Index No.

4					

PRELIMINARY EXAMINATION – 2016
PRIMARY 6

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.

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

Name: _____( ) **Class: P 6**_____

Date: 26 August 2016 **Parent's Signature:** _____

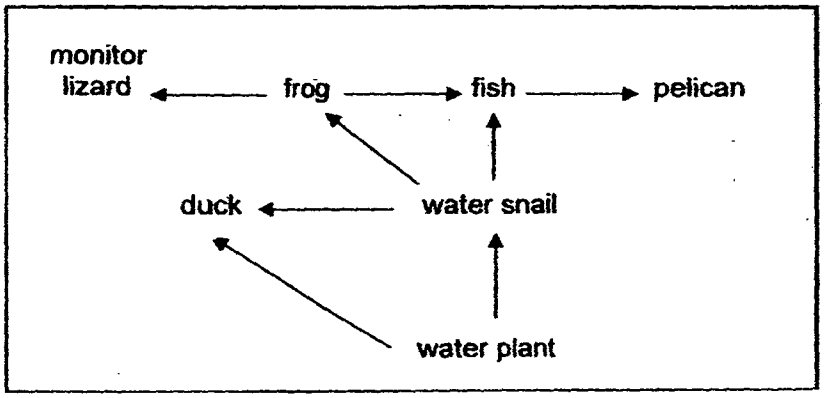
Section A: (30 x 2 marks = 60 marks)
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which of the following forces are able to act at a distance?

A Frictional force
B Magnetic force
C Gravitational force
D Elastic spring force

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

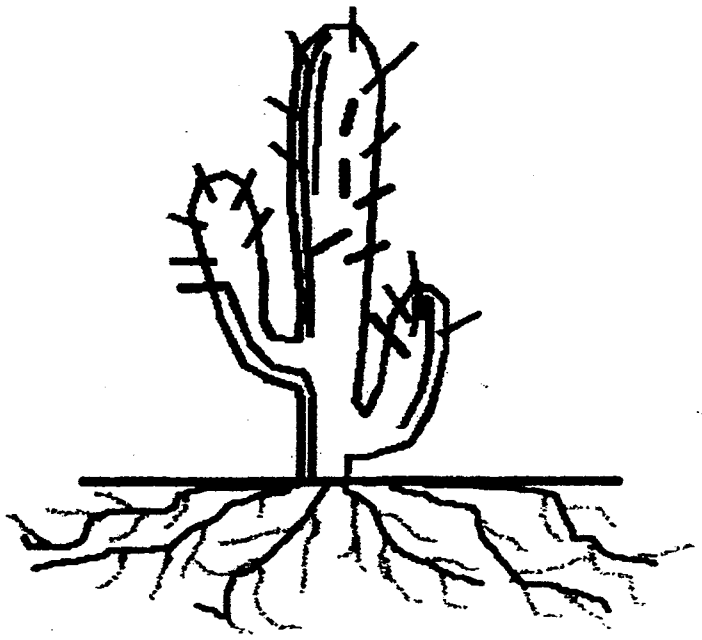
2. The diagram below shows a food web in a wetland ecosystem.



Based on the given food web above, which of the following is correct?

	Number of organisms		
	Herbivore	**Carnivore**	**Omnivore**
(1)	1	4	1
(2)	1	5	0
(3)	2	4	1
(4)	3	2	2

3. Study the diagram below.



Plant X

Based on the diagram above, which of the following feature(s) of Plant X enable(s) it to survive in the desert?

A swollen stem
B needle-like leaves
C wide-spread root system

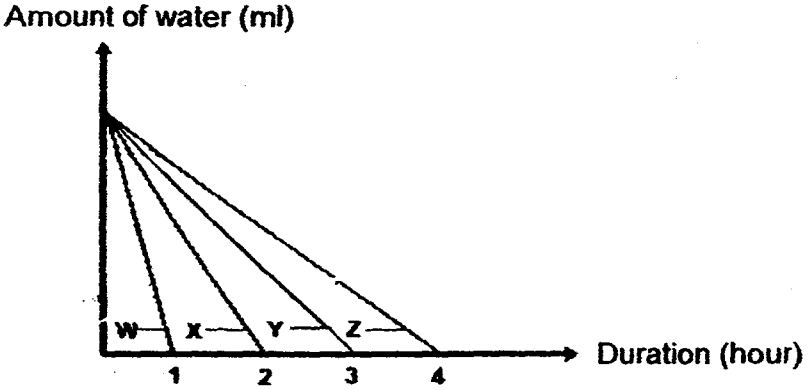
(1) B only
(2) C only
(3) A and B only
(4) A, B and C

4. Which of the following are possible causes of global warming?

A Acid rain
B Melting of polar ice caps
C Flooding of coastal towns
D Increased deforestation activities
E Increased number of cars on the road

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

5. Wan Yi left 4 identical beakers of water, W, X, Y and Z, at different locations under different conditions. The graph below shows how the amount of water in each beaker changed over time.



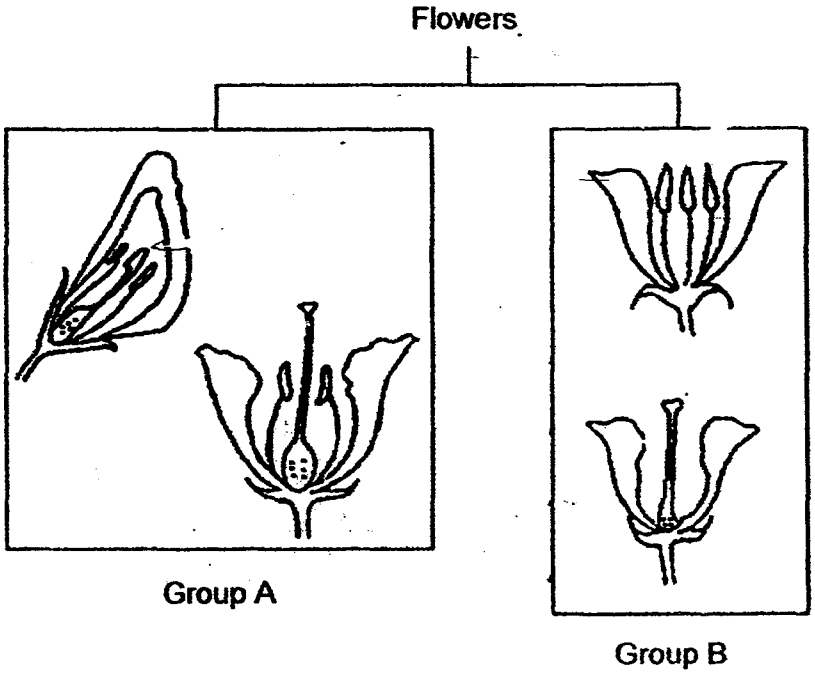
She studied the graph and gave the possible reasons to explain the difference in the time taken for all the water to evaporate.

A There is wind in the location where Z is placed but not X.
B The temperature of the surroundings for Y is higher than that of Z.
C The exposed surface area of the water in W is greater than that in X.
D The amount of water in W is less than the amount of water in Z at the start of the experiment.

Which of the statement(s) made by Wan Yi is/are possible explanation(s) for the graph above?

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

6. Study the diagram below.



How are the flowers grouped?

	Group A	Group B
(1)	Insect pollinated	Wind pollinated
(2)	Wind pollinated	Insect pollinated
(3)	Have either male or female parts	Have both male and female parts
(4)	Have both male and female parts	Have either male or female parts

7. The table below shows the different cell parts of 3 types of cells, A, B and C. A tick (√) indicates the cell part that can be found in each cell.

Cell part	Cell A	Cell B	Cell C
Nucleus	√	√	√
Cell wall	√	√	–
Chloroplast	√		

Which of the following best represents cell A, B and C?

	Cell A	Cell B	Cell C
(1)	Elodea leaf cell	Animal skin cell	Cactus stem cell
(2)	Balsam leaf cell	Cheek cell	Onion root cell
(3)	Cactus stem cell	Onion root cell	Cheek cell
(4)	Onion root cell	Cactus stem cell	Animal skin cell

8. Fatimah carried out an experiment on 4 different materials. She used 4 beakers of identical size and filled each one with the same amount of water. The temperature of the water in all the beakers was 60°C. She then wrapped each beaker with the 4 different materials respectively.

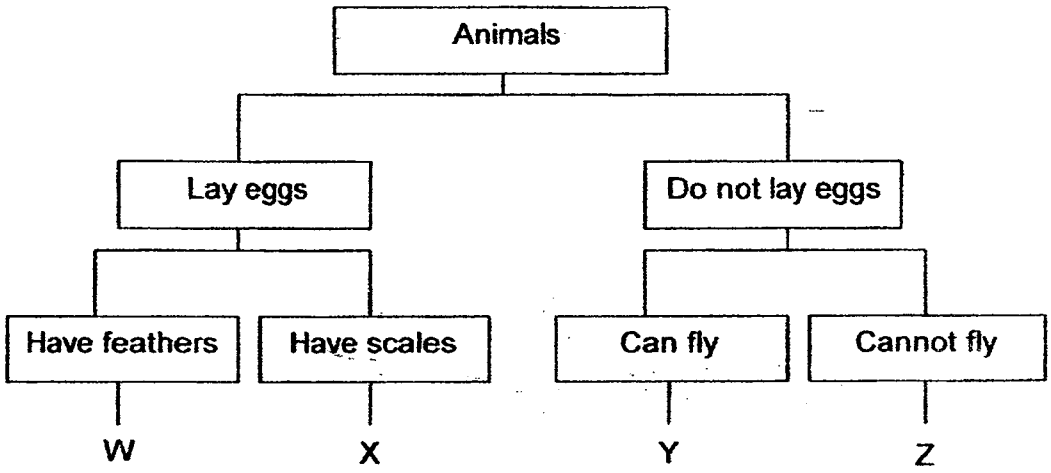
After 10 minutes, she took the temperature of water in each beaker and recorded the results in the table below.

Material used to wrap the beakers	Temperature (°C) after 10 minutes
A	45
B	40
C	50
D	55

Which material should Fatimah choose to wrap around blocks of ice to prevent them from melting for the longest possible period of time?

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

9. The table below shows how some animals can be classified.—

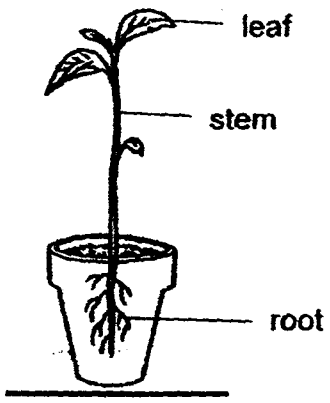


Based on the above classification chart, which of the following statement(s) is/are true?

A Bats can be classified under group Y.
B Fish can be classified under group X.
C Penguins can be classified under group Z.
D Animals in groups W and Y can have the same body covering.

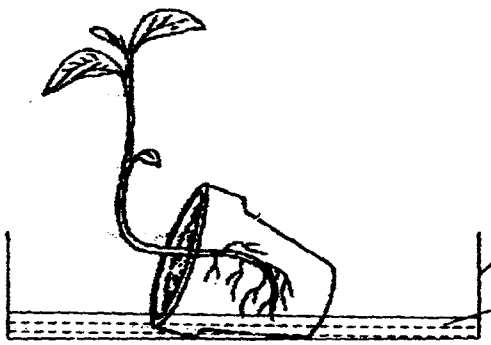
(1) A only
(2) A and B only
(3) B and D only
(4) C and D only

10. Peter placed a potted plant out in the open as shown below.

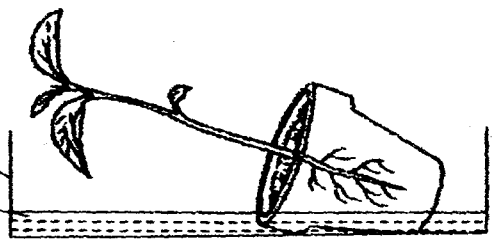


A strong gust of wind knocked the potted plant over and it fell into a small open drain. Which one of the following shows how the plant would grow if it was left in the drain for several weeks?

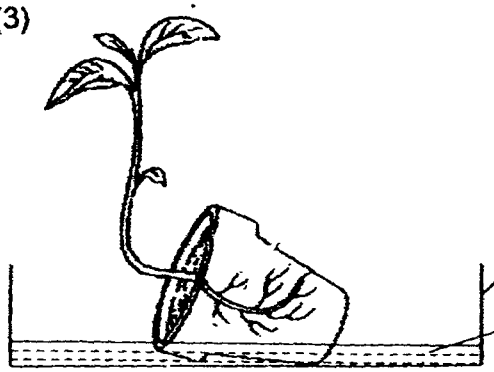
(1)



(2)



(3)



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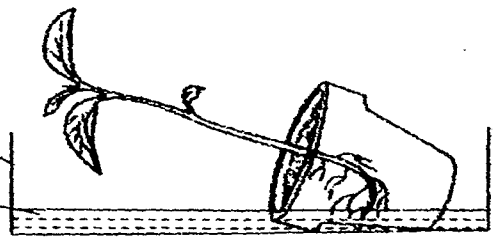
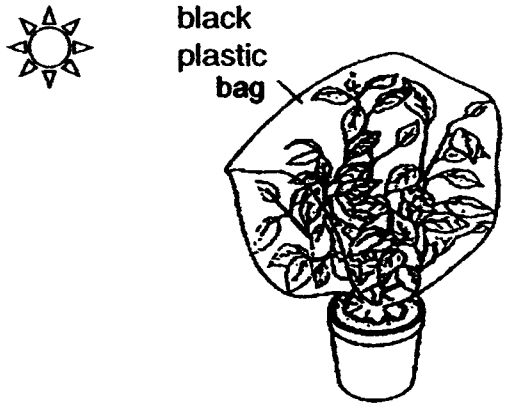
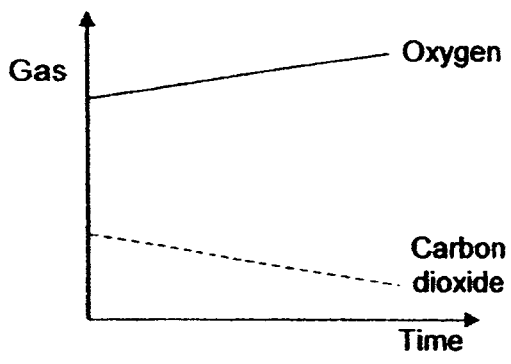


11. Susie put a well-watered plant into a black plastic bag. Then she tied the bag with a string and placed it under the Sun for several hours.

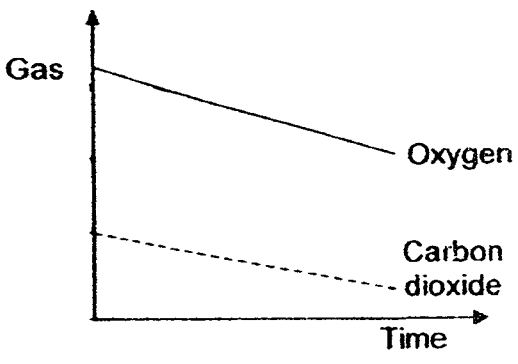


Which one of the following graphs shows the changes in the amount of carbon dioxide and oxygen in the bag during that period of time?

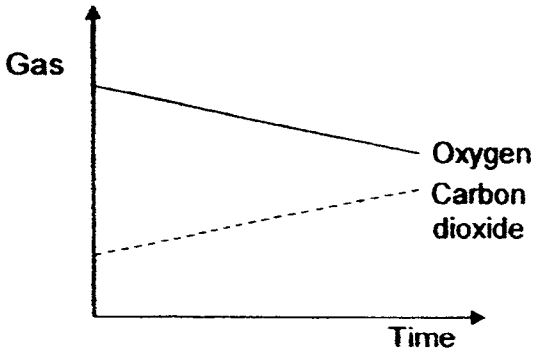
(1)



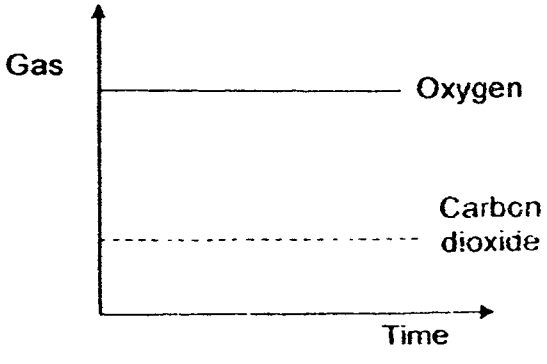
(2)



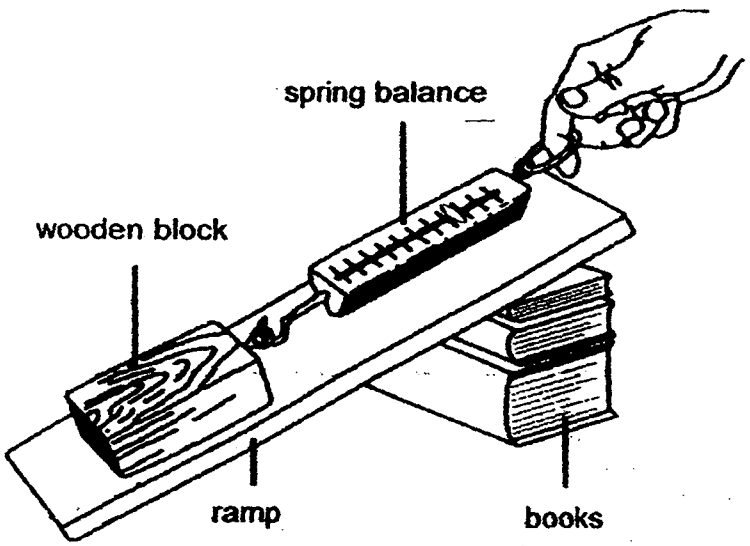
(3)



(4)



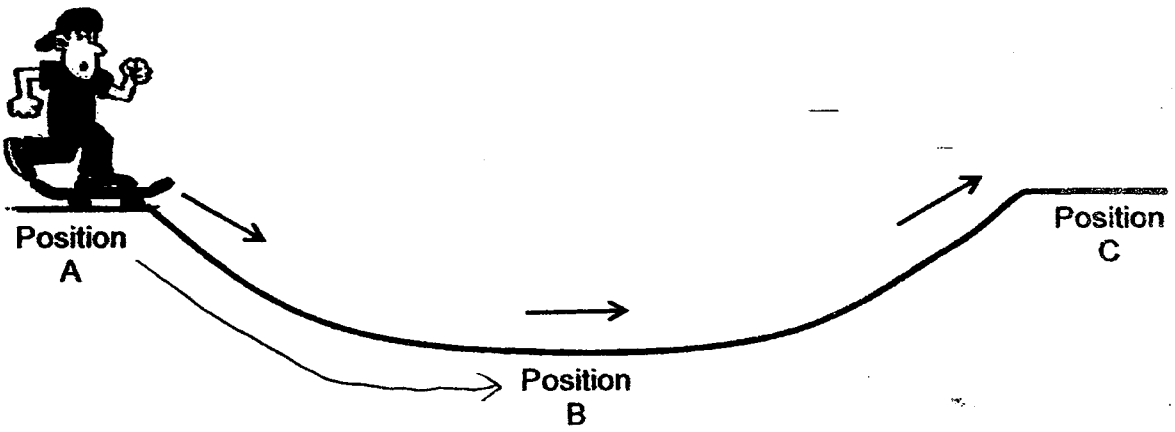
12. The diagram below shows a student using a spring balance to pull a wooden block up a ramp that is resting on a stack of books.



Which change would require more force to pull the wooden block up the ramp?

(1) Apply oil to the wooden block.
(2) Reduce the mass of the wooden block.
(3) Glue sandpaper to the surface of the ramp.
(4) Restack the books so the thinnest book is on the bottom.

13. Ahmad started to skate from position A to B and then to C as shown below.



Which of the following shows the energy conversion when Ahmad skated from A to B?

(1) Kinetic energy ⟶ potential energy
(2) Kinetic energy ⟶ potential energy + sound energy + heat energy
(3) Potential energy + sound energy + heat energy ⟶ kinetic energy
(4) Potential energy ⟶ kinetic energy + sound energy + heat energy

14. Tammy and her friends counted the organisms that were living in the school garden. They recorded their findings in the table shown below.

Description	Number of organisms
Flowering plants	6
Non-flowering plants	12
Animals with no legs	18
Animals with two legs	7
Animals with six legs	25
Animals with more than six legs	10

Which of the following conclusion(s) can they draw from their findings?

A There are 25 insects in the garden.
B There are at least 2 populations of plants.
C There are 12 populations of non-flowering plants.

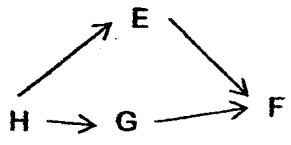
(1) A only
(2) C only
(3) A and B only
(4) A, B and C

15 Julie observed the food relationships among four organisms, E, F, G and H, which lived in her garden. She recorded information about them in the table below.

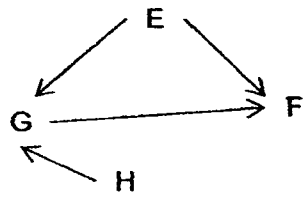
Prey only	Prey and predator	Producer	Predator only
E	G	H	F

Based only on the above information, which one of the following food webs best describes the food relationships amongst the four organisms?

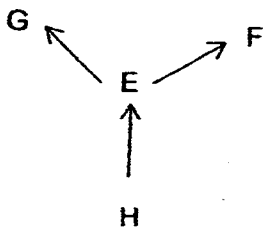
(1)



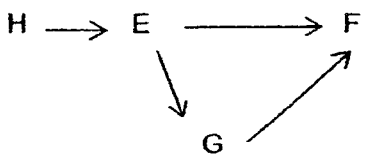
(2)



(3)



(4)



16. Study the data below and answer the following question.

Season	Spring	Summer	Autumn	Winter
Average Temperature / °C	7	20	5	-1
Availability of food	moderate	high	moderate	low
Activity level of the bear	moderate	high	moderate	low

Hibernation is a state of little or no activity. When an organism hibernates, its body temperature is low. They will breathe slowly and have a low heart rate.

The black bears in Northern America will always go into hibernation in winter.

What could be a possible reason for such a behavioural adaptation?

(1) The bears are hiding from their predators.
(2) There is insufficient food available in winter.
(3) There are no bears to interact with as it is too cold.
(4) The bears are trying to attract a mate for reproduction.

17. The table below shows the functions and adaptations of three animals.

Animal	Adaptation	Function
Polar bear	A	To keep itself warm.
Dolphin	B	To propel itself forward.
Peacock	C	To attract the female during mating.

Which one of the following best represents adaptations A, B and C?

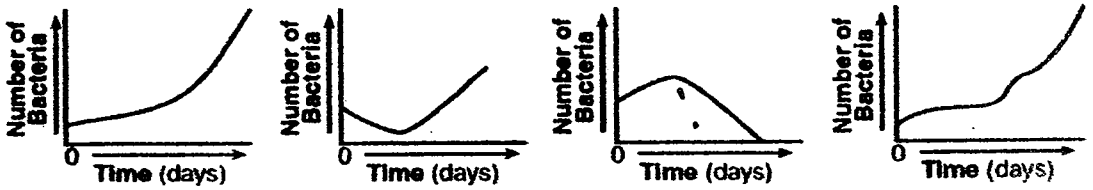
	A	B	C
(1)	layer of fat	tail	colourful feathers
(2)	layer of fat	flippers	clapping its bill
(3)	light colour of fur	tail	colourful feathers
(4)	light colour of fur	flippers	clapping its bill

Read the information below before answering questions 18 and 19.

Some species of bacteria are harmful. Antibiotics are chemicals that kill bacteria. Some bacteria are resistant to antibiotics and are not killed by these chemicals. Over time, the resistant bacteria can reproduce and create populations that are not affected by antibiotics.

The graphs below show the results of an experiment that measured the population of one species of bacteria that had been grown in four containers under identical conditions. Different antibiotics were added to three of the four containers.

Antibiotic A added | Antibiotic B added | Antibiotic C added | No Antibiotic added



18. Which conclusion about this species of bacteria is best supported by the information in the graphs?

(1) Antibiotics A and B slowed the growth.
(2) Antibiotic A continuously slowed the growth.
(3) Antibiotic B was least effective in controlling the growth.
(4) Antibiotic C was most effective in controlling the growth.

19. The control in this experiment is represented by the container with _____.

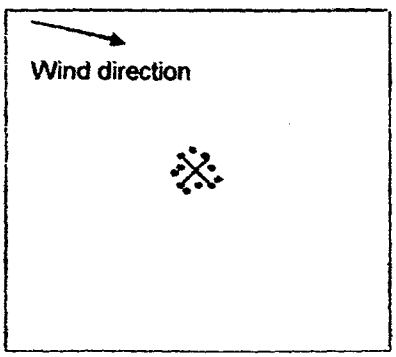
(1) antibiotic A added
(2) antibiotic B added
(3) antibiotic C added
(4) no antibiotic added

20. The water cycle on Earth can take place repeatedly because water _____.

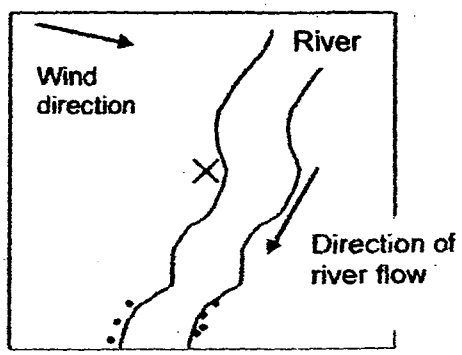
A freezes at 0°C and boils at 100°C
B has no definite shape but has a definite volume
C can condense when it comes in contact with a cooler surface
D can change from one state to another when it gains or loses heat

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

21. The diagrams below show tree X planted at two different locations, A and B.



Location A



Location B

Parent Tree X
Offspring

Based on the diagrams above, the seeds of tree X are most likely dispersed by _____.

A wind
B water
C animal

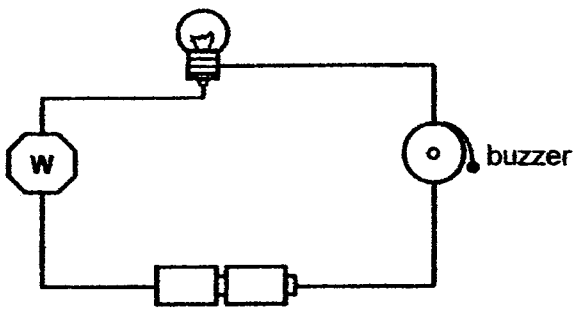
(1) A only
(2) B only
(3) C only
(4) A and B only

22. Which of the following statement(s) about the human and plant transport systems is/are **incorrect**?

A A human needs an organ to pump blood to transport materials around the body.
B No organs are needed by a plant to transport materials around the plant.
C A plant has only one type of tube to transport materials around the plant.
D Only oxygen and digested food are transported around the body of a human.

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

23. The diagram below shows an electric circuit.

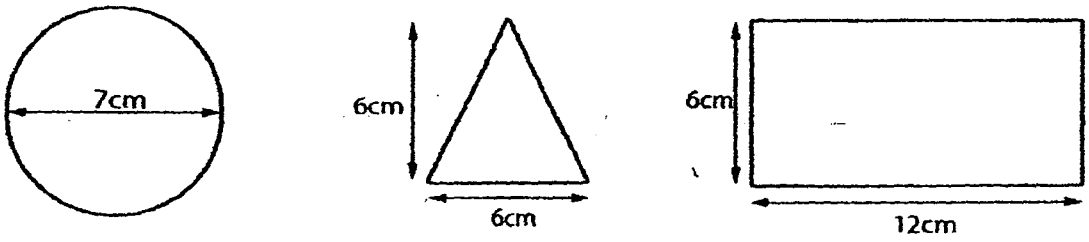


Which of the following items can be placed at W for the bulb to light up and for the buzzer to ring?

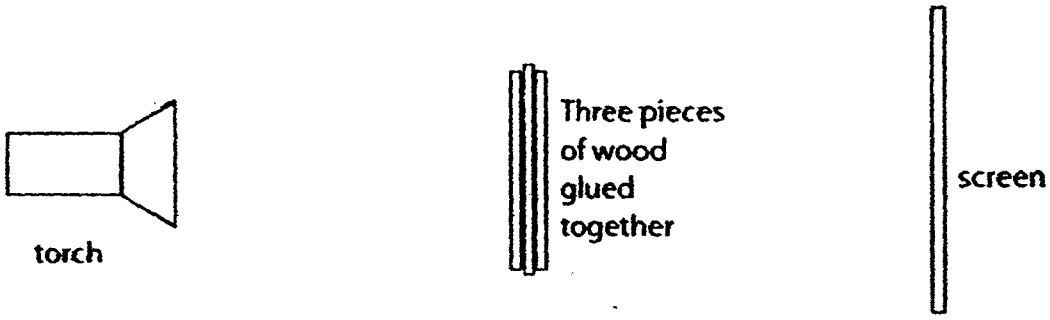
A A magnet
B A steel rod
C A gold coin
D A piece of aluminium foil

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

24. The diagram below shows three pieces of wood of different shapes (Not drawn to scale).



The three pieces of wood are glued together and placed between a torch and a screen as shown below.

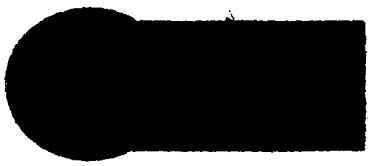


Which one of the following shadows could be seen on the screen?

(1)

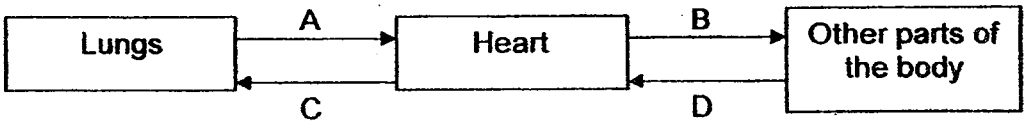
(2)

(3)

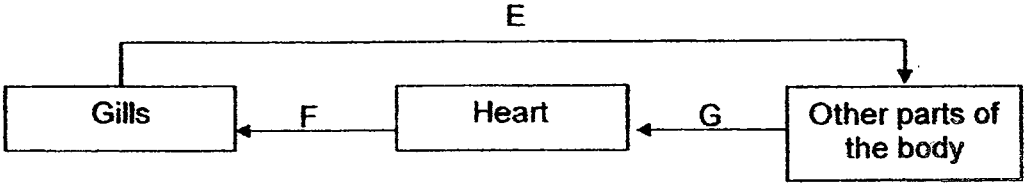


(4)

25. The diagrams below show the circulatory systems of two organisms, a mammal and a fish. The arrows represent the movement of blood in the body of the mammal and the fish.



Circulatory system of a mammal



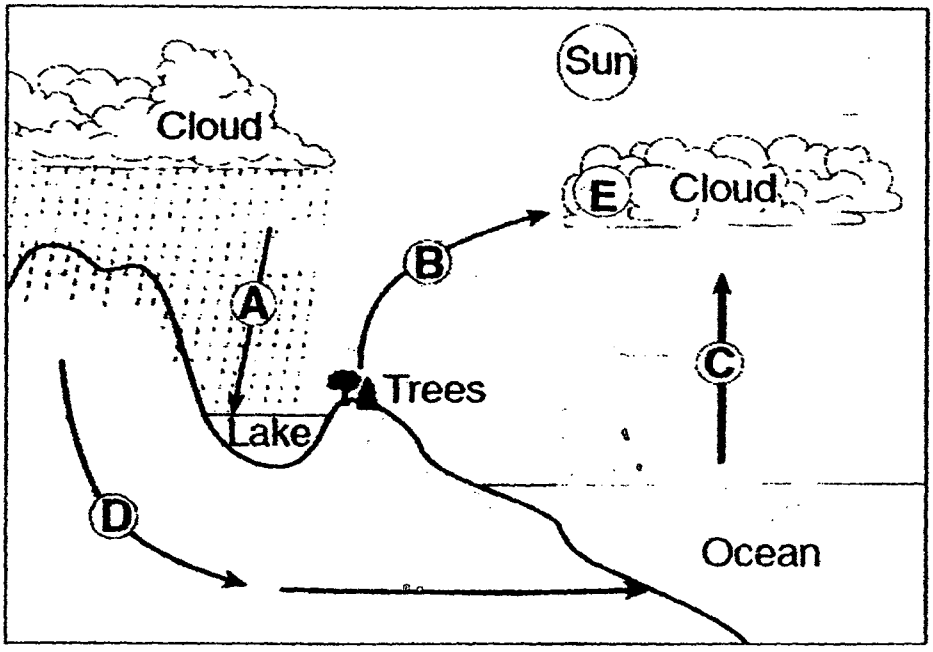
Circulatory system of a fish

Based on the diagrams above, which of the following statement(s) is/are correct?

A Only arrows C, D, F and G represent the movement of blood rich in carbon dioxide.
B Only arrows A, B and E represent the movement of blood rich in oxygen.
C In both systems, the blood rich in oxygen flows through the heart to the other parts of the body.

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

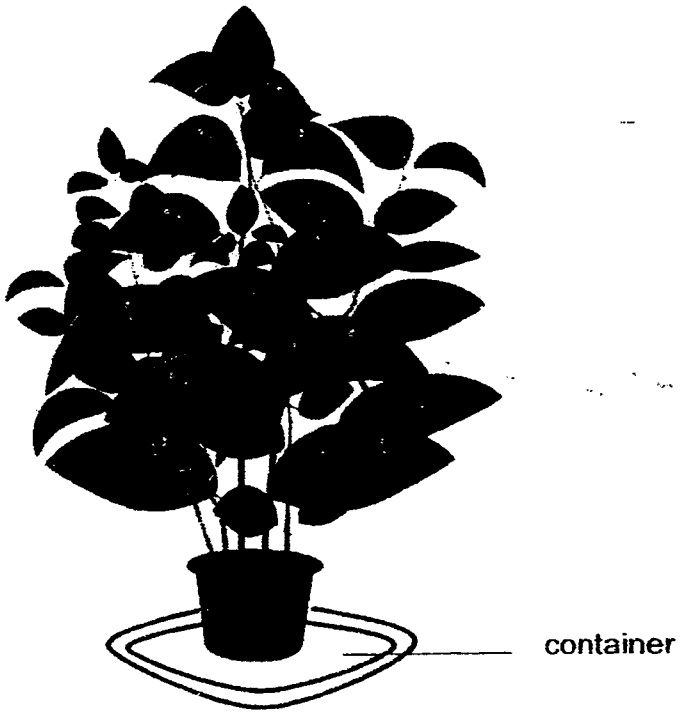
26. The diagram below shows the water cycle.



Which one of the following is correct?

	State of Matter				
	A	B	C	D	E
(1)	Liquid	Gas	Gas	Liquid	Liquid
(2)	Gas	Gas	Gas	Liquid	Gas
(3)	Gas	Liquid	Liquid	Gas	Gas
(4)	Liquid	Liquid	Liquid	Gas	Liquid

27. Bala has a potted plant. He wants to set up an experiment which shows that water travels through a plant into the air.



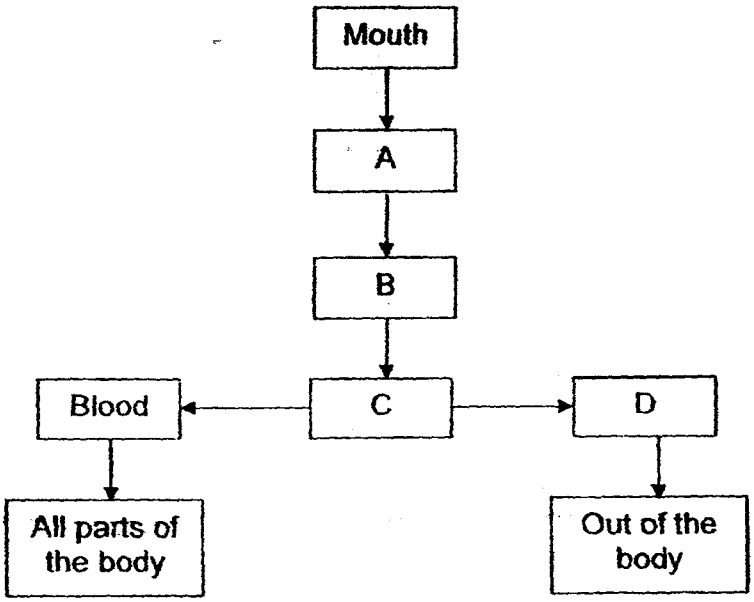
Which one of the following experiments did Bala carry out?

(1) Put water in the container under the pot; water will disappear from the container.
(2) Place a cut stem with a few leaves in a glass of red-coloured water; the leaves will turn red.
(3) Cover one of the stems with a few leaves with a plastic bag and water the plant; drops of water will be seen in the bag.
(4) Remove the water-carrying and food-carrying tubes from one of the stems of the plant; the leaves on the stem will turn yellow.

28. Which property of a substance will indicate whether the substance is a liquid or a solid at room temperature?

(1) Strength
(2) Hardness
(3) Melting point
(4) Heat conductivity

29. The flowchart below shows the pathway taken by food after it enters the mouth. A, B, C and D are parts of the digestive system.



Which part contains the most amount of digested food?

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

30. Diagram 1 shows a magnet held near rod P which is tied to a string. A flame is then placed at one end of the rod P as shown in diagram 2. After a while, rod P started to move towards the magnet.

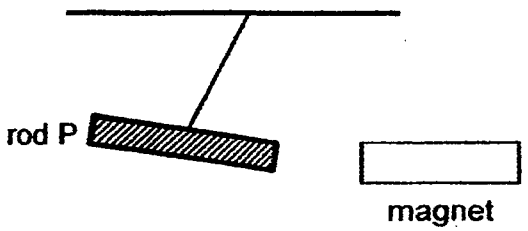


diagram 1

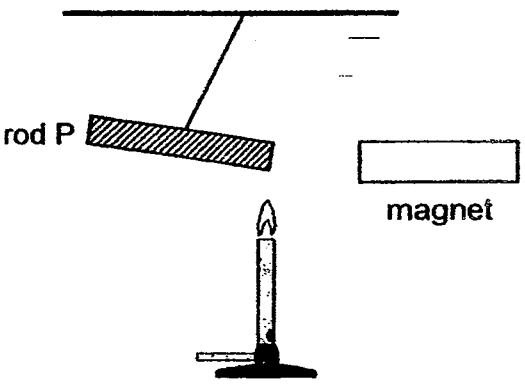


diagram 2

Which of the following caused rod P to move towards the magnet?

A Rod P was pulled by gravity.
B Rod P had lost some of its magnetism.
C Rod P expanded and increase in mass.

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

Index No. | | | | | | |

PRELIMINARY EXAMINATION – 2016
PRIMARY 6

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.

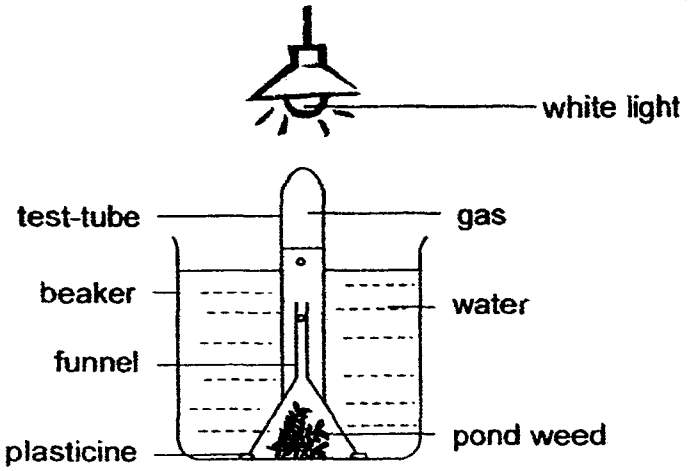
Section B		/40

Name: _____( ) **Class: P 6**_____

Date: 26 August 2016 **Parent's Signature:** _____

Section B: (40 marks)
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. The diagram below shows an experiment to investigate how the colour of light will affect photosynthesis in pond weeds.



Bubbles of gas produced during photosynthesis were given off from the pond weed and collected in the test tube.

(a) State **two** substances that are taken in by the pond weed and used for photosynthesis? [1]

_____

Blue, green and red light were then shone, in turn, onto the same set-up. The number of bubbles of the gas given off in one minute was counted and recorded in the table below.

Colour of light	Number of bubbles given off in one minute
White	140
Blue	85
Green	10
Red	68

(b) Under which type of light will pond weeds grow the least? Explain why. [1]

_____

_____

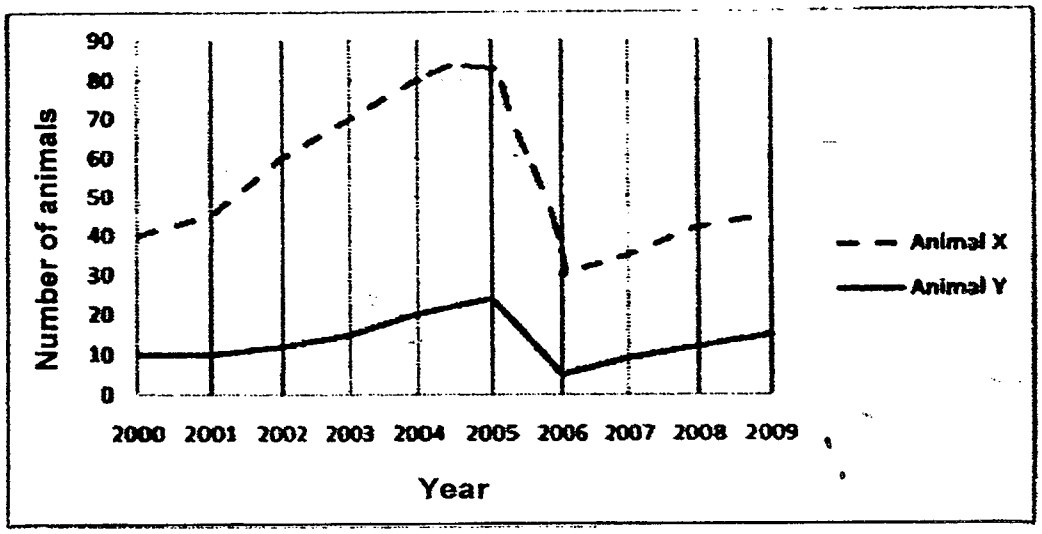
(c) What is the purpose of conducting the experiment using white light? [1]

_____

_____

Score	3

32. The graph below shows the number of Animals X and Y living in a community over a period of 10 years.



(a) The population of Animal X must increase before the population of Animal Y can increase. Explain why? [2]

_____

_____

_____

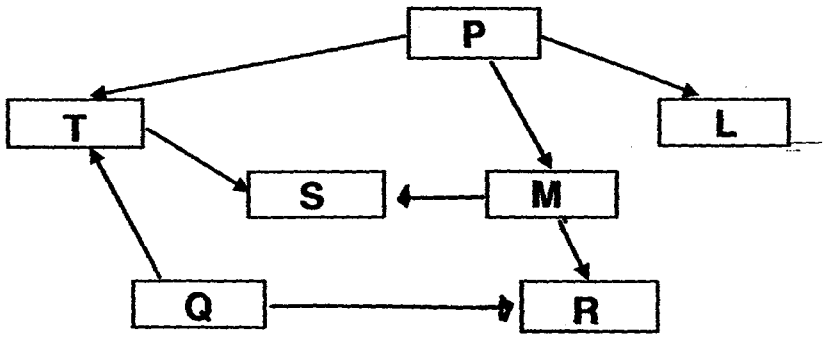
(b) There was a drought during the 10-year period. Identify the possible time period of the drought from the graph. [1]

_____

_____

Score	
	3

33. Study the food web below carefully.



The letters represent organisms living in an ecosystem.

(a) Based on the food web, identify the possible food producer(s). [1]

_____

(b) Explain the role of organism S in the food web above. [1]

_____

_____

(c) Based on the food web above, if the whole population of S is killed by a disease, which population will be most affected? Explain your answer. [1]

_____

_____

_____

Score 6/3

34. The picture below shows the skull of an animal.

(a) Based on the structure of the jaw and teeth, identify if the animal is a/an herbivore, carnivore or omnivore. Explain your answer. [2]

_____

_____

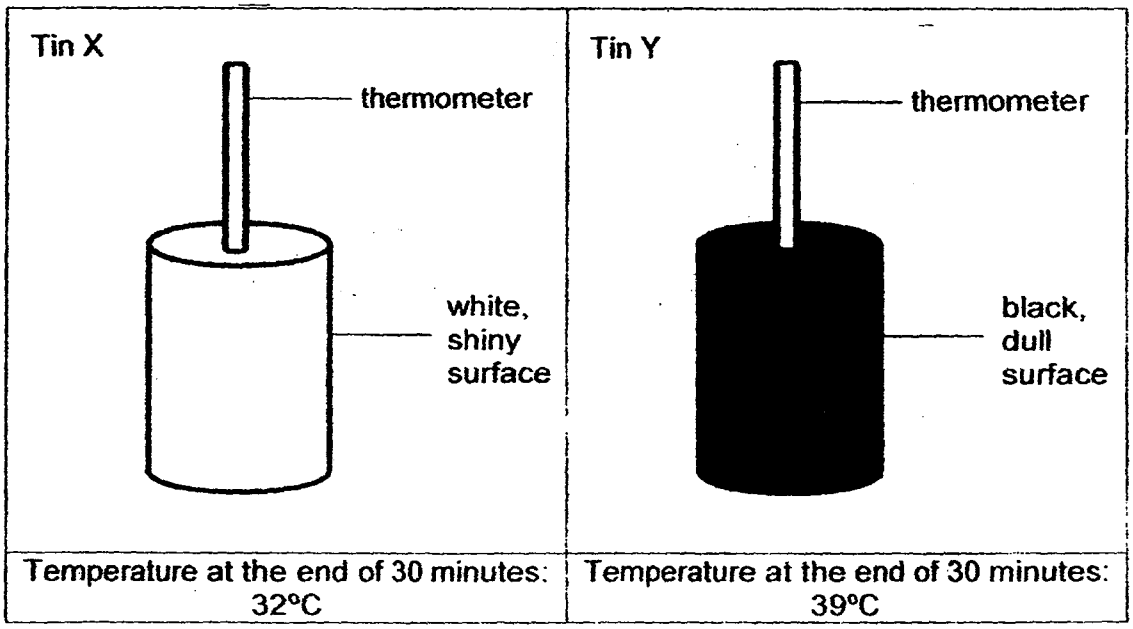
(b) The young of the animal above stays on the trees, while the adult can move on land and swim in water easily. Suggest one possible reason for nesting the young up on the tree. [1]

_____

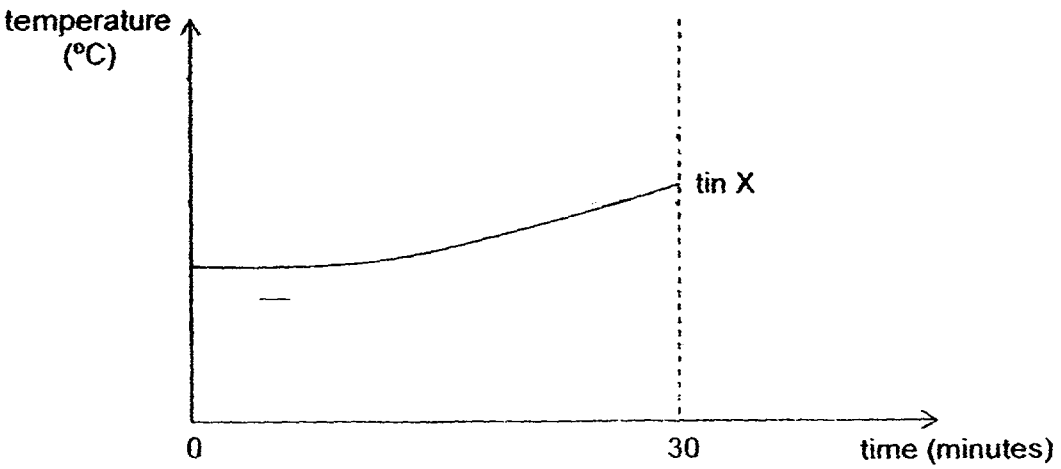
_____

Score	
	3

35. James placed 2 tins, X and Y, in an open field on a sunny day. The starting temperature for both tins is the same. He then measured and recorded the temperature of the air in each tin at 2-minute intervals for a period of 30 minutes.



The temperature change in tin X was recorded in the graph below.



(a) Complete the graph for tin Y above. Label your graph. [1]

(b) After 30 minutes, the temperature of air in tin Y shows a higher temperature? Explain why. [1]

_____

_____

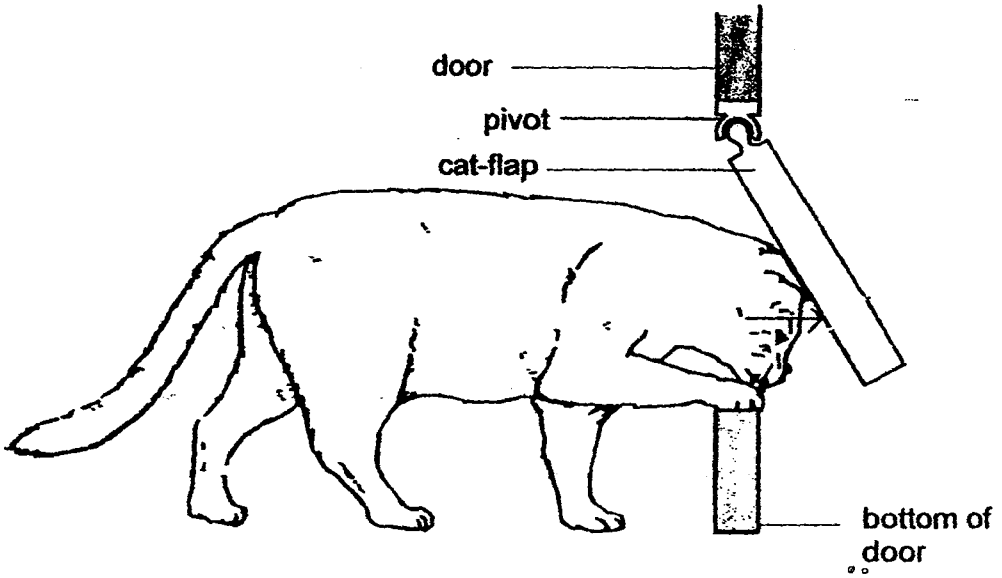
(c) Aluminium foil is often used to wrap chocolate bars.
Based on the experiment, explain why aluminium foil is used. [1]

_____

_____

Score	
	3

36. Ali made a cat-flap to fit into a door.



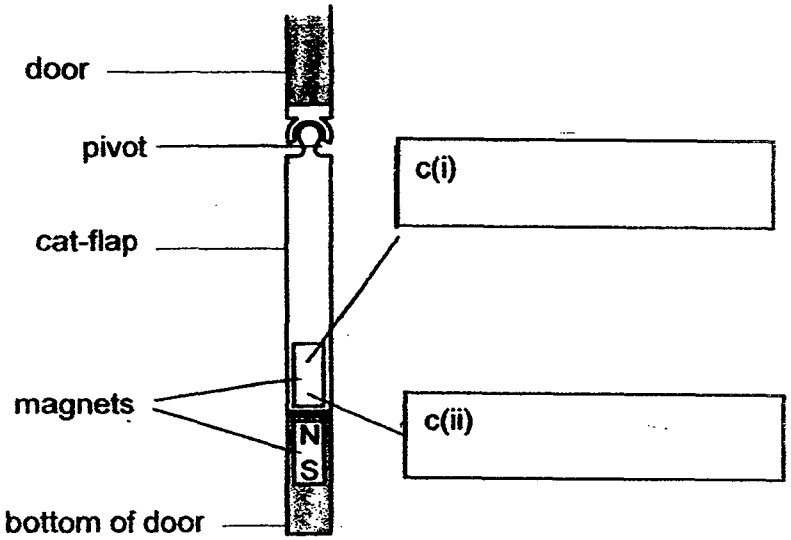
(a) On the diagram above, draw an arrow to show the direction of the force of the cat's head on the cat-flap. [1]

(b) When the cat has gone through the cat-flap, the flap closes on its own. Explain why. [1]

_____

_____

(c) When a strong wind blows, the cat-flap blows open on its own. Ali decided to add 2 bar magnets to keep the cat-flap closed so that it will not be blown open by the wind.



On the diagram above, label **both** the North and South poles of the magnet on the cat-flap. [1]

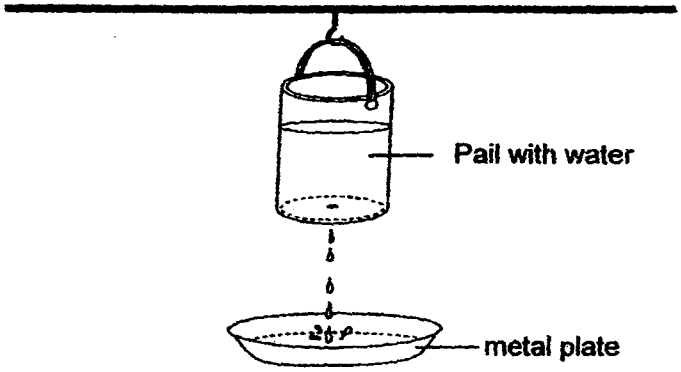
(d) After a while, whenever the cat goes through the cat-flap, a squeaky sound is heard. Explain, in terms of forces, what causes the squeaky sound and what Ali could do to reduce the squeaky sound. [1]

_____

_____

Score	
	4

37. Bala filled a pail with water. He hung it above a metal plate. A hole was made at the base of the pail for the water in it to drip out. When each drop of water hit the metal plate, a sound was heard.



(a) State the energy changes which took place when the water from the pail dripped onto the metal plate. [1]

_____

_____

(b) The hole at the base of the pail was enlarged.
Describe the change in the loudness of the sound heard. [1]

_____

_____

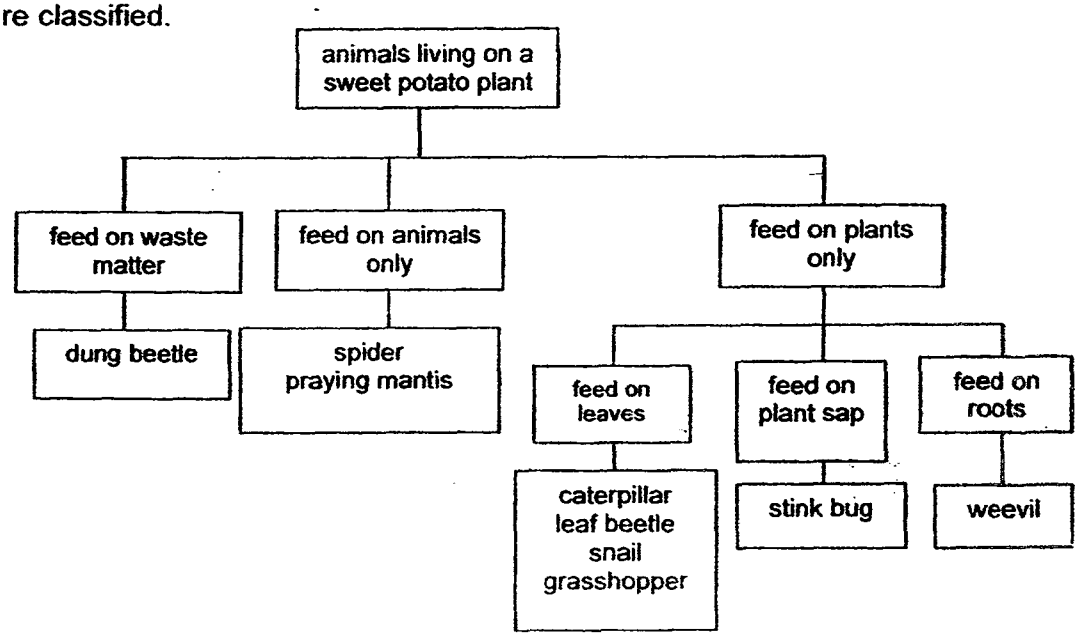
(c) Explain how enlarging the hole caused the change in the loudness of sound as described in your answer in (b). [1]

_____

_____

Score	3

38. The chart below shows how the animals living on a sweet potato plant are classified.



Using the information from the chart, answer the following questions.

(a) Peter spotted a caterpillar on the leaf of the sweet potato plant. He picked up the caterpillar and dropped it onto the waste matter on the soil near the plant. The caterpillar was injured and could not move. After a few days, Peter found that the caterpillar had died.

Explain why the caterpillar died. [1]

_____

_____

(b) The different groups of animals eat different types of food. How does this benefit the animals living on the sweet potato plant? [1]

_____

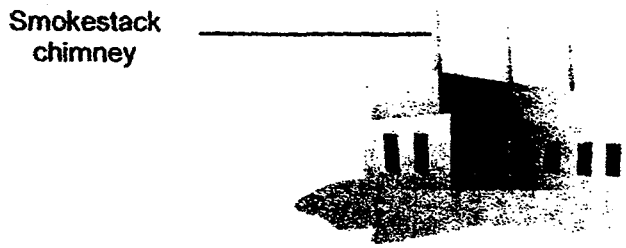
_____

Score	
	2

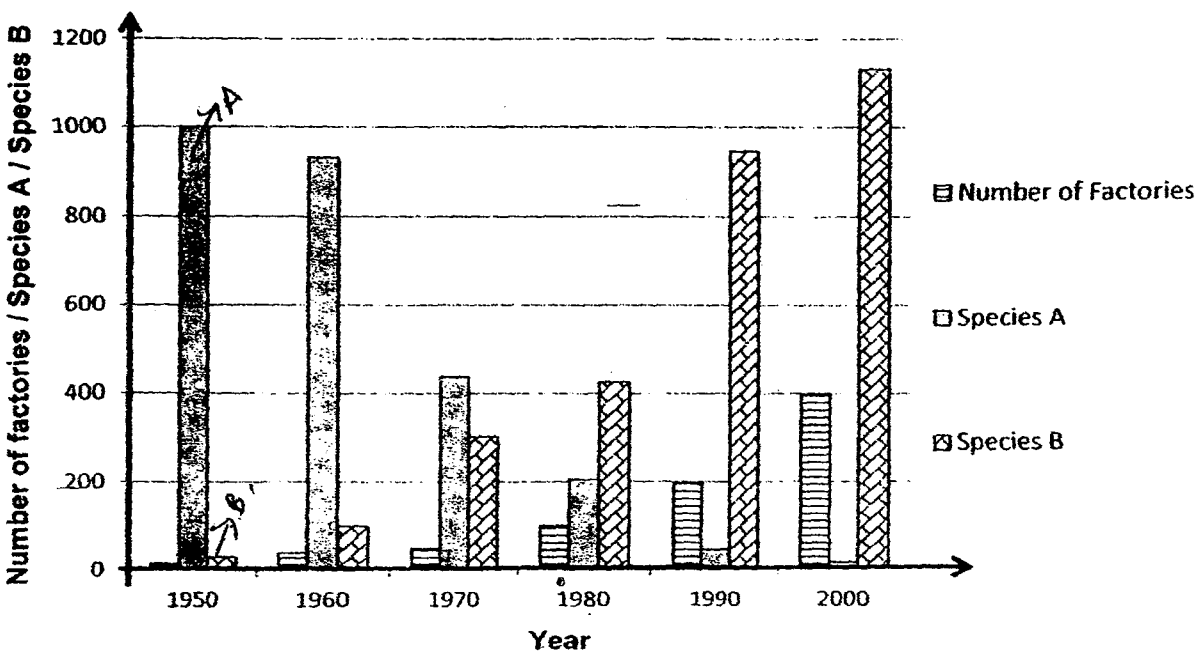
39. Below are 2 species of moth found in a forest which is surrounded by factories in town X.

species A **species B**

The factories have smokestack chimneys. These factories were constantly giving out black soot into the air over the period of 1950 to 2000. The trees in the forest were blackened over the years because of the soot.



The bar chart shows the data collected on the number of factories built over a period of time in town X as well as the population of the two species of moth, A and B, found in town X.



(a) State the relationship between the number of species A and the number of factories built between the years 1950 and 2000. [1]

_____

_____

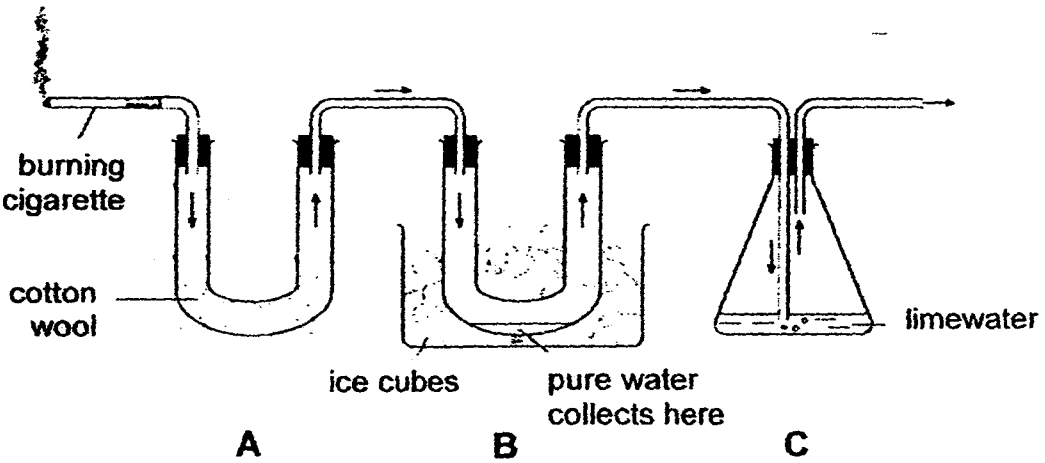
(b) Suggest a possible reason for the increase in the number of species B over the years with reference to the data provided. [1]

_____

_____

Score	
	2

40. A teacher set up the following apparatus to separate the chemicals in cigarette smoke.
The chemicals pass through the apparatus in the direction of the arrows.



In A, tar, a brown sticky substance which causes lung cancer, is collected on the cotton wool.

As the cigarette burned, two different gases were produced and passed through B and C.

(a) After one of the gases passed through B, pure water was collected in B. What is this gas? Explain your answer. [1]

_____

_____

_____

(b) The limewater in C turned cloudy. What is the gas produced during cigarette burning? Explain clearly how this gas can harm the environment. [2]

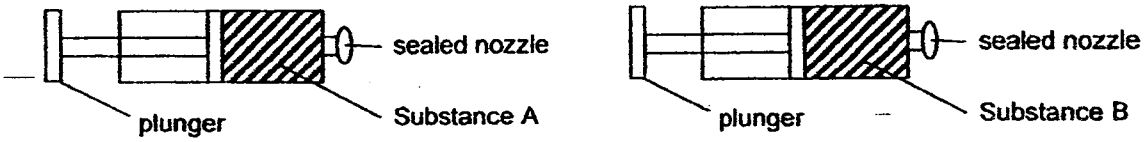
_____

_____

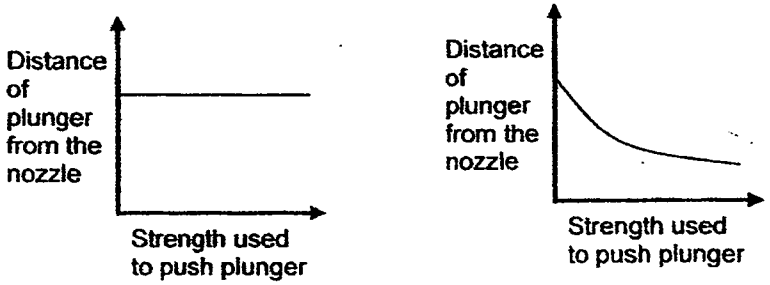
_____

Score	/ 3

41. Leonard filled 2 identical syringes completely with a different substance each and sealed the nozzles as shown below.



He tried to push the plungers in. The graphs below show the results.

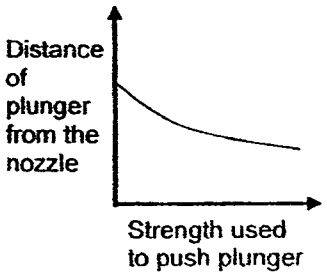


(a) Identify the state of matter of each substance. [1]

Substance A: _____

Substance B: _____

Melissa filled another identical syringe with a ball of cotton wool and sealed the nozzle. She tried to push the plunger in. The graph below shows her results.



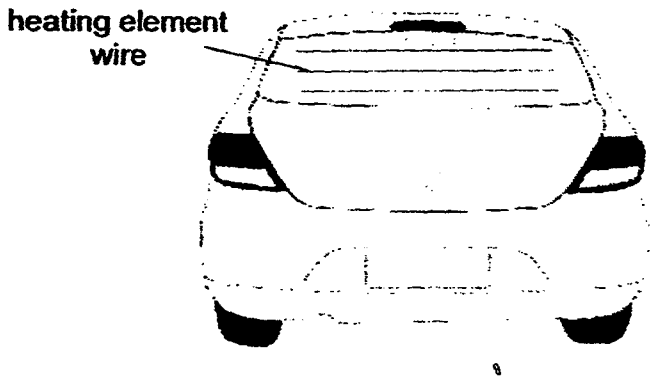
(b) Explain the results obtained [1]

_____

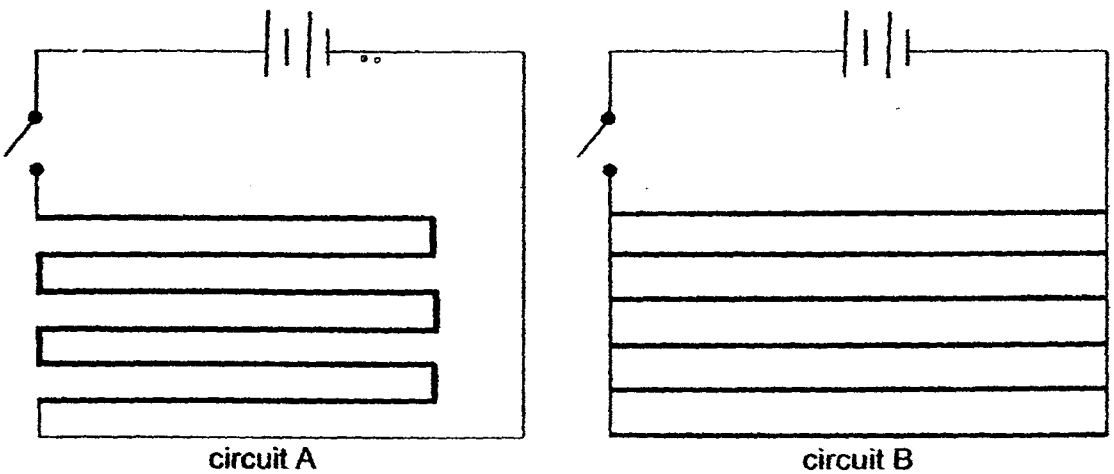
_____

Score	2

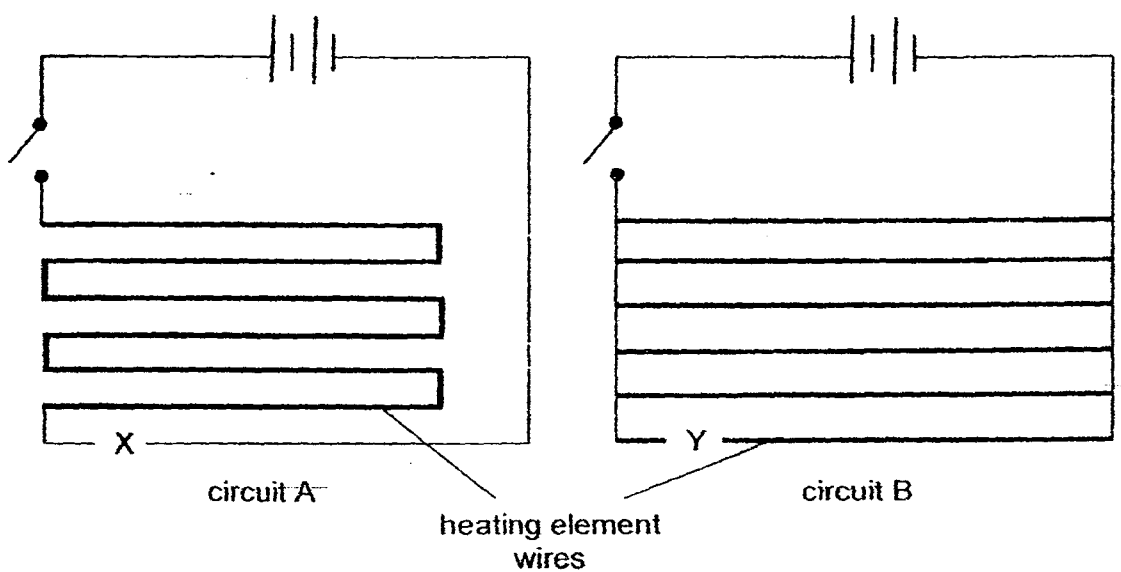
42. In cold countries, the back window of a car usually contains a heating element.
The heating element is part of an electrical circuit connected to the battery of the car.



The diagrams below show **two** ways of connecting the circuit of a heating element.



(a) A wire gets broken at point X on circuit A and at point Y on circuit B.



When the switch is closed, how does the broken wire affect the heating element in circuit A and circuit B? [2]

Circuit A :

_____

_____

Circuit B :

_____

_____

(b) In very cold weather, ice may form on the back window of the car. When the heating element is switched on, the ice will disappear and the surface of the window will become clear and dry. Explain the processes that cause the ice to disappear and the window to become clear and dry. [2]

_____

_____

Score	4

43. Some organisms need to maintain a constant body temperature for survival.

(a) Whales have a thick layer of blubber (fat) under their skin. How does this blubber help the whales to maintain a constant body temperature in cold water? [1]

_____

_____

(b) Humans sweat when they are under the hot sun. How does sweating help humans to maintain a constant body temperature? [2]

_____

_____

_____

Score	3

44. A group of students conducted an experiment to test the effect of rainwater on the growth of radish plants.

The students planted two identical radish seeds in equal amount of soil. One was watered with non-acidic rainwater, and the other was watered with an equal amount of acidic rainwater. All other variables that would affect plant growth were kept the same for both plants.

The students measured the heights of the plants over a period of 20 days and recorded the results in the table below.

Day	Height of plant watered with acidic rainwater (cm)	Height of plant watered with non-acidic rainwater (cm)
8	1	2
12	2	3
14	3	4
17	4	7
20	7	9

(a) What can the students conclude based on the results given in the table above? [1]

_____

_____

(b) The investigation was fair but could be improved to make the results more reliable. Other than repeating the experiment, suggest another improvement that could be made. [1]

_____

_____

Score	2

End of Paper

PRELIMINARY EXAM PAPER 2016

SCHOOL : NAN HUA PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : PRELIMINARY EXAMINATION 2016

Booklet B

Q31(a) Water and carbon dioxide

(b) Green. When green light was shone, the number pof bubbles given off in one minute was the least among the four. The pond weeds carried out least photosynthesis when green light was shone and thus number of bubbles given out was the least

(c) The white light is the control set up to compare with the experimental set-ups to confirm that colour of light will affect rate of photosynthesis in pond weeds.

Q32(a) Animal Y feed on animal X. There must be enough food for animal Y's population to increase. When population of animal X increases, there will be more food for animal Y and population of animal Y decrease.

(b) 2005 - 2006

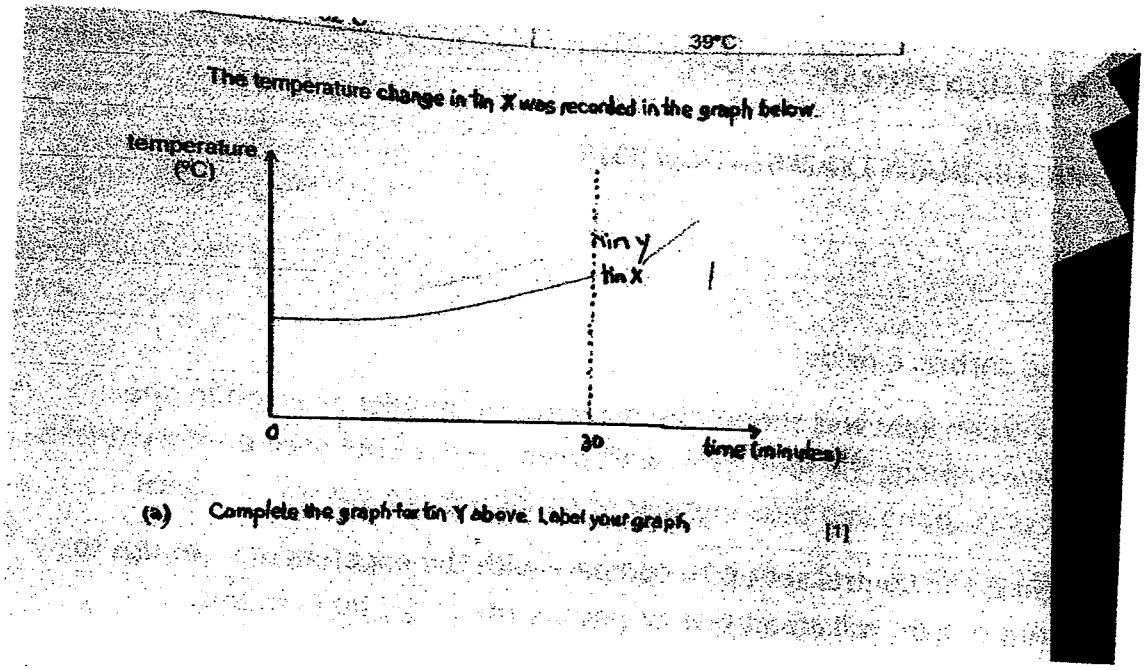
Q33(a) P and Q, **(b)** Control the population of organism T and M, **(c)** If whole population of S is killed, the number of M will increase as there is one less predator to feed on them. Population of P decreases as more M feed on more P. L has less food to eat as L depends on directly on P for food. Population of L decreases.

Q34(a) Carnivore. The animal needs the sharp teeth to tear its prey when eating. **(b)** The young is able to move on land and swim in water less easily than its parent and might get eaten by other predators. By nesting the young up on the tree decreases the chance of the young being eaten and increases the chances of the young surviving.

Booklet A

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

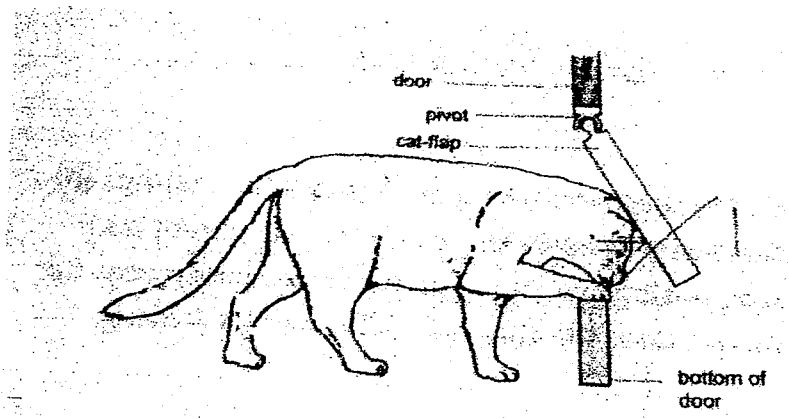
Q35(a)



Q35(b) Black absorbs more heat than white. The air in Tin Y increased in temperature more than air in Tin X. Thus the temperature of air in Tin Y is higher than temperature in Tin X.

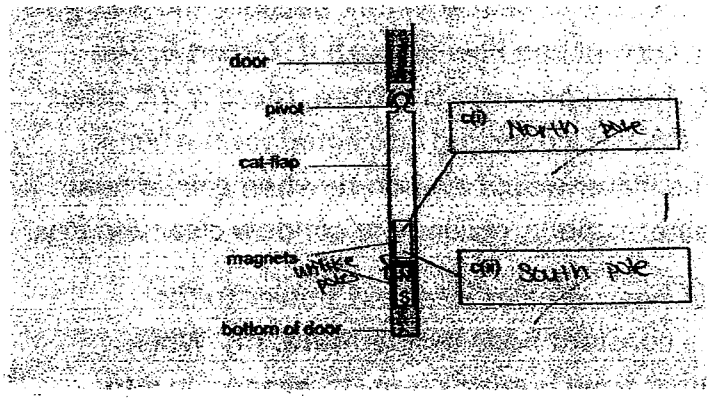
Q35(c) Aluminum foil has a shiny surface which reflects light. The chocolate bar is less easy to melt.

Q36(a)



Q36(b) There is no more force applied by the cat on the cat- flap and thus the flap is closed.

Q36(c)



Q36(d) There is friction between the 2 maghets. Friction produces sound and therefore there is a squeaky sound. Ali could use weaker magnets to reduce the squeaky sounds.

Q37(a) Gravitational Potential Energy ------ Kinetic Energy ------Heat Energy and Sound energy

Q37(b) The sound becomes louder

Q37(c) More water would drip out at once when the hole was enlarged. More gravitational potential energy would be converted to more kinetic energy. More kinetic energy is converted to more heat and sound energy and thus the sound is louder.

Q38(a) Caterpillar does not feed on waste matter. There is no food for the caterpillar on the waste matter on the soil. Since the caterpillar could not move, it died due to lack of food. **(b)** There is less competition between each type of animals for food.

Q39(a) When the number of factories built decrease, the numbers of species A increases. **(b)** When the number of factories built increases, more soot is given out thus blackening the trees. Species B is able to camouflage better in trees as species B is black in colour to avoid being captured by predators

Q40(a) Water vapour. Water vapour condensed into water droplets on the cooler surface of test tube B. **(b)** Carbon dioxide. Excessive carbon dioxide causes too much heat to be trapped on Earth, causing global warming. Global warming causes ice caps to melt, which lead to sea levels rising and flooding in some areas.

Q41(a) Substance A: Liquid, Substance B: Gas. **(b)** There are air spaces between cotton balls. Air is a gas and can be compressed. Thus the distance of plunger from nozzle decreases when strength used to push, plunger increase.

Q42(a) Circuit A: The heating element is not able to heat anymore because the wire gets broken, the circuit is open and no electric current can flow through it. **Circuit B:** The heating element will continue working. Although one wire is broken, there is still other wires to close the circuit to heat the car. **(b)** The ice melted into liquid form when it gained heat from the heating element. The water would evaporate when gained heat from the heating element and become water vapour, making the window clear and dry.

Q43(a) The bubbler is a poor conductor of heat. Whales lose heat slower to the surrounding and blubber helps maintain a constant body temperature. **(b)** When humans sweat, the sweat needs to gain heat from human's body to evaporate into water vapour. There will be less heat in the human's body maintaining a constant body temperature.

Q44(a) Acid rain would affect the growth of radish plant and height of radish plant.

(b) Use more radish plants in each pot and calculate the average height of the radish plant in each pot.

END.