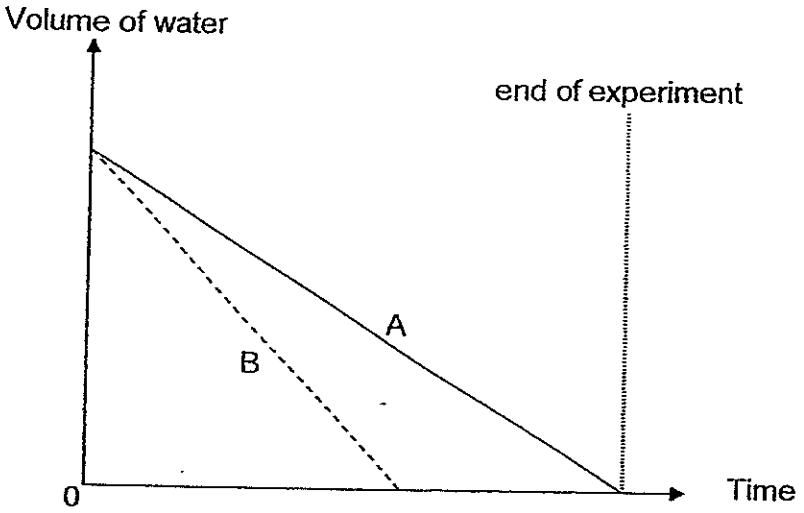
From the graph, between which points was the water boiling?

(1) A and B
(2) B and C
(3) C and D
(4) E and F

17. Which of the following statements about evaporation and boiling of pure water is true?

(1) Boiling involves water gaining heat but not evaporation.
(2) Evaporation takes places at any temperature but boiling takes place only at 100°C.
(3) Boiling involves a change from liquid state to gaseous state but evaporation does not.
(4) Evaporation takes place throughout the water but boiling takes place at the surface of the water.

18. Lillian filled two identical containers with the same amount of water and then placed them in two different locations. She measured the volume of water left in each container at regular intervals over some time and plotted the graph below.



Based on the graph above, which of the following statement~~(s)~~ is/ ~~are~~ likely to be true?

(1) Container A was placed in a warmer location than Container B.
(2) Container B was placed in a more windy place than Container A.
(3) There was more water left in Container A than in Container B at the end of the experiment.
(4) The water in Container A but not that in Container B had evaporated completely at the end of the experiment.

19. Geraldine conducted an experiment to find out if the temperature of water affects the rate of evaporation. She recorded the conditions in the set-ups for her experiment in the table below.

Set-up	Exposed surface area of water (cm^2)	Temperature of water (°C)	Amount of water (ml)
V	30	80	200
W	50	50	200
X	30	40	250
Y	40	50	250
Z	50	80	200

Which pair of set-ups must she compare for her experiment?

(1) V and W
(2) V and Z
(3) X and Y
(4) W and Z

20. Timothy saw a Bird's Nest Fern growing on the trunk of a tree at the Singapore Botanic Gardens.

How does the Bird's Nest Fern benefit from growing on the tree?

(1) It gets more air to grow.
(2) It gets food from the tree trunks.
(3) It gets more sunlight to make food.
(4) It gets water from the water-carrying tubes in the tree.

21. Samantha went on a field trip and recorded the following characteristics of four different pollinators.

Pollinator	Characteristics
Organism A	• Attracted to large, strongly scented flowers • Active in the day
Organism B	• Attracted to small, brightly coloured flowers • Likes scented flowers • Active in the day
Organism C	• Attracted to brightly coloured flowers • Has a poor sense of smell • Active in the day
Organism D	• Attracted to white flowers • Has a good sense of smell • Active at night

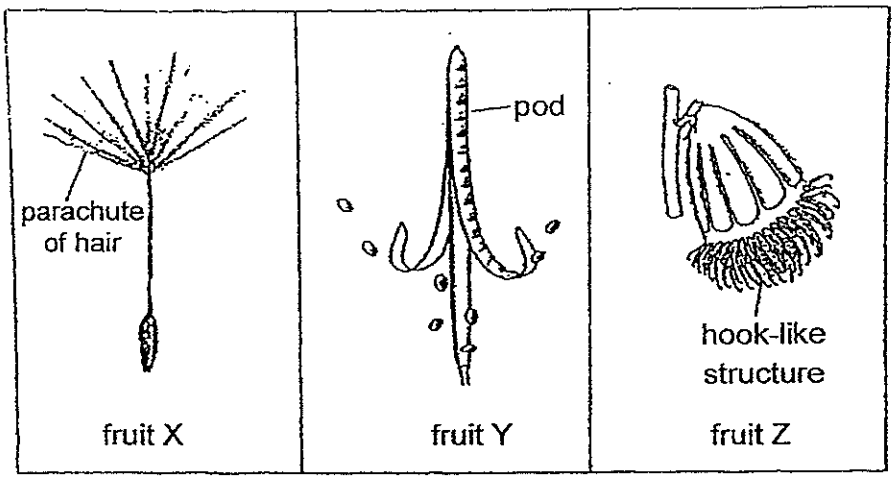
Samantha found two types of flowers and made some observations.

Flower	Observations
X	• White petals • Blooms in the evening • Produces a strong scent after the sun sets
Y	• Bright red petals • Blooms in the day • No scent

Based on the information above, which are the organisms that will most likely pollinate the flowers, X and Y?

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

22. The diagrams below show some fruits (not drawn to scale).



Which of the following shows correctly how fruits, X, Y and Z are being dispersed?

	Fruit X	Fruit Y	Fruit Z
(1)	By animal	By wind	By water
(2)	By animal	By splitting	By wind
(3)	By water	By wind	By animal
(4)	By wind	By splitting	By animal

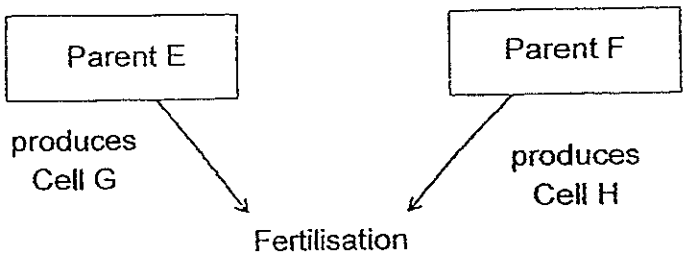
23. Dylan conducted an experiment with some seeds. He placed 10 seeds in 8 identical pots, A to H, which contained identical amounts of soil. He watered each pot of seeds with 20 ml of water daily. He then exposed the pots to different temperatures as shown in the table below. He measured and recorded the number of seeds which germinated after 3 days.

Pot	Temperature of soil (°C)	No. of seeds per pot	No. of seeds germinated
A	5	10	0
B	10	10	0
C	15	10	4
D	20	10	8
E	25	10	9
F	30	10	8
G	35	10	1
H	40	10	0

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

(1) The most number of seeds germinated between 20°C and 30°C.
(2) Water is the most important condition for the seeds to germinate.
(3) More seeds germinated when the temperature of the soil was higher.
(4) When the temperature of the soil increases, the number of seeds germinated decreases.

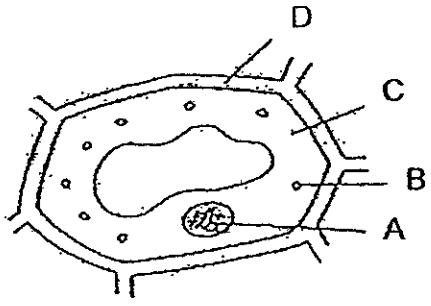
24. The diagram below shows the processes of human reproduction.



Which of the following correctly states the gender of parents, E and F, and the cells, G and H, that they produce?

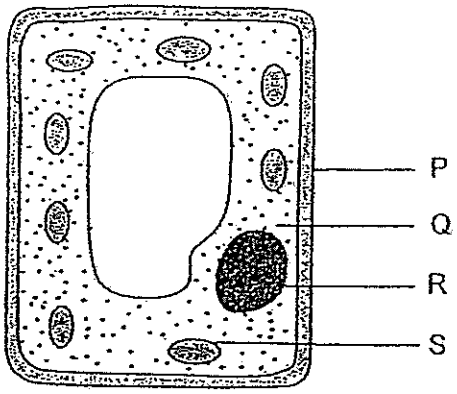
	Parent E	Parent F	Cell G	Cell H
(1)	male	female	egg	sperm
(2)	female	male	sperm	sperm
(3)	male	female	sperm	egg
(4)	female	male	egg	egg

25. In the cell diagram below, with the parts labelled, A, B, C and D, where is the genetic information stored?



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

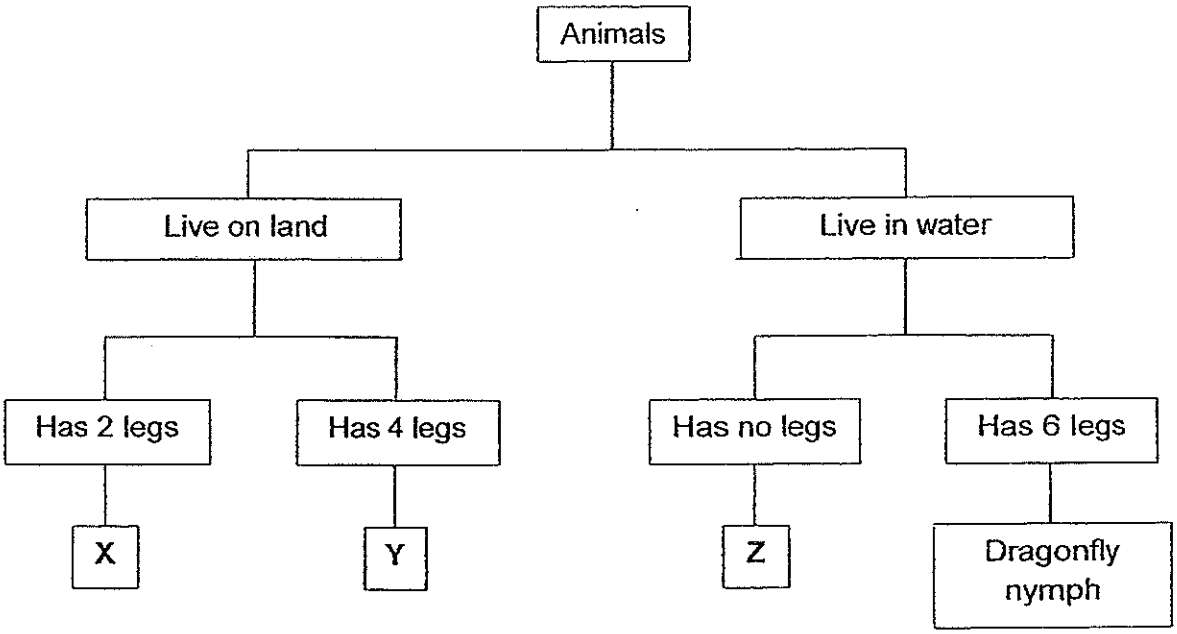
26. The diagram below shows a plant cell with the parts labelled, P, Q, R and S.



Which two parts of the plant cell are not found in animal cells?

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

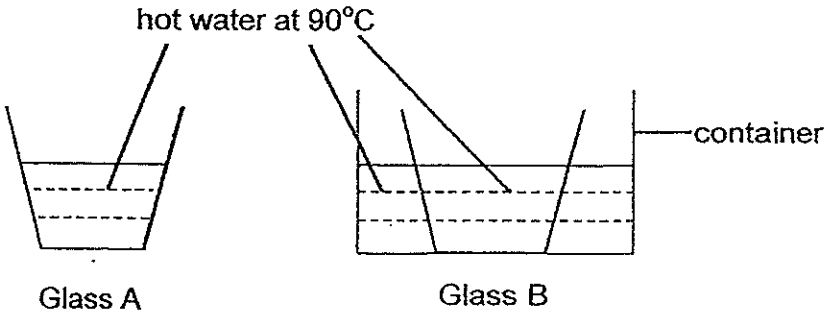
27. Study the classification chart below. X, Y and Z represent three different animals.



Which of the following shows correctly the animals represented by X, Y and Z?

	X	Y	Z
(1)	Chicken	Deer	Lizard
(2)	Fly	Dog	Frog
(3)	Penguin	Lizard	Toad
(4)	Chicken	Lion	Guppy

28 Amy carried out an experiment to find out how heat can affect matter. Hot water was poured into 2 glasses, Glass A and Glass B, of the same thickness as shown below. Glass B was placed in a container of hot water.



After some time, Glass A cracked but Glass B did not. Which of the following best explains what happened?

	Glass A	Glass B
1	Inner surface of glass expanded more than the outer surface.	Inner and outer surface of the glass expanded at the same rate.
2	Inner and outer surface of glass expanded at the same rate.	Inner surface of glass expanded more than outer surface.
3	Outer surface of glass expanded more than inner surface.	Inner surface of glass expanded more than outer surface.
4	Inner and outer surface of glass expanded at the same rate.	Outer surface of glass expanded more than inner surface.

29. Martin carried out an experiment to see how long his hand could remain on the surface of a hot plate. The table below shows the results.

Temperature of surface of a hot plate (°C)	Time taken before his hand leaves the surface of the hot plate (min)
40	4
60	2
80	0.5

What conclusion can Martin make from the experiment?

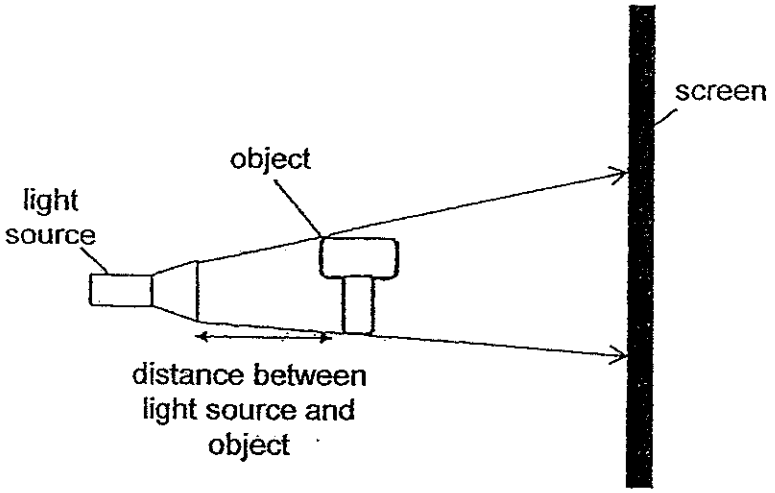
(1) Heat travels from a hotter to a cooler place.

(2) Heat travels to Martin's hand faster if the temperature of the surface of the hot plate is lower.

(3) The hotter the surface of the plate, the faster Martin's hand leaves the surface of the hot plate.

(4) The temperature of the surface of the hot plate cannot be measured accurately by Martin's hand.

30. Karen placed an object between a light source and a screen as shown below.



Based on the diagram above, which of the following is correct?

(1) The shadow will be bigger if the screen is nearer the object.

(2) The shadow will be bigger if the object is nearer to the screen.

(3) The shadow will be bigger if the distance between the light source and object decreases.

(4) The shadow will be bigger if the distance between the light source and object increases.

TAO NAN SCHOOL 道南学校

SINCERITY & PERSEVERANCE

PRIMARY 5 MID-YEAR EXAMINATION 2014

Name : _____ ( ) Date: 19 May 2014

Class : Primary 5 (Time: 8.00 a.m – 9.45 a.m.

Duration: 1h 45min

Parent's Signature : _____ Marks: _____ / 40

SCIENCE
BOOKLET B

INSTRUCTIONS TO CANDIDATES

Write your name, register number and class.

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

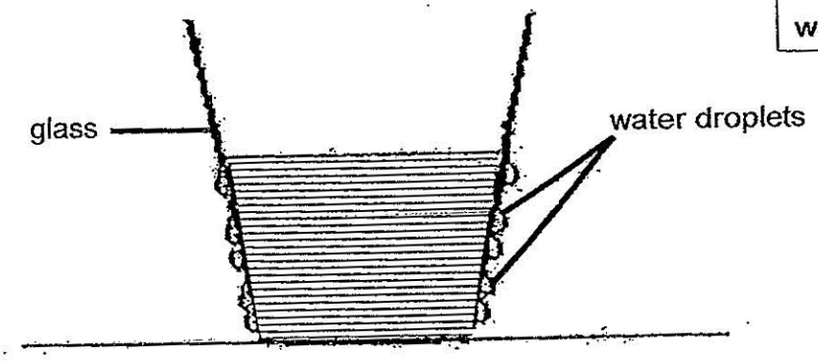
Answer all questions.

Section B (40 marks)

Write your answers to the questions, 31 to 44, in the spaces provided.

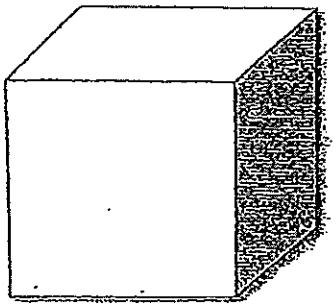
31. Michael placed a glass container on the kitchen table. After five minutes, he observed water droplets forming on the outer surface of the glass container as shown in the diagram below.

Temperature of surrounding air was 25°C.

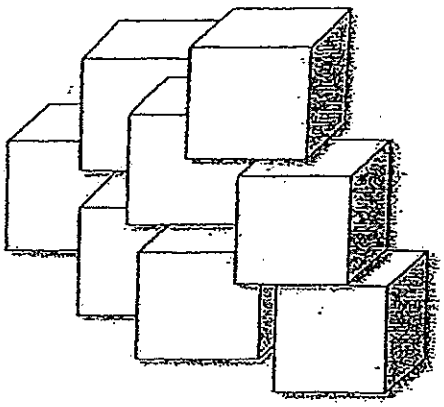


Based on Michael's observation, what can you conclude about the temperature of the water in the glass container? Explain your answer. [2]

32. Bing Li had two litres of water. He used one litre of the water to make one ice cube A and the other litre of water to make eight identical ice cubes B.



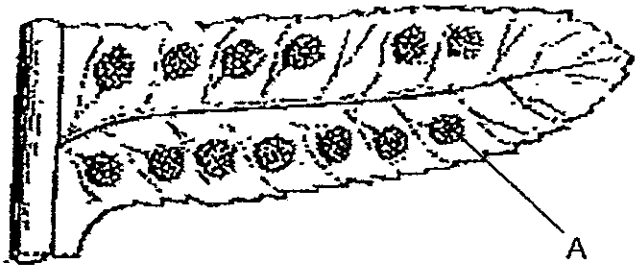
Ice cube A
(one litre of water was used)



Eight ice cubes B
(one litre of water was used)

Bing Li observed that all eight ice cubes B took a shorter time to melt completely than ice cube A when they were left on the table for a period of time. Explain why this happened. [2]

33. Study the picture of the underside of part of a fern leaf shown below.



(a) What are stored in the part labelled A? [1]

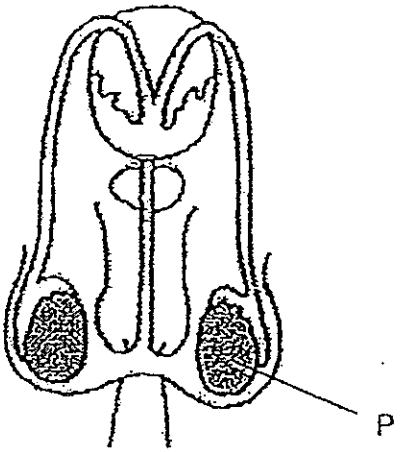
_____

[1]

_____

_____

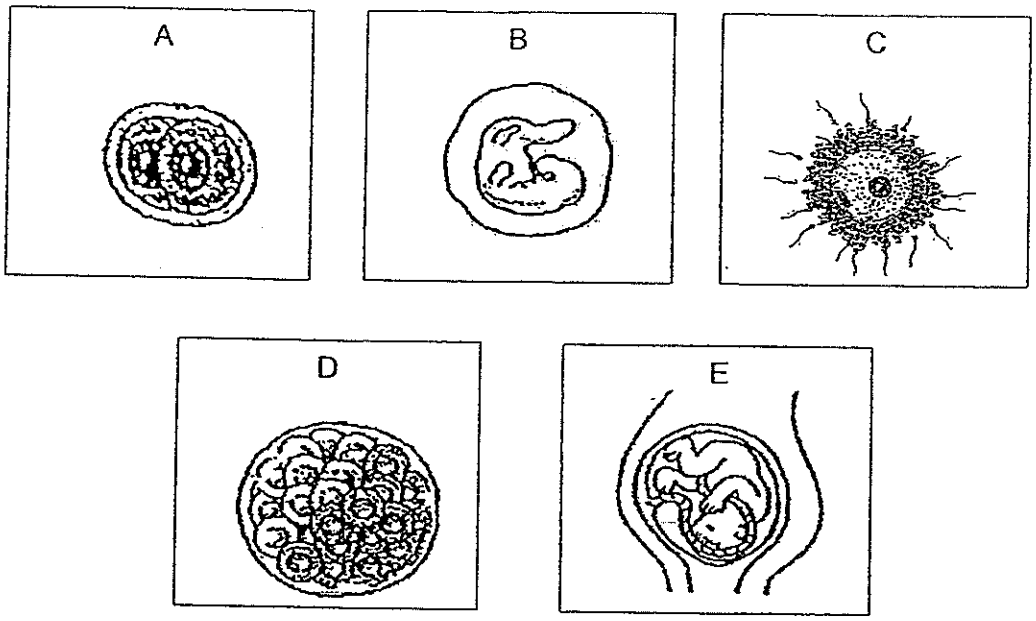
34. The diagram below shows the male reproductive system.



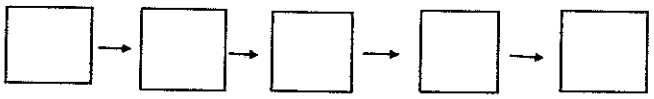
(a) Name the reproductive organ 'P' and state its function. [2]

Reproductive organ 'P'	Function
_____	_____ _____ _____

(b) The diagrams below show the different stages, A, B, C, D and E, in human sexual reproduction.



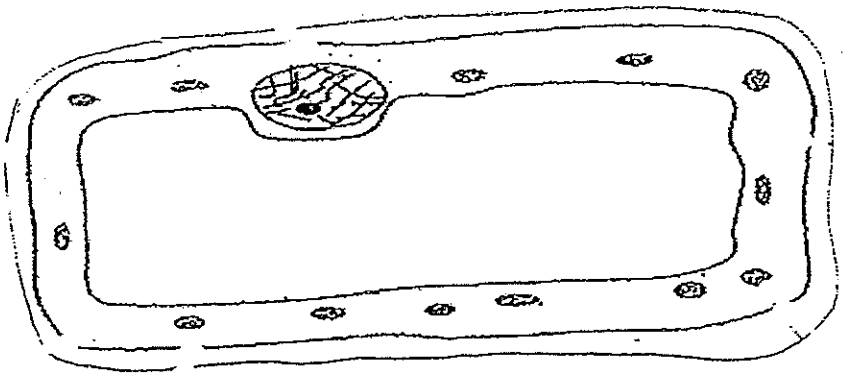
i. Fill in the boxes below with the letters, A, B, C, D and E, in the correct order to show the sequence of human reproduction. [1]



ii. At which stage does [1]

_____

35. Study the plant cell drawn by Sally.



(a) Draw the missing part of the cell and label it. [2]

(b) State the function of the missing part in (a) [1]

_____

_____

(c) How is the typical root cell different from the cell shown in the diagram above? [1]

_____

36. On the 25th of March 1989, an oil tanker collided with another vessel in the open sea and spilled 230 000 litres of thick black crude oil. The effect of the accident was devastating. Marine life, like fishes and sea birds, were affected and died as a result.

(a) Give two possible reasons why the sea birds died due to the oil spill?. [2]

Reason 1:

_____

_____

Reason 2:

_____

_____

(b) Explain clearly how the oil spill will affect the fishes in the sea. [1]

_____

_____

37. The table below shows the melting point and boiling points of four substances, A, B, C and D.

Substance	Melting Point(°C)	Boiling Point (°C)
A	4	56
B	0	100
C	240	600
D	-200	-20

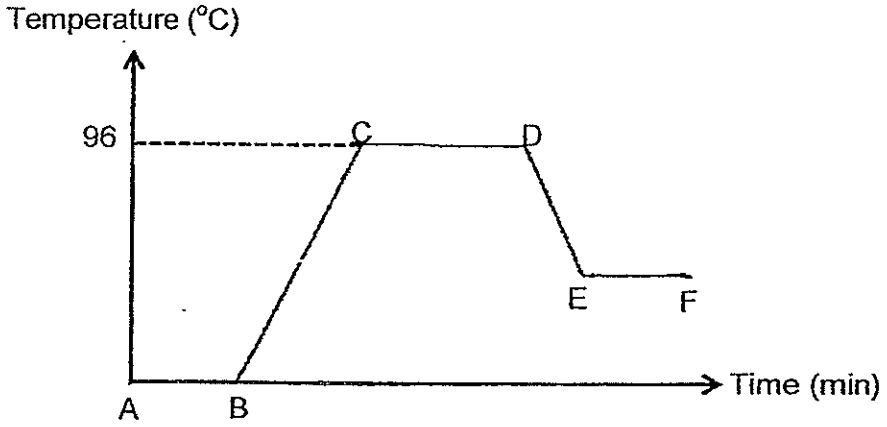
(a) Based on the information above, put a tick (✓) to indicate the state each of the substance will be in at 27°C. [2]

Substance	Solid	Liquid	Gaseous
A			
B			
C			
D			

(b) At what temperature will all four substances be in gaseous state? [1]

_____

38. Substance X was heated and left to cool to room temperature. The graph below shows its temperature over time.



(a) What process is taking place from A to B? [1]

_____

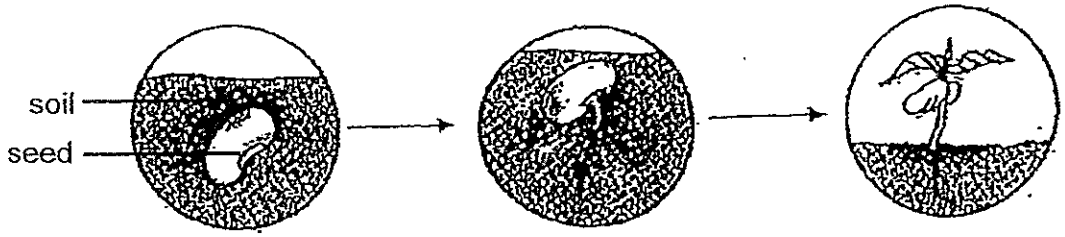
(b) What is the change in state of Substance X from C to D? [1]

_____

(c) Tick (✓) the correct boxes to indicate whether Substance X gained or lost heat to the surroundings during the different time periods. [2]

	AB	BC	CD	DE
Heat Gain				
Heat Loss				

39. The diagram below shows the stages of growth of a green bean plant.



(a) At Stage B, where does the seedling get its food from? [1]

_____

(b) At which stage will the seedling be able to make its own food? Explain your answer. [1]

_____

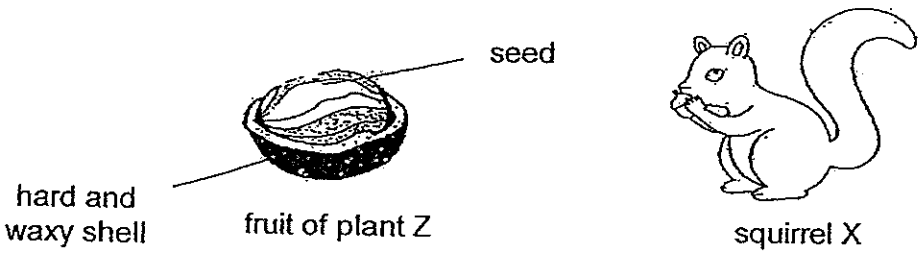
_____

(c) Identify two conditions necessary for germination of green beans to take place. [1]

_____

_____

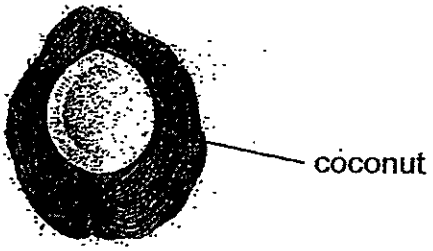
40. Squirrel X feeds on the seed of plant Z and helps in its dispersal.



During summer, squirrel X will break the shell of the fruit of plant Z and bury its seeds in different places to store food for winter. It will bury more seeds than it needs. Then, it does not return for some of them.

(a) Explain how the squirrel helps ~~to disperse the seeds of~~ plant Z when it buries each seed in a different place. ~~[2]~~ [1]

(b) The diagram below shows a coconut when it is cut in half.



Identify its method of fruit dispersal. Explain your answer. [1]

41. A group of students carried out an experiment to find out the effectiveness of different types of herbs used in soap against bacteria. They put an equal amount of soap in four petri-dishes and measured the area of bacterial growth after two days.

The results were recorded as shown below.

Set-up	Area of bacterial growth (cm^2)
Soap only	15.0
Soap + Herb A	9.2
Soap + Herb B	12.5
Soap + Herb C	2.1

(a) What is the purpose of the set-up that contains only soap? [1]

_____

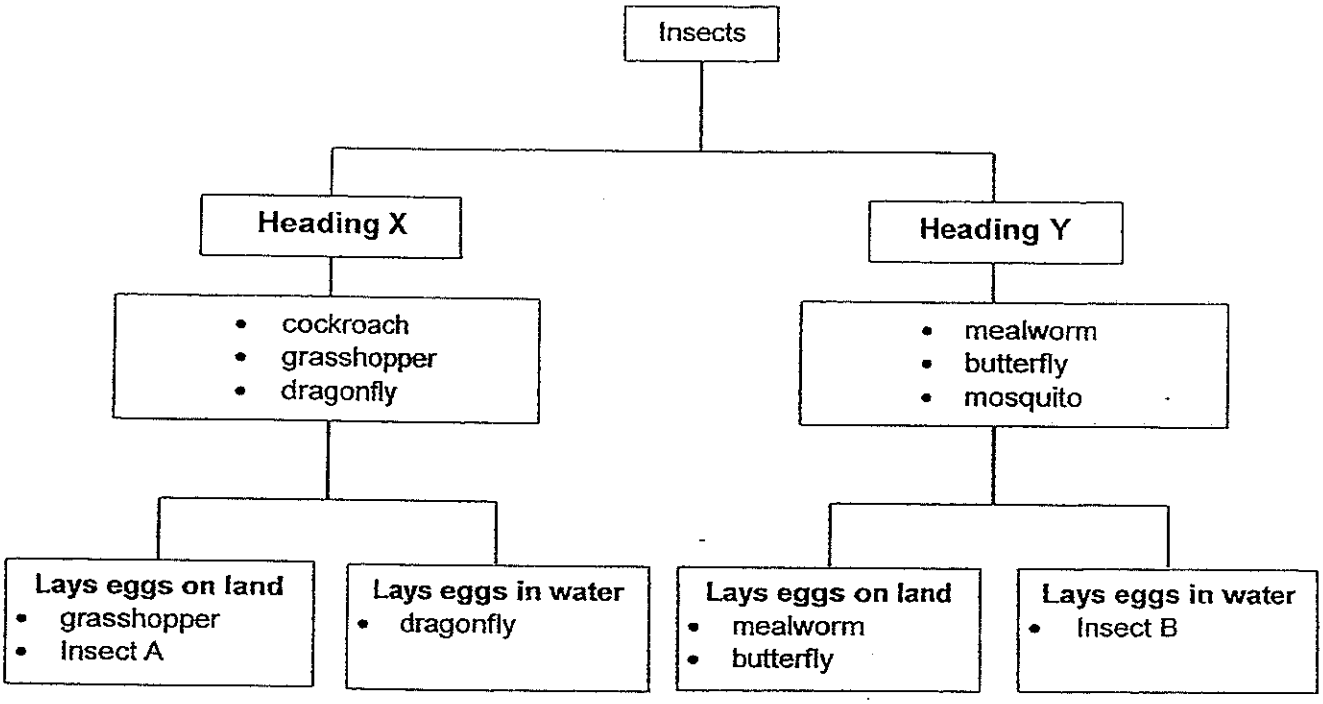
_____

(b) Which soap (Soap Only, Soap + Herb A, Soap + Herb B or Soap + Herb C) would you recommend for use against bacteria? Explain your choice. [1]

_____

_____

42. The classification chart below shows how some insects are classified.



(a) What do Heading X and Heading Y represent? [2]

Heading X: _____

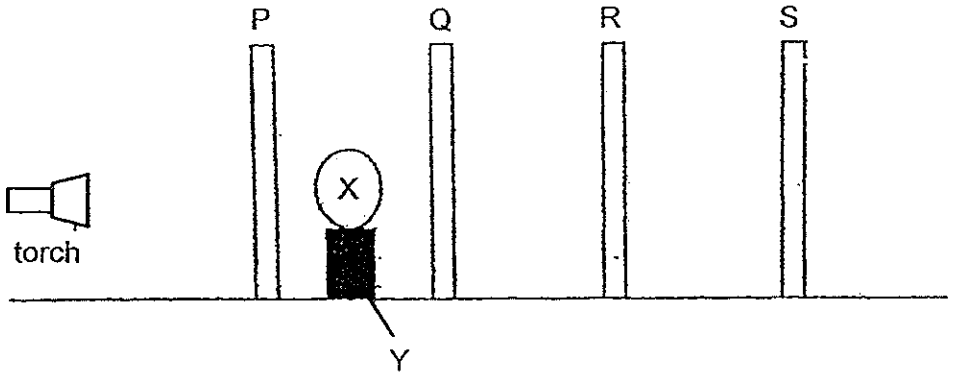
Heading Y: _____

(b) Identify Insect A and Insect B. [1]

Insect A: _____

Insect B: _____

43. Edward sets up an experiment in a dark room as shown below. The screens, P, Q, R and S, are made of different materials. The objects, X and Y, are also made of different materials.



On Screen S, a dark shadow is formed for Object Y and a lighter shadow for Object X.

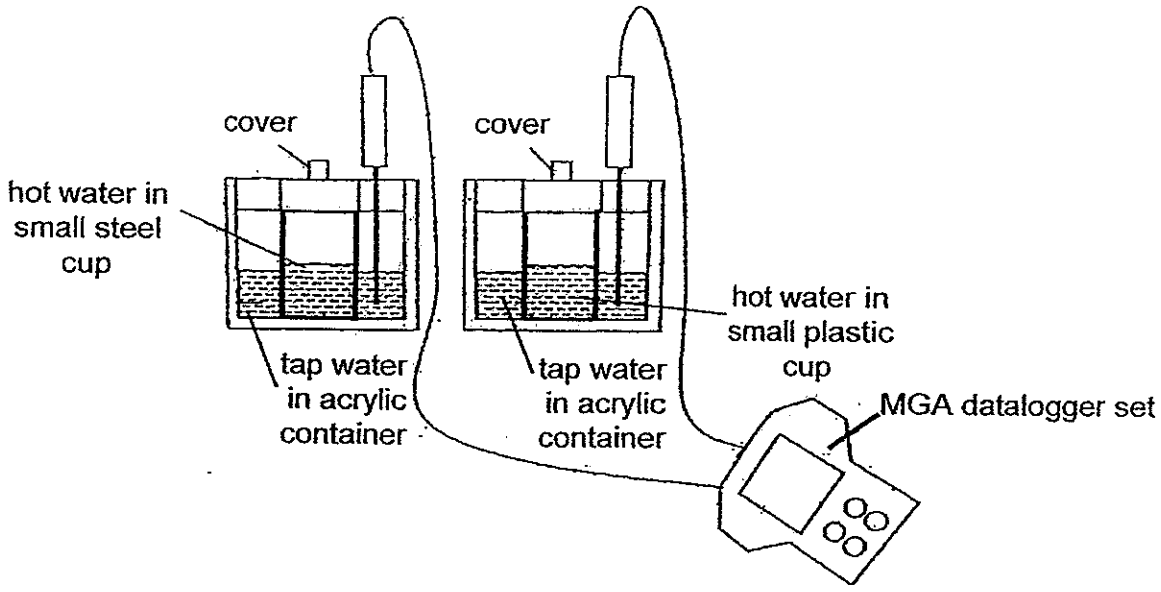
(a) Based on the information above, put a tick (✓) in the appropriate boxes. [2]

		True	False	Not Possible to Tell
i)	Screens Q and R allow light to pass through.			
ii)	Object Y is made of wood.			
iii)	Object X allows some light to pass through.			
iv)	Screen S does not allow light to pass through.			

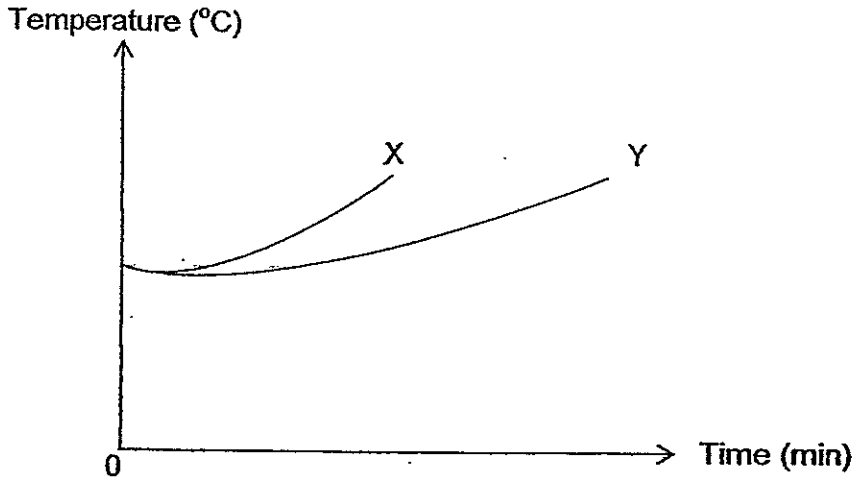
(b) Identify the property of light shown by the experiment. [1]

_____

44. Ismail set up the following experiment in his classroom.



He recorded the change in temperature of tap water in each acrylic container as shown in the graph below.



(a) Which graph, X or Y, would represent the change in temperature of tap water in the acrylic container with the steel cup? Explain why. [2]

_____

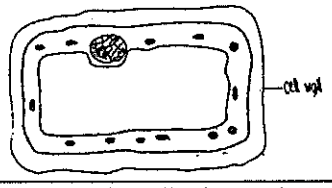
_____

_____

(b) Based on the information given, which cup should Ismail use to store ice? [1]

EXAM PAPER 2014
LEVEL : PRIMARY 5
SCHOOL : TAO NAN
SUBJECT : SCIENCE
TERM : SA1

Q1	2	Q7	4	Q13	4	Q19	4	Q25	1
Q2	3	Q8	1	Q14	3	Q20	3	Q26	2
Q3	4	Q9	3	Q15	3	Q21	3	Q27	4
Q4	2	Q10	2	Q16	3	Q22	4	Q28	1
Q5	4	Q11	4	Q17	2	Q23	1	Q29	3
Q6	1	Q12	1	Q18	2	Q24	3	Q30	3

Q31		The temperature of the water is lower than that of the surrounding air. There are water droplets on the surface of the glass container thus showing that condensation has taken place on the cooler surface of the glass container which has lost heat to the water.
Q32		The eight ice cubes B have larger exposed surface area than ice cube A. Therefore, they gained heat faster.
Q33	(a)	Spores are stored in the part labelled A.
	(b)	The spores of the fern will be dispersed and grow into adult ferns, so they are important to the ferns.
Q34	(a)	Testis → to produce sperms.
	(b)	(i) C→A→D→B→E (ii) Fertilisation occurs at stage C.
Q35	(a)	
	(b)	The cell wall gives the plant cell its shape.
	(c)	The cell shown in the diagram above has chloroplasts but the typical root cell does not have chloroplasts.
Q36	(a)	Reason 1: The oil clamped the sea birds' feathers and they could not fly to look for food so they died of starvation. Reason 2: The oil clamped the sea birds' feathers and the sea birds could not keep themselves warm so they died due to the cold.
	(b)	Fishes might die from the lack of dissolved oxygen as the oil floats on the water and forms a thin film on the surface.
Q37	(a)	Substance A → liquid Substance B → liquid Substance C → Solid Substance D → Gaseous
	(b)	600°C

Q38	(a)	melting
	(b)	Substance X changes from the liquid state to the gaseous state from C to D.
	(c)	Heat Gain → AB,BC,CD Heat Loss → DE
Q39	(a)	At stage B, the seedling gets its food from the seed leaf.
	(b)	The seedling will be able to make its own food at Stage C. At stage C, the seedling have grown leaves so it will be able to make its own food.
	(c)	Water and warmth
Q40	(a)	The squirrel prevents overcrowding and when the seeds of plant Z germinate and grow into seedlings, they do not have to compete with one another for sunlight, water, space and mineral salts.
	(b)	Water. The coconut has a fibrous husk to help it float on water so its method of fruit dispersed is in water.
Q41	(a)	It is to act as a control set-up to prove that it is the herb that affects the area of bacterial growth.
	(b)	Soap + Herb C. The soap with Herb C used in it had the smallest area of bacterial growth, showing that Herb C is the most effective when used in soap against bacteria and would prevent bacteria from multiplying. Hence, I would recommend Soap + Herb C for the use against bacteria.
Q42	(a)	Heading X : 3-stages life cycle Heading Y : 4-stages life cycle
	(b)	Insect A : cockroach Insect B : mosquito
Q43	(a)	(i) True (ii) Not possible to tell (iii) True (iv) True
	(b)	Light travels in a straight line.
Q44	(a)	Graph X would represent temperature change. The steel cup is the better conductor of heat thus the heat was conducted from the hot water in the steel cup to the tap water in the acrylic container faster.
	(b)	Ismail should use the plastic cup to store ice.