



**PRIMARY FIVE**

**SCIENCE**

**SEMESTRAL ASSESSMENT 1  
2012**

**BOOKLET A**

**Date : 8 May 2012**

**Duration : 1 h 45 min**

**Name : \_\_\_\_\_ (       )**

**Class: Primary 5 (    )**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**Booklet A consists of 19 printed pages including this cover page.**



**Section A (30 x 2 marks = 60 marks)**

For each question from 1 to 40, 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 provided.**

1. Study the classification table below.

X	Y
tomato	mushroom
sunflower	bread mould
chilli	staghorn fern

Which of the following is a possible heading for X and Y?

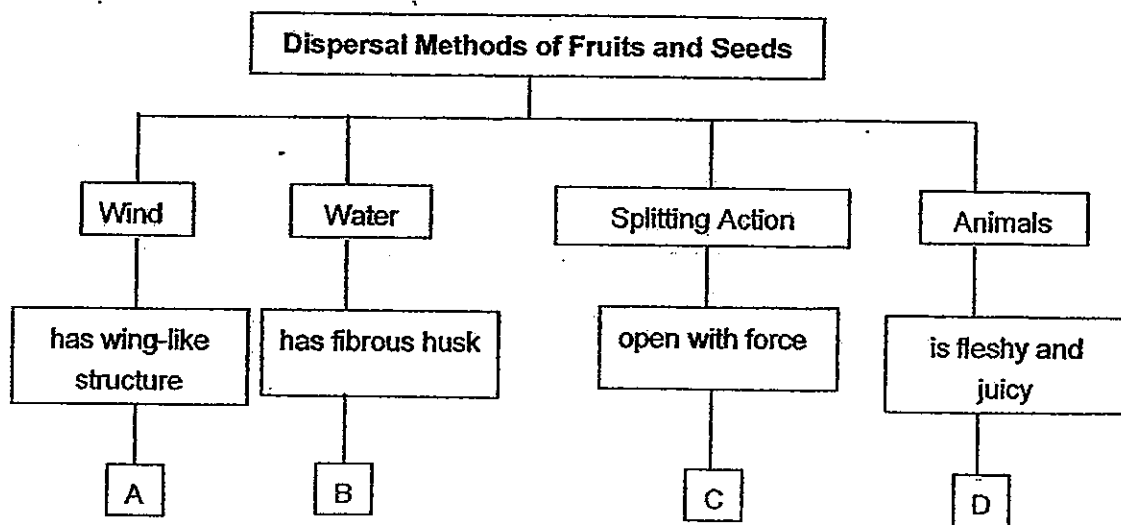
	X	Y
(1)	Flowering Plants	Fungi
(2)	Grow on land	Grow in water
(3)	Make their own food	Do not make their own food
(4)	Reproduce from seeds	Reproduce from spores

2. Which of the following is true for all spore-producing plants?

- A They do not bear flowers.
- B They do not have chlorophyll.
- C They take in oxygen and give out carbon dioxide only.
- D They dispersed their spores with the help of insects or animals.

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

3. Study the classification chart below.

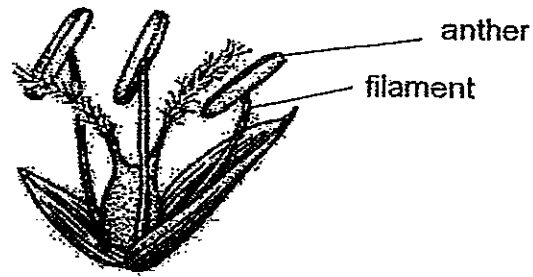


Which of the following sets correctly represent the four fruits, A, B, C and D?

	A	B	C	D
W	lallang	nipah	saga pods	love grass
X	shorea	pong pong	balsam	papaya
Y	angsana	coconut	rubber	mango
Z	dandelion	rambutan	kapok	tomato

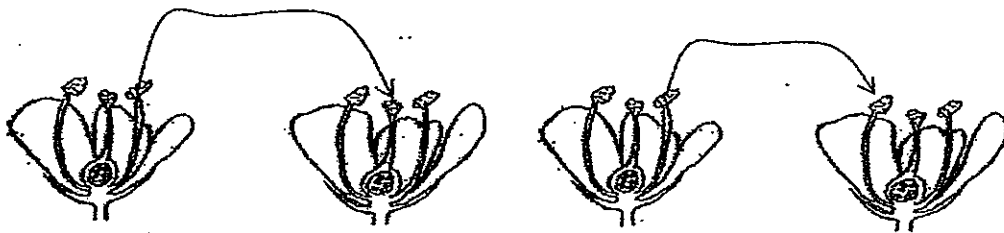
- (1) W and X
- (2) X and Y
- (3) Y and Z
- (4) X, Y and Z

4. The diagram below shows a flower with its filaments and anthers sticking out.



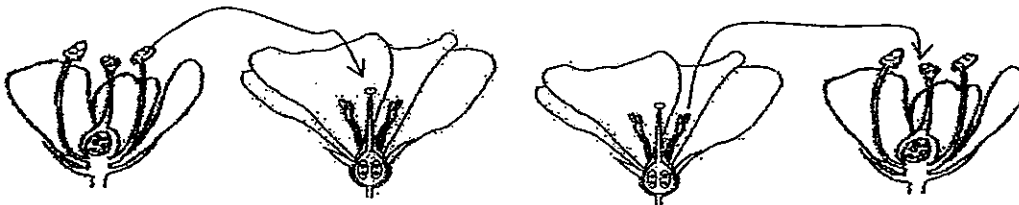
How is the above flower most likely pollinated?

- (1) By wind
  - (2) By water
  - (3) By animal
  - (4) By explosive action
5. The arrows in each of the diagrams shows the transfer of pollen grains between 4 pairs of flowers, A, B, C and D.



Pair A

Pair B



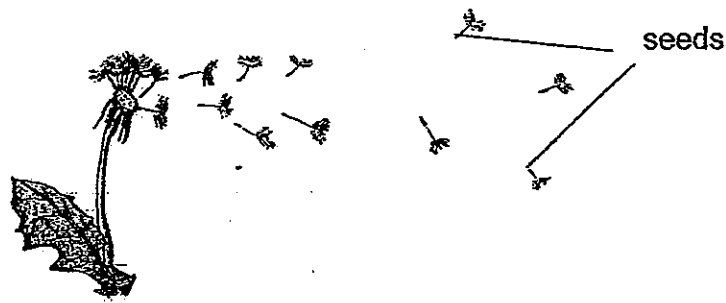
Pair C

Pair D

Which pair(s) of flowers would most likely develop into fruits?

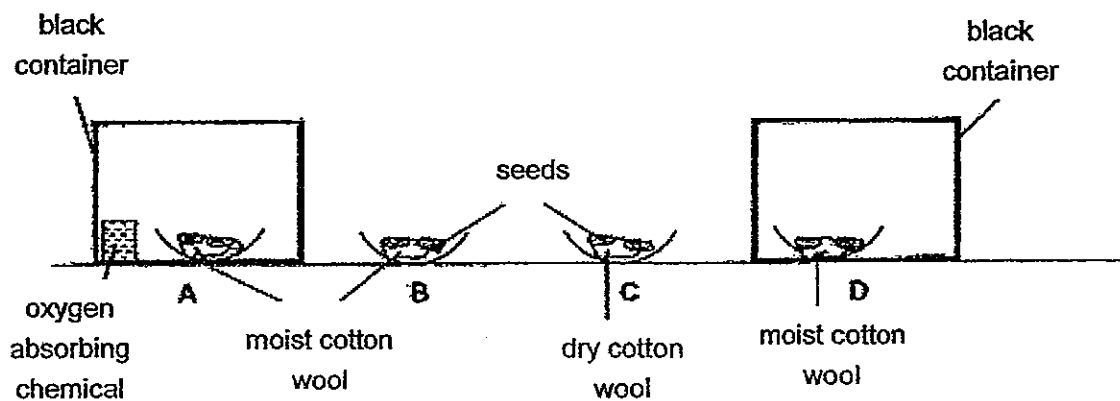
- (1) A only
- (2) B only
- (3) C and D only
- (4) A, C and D only

6. The diagram below shows a dandelion. The dandelion produces hundreds of seeds and each seed can grow into a new plant.



Which one of the following statements below best explains why the dandelion produces such a large number of seeds each time?

- (1) A large number of seeds allow easier dispersal by wind.
  - (2) A large number of seeds allow dispersal over a further distance.
  - (3) A large number of seeds allow the plant to maximise its chances of survival.
  - (4) A large number of seeds allow good usage of energy produced during photosynthesis.
- 7 Sammy had 4 experimental set-ups as shown in the diagram below. She placed 2 seeds in each of the set-up. The 4 set-ups were then placed near the window.

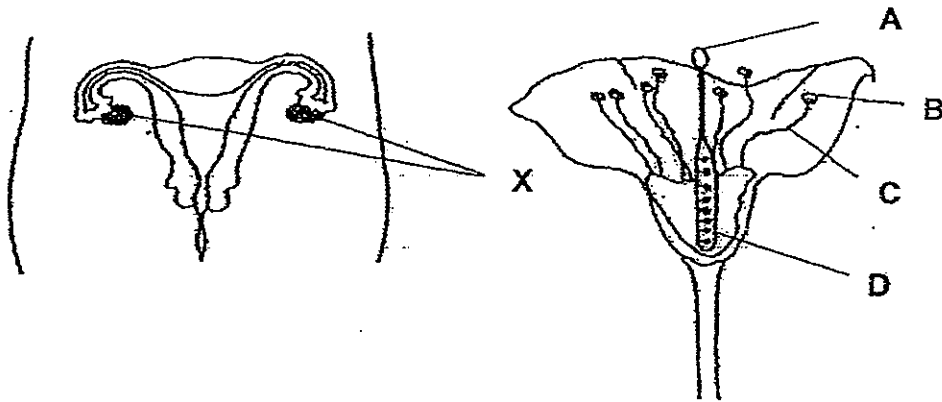


Sammy observed the seeds over the next five days.

In which of the following set-ups would the seeds most likely germinate?

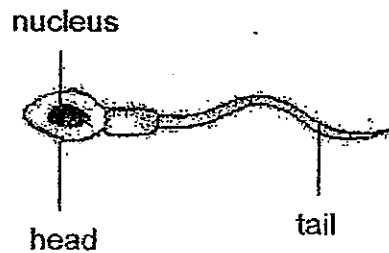
- (1) B only
- (2) A and C only
- (3) B and D only
- (4) B, C and D only

- 8 The diagrams below show parts of the female reproductive system and the plant reproductive system respectively.



Based on the diagrams above, which part of the flower has a similar function as X in the female reproductive system?

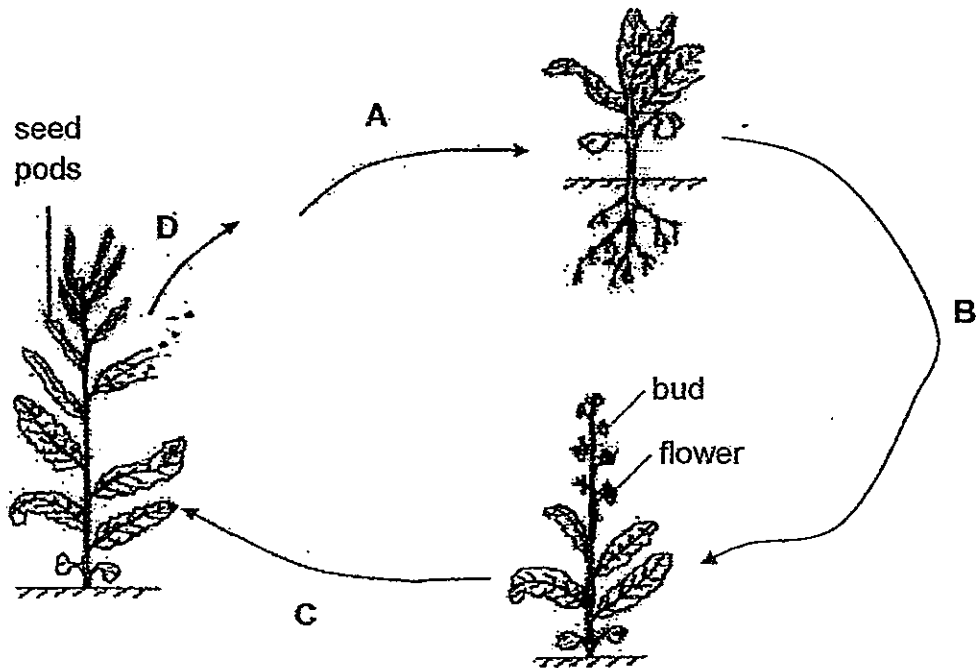
- (1) A
  - (2) B
  - (3) C
  - (4) D
9. The diagram below shows a sperm cell.



Which one of the following correctly states the function of the nucleus and tail respectively?

	Nucleus	Tail
(1)	Acts as a centre of the cell	Acts as a feeler
(2)	Carries genetic materials	Helps in the movement of the sperm
(3)	Helps in the movement of the sperm	Acts to balance the cell
(4)	Provides food for the sperm	Carries genetic materials

10. The diagram below shows the stages of growth of a flowering plant.



Which one of the following options correctly identifies processes A, B, C and D?

	Seed Dispersal	Germination	Becoming an adult plant	Pollination	Fertilisation
(1)	D	B	B	C	A
(2)	B	D	C	B	A
(3)	D	A	B	C	C
(4)	C	A	D	B	B



11. Three plants X, Y and Z were planted on a piece of land as shown in Figure 1. A few years later, the same area was studied and the locations of the 3-types of plants were identified and indicated in Figure 2.

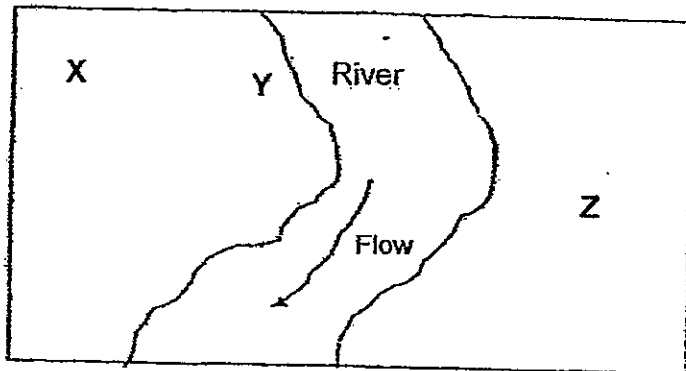


Figure 1

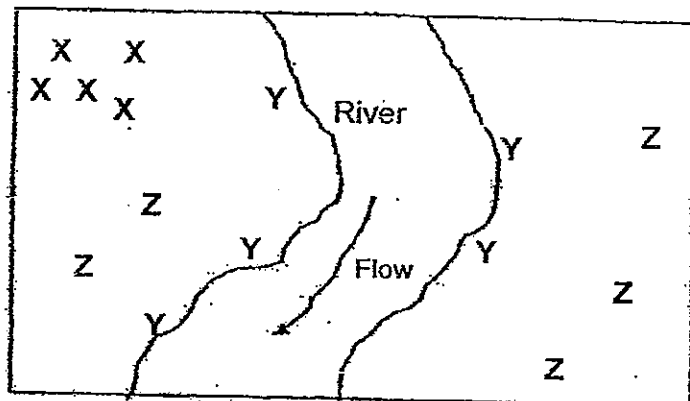


Figure 2

According to the dispersal pattern above, which of the following characteristics correctly describe fruits X, Y and Z?

	X	Y	Z
(1)	has wing-like structures	has fibrous husk	dry pods
(2)	dry pods	has fibrous husk.	has wing-like structures
(3)	dry pods	has wing-like structures	has fibrous husk
(4)	has fibrous husk	has dry pods	has wing-like structures



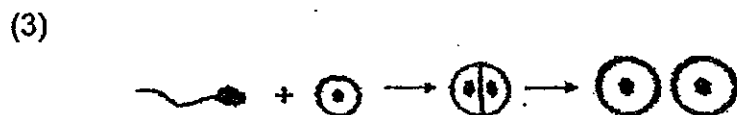
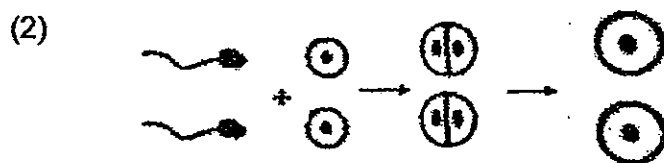
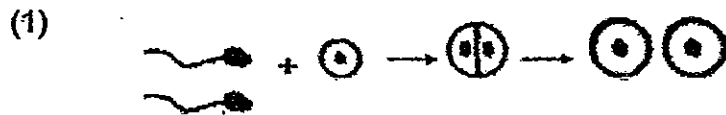
12. Which of the following characteristics can be passed on from the parents to their offsprings?

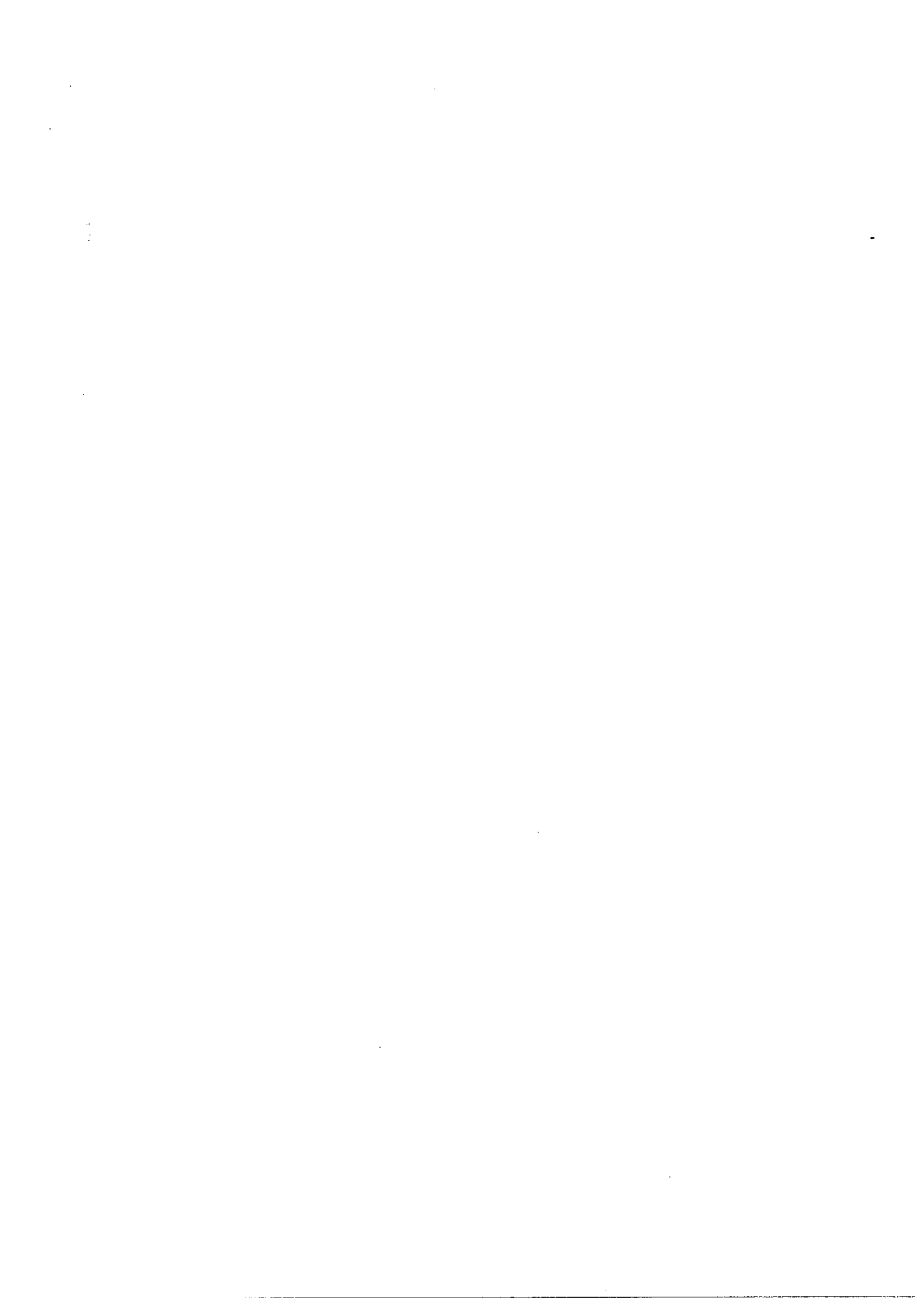
- A Single eyelids
- B Attached earlobes
- C Fingerprints
- D Ability to roll one's tongue

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

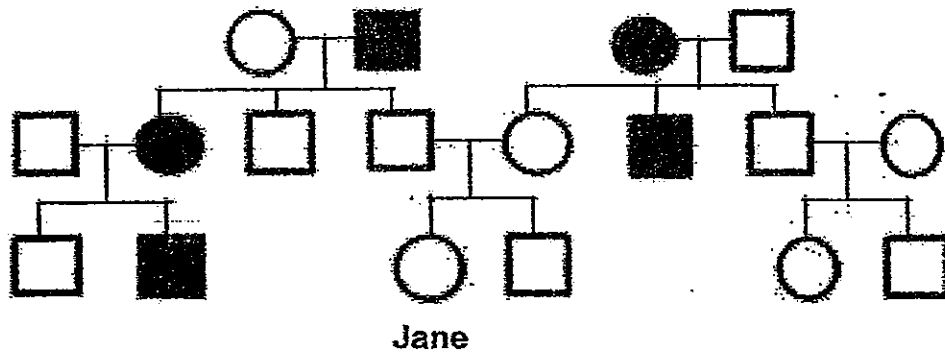
13. Identical twins are formed when a fertilised egg splits into two separate cells. The diagrams below trace every stage of the process.

Which one of the following diagrams best represents the formation of ~~non~~ identical twins?





The diagram below shows Jane's family tree. Based on the diagram above, answer questions 14 and 15.



KEY:	
	Female with blue eyes
	Female without blue eyes
	Male with blue eyes
	Male without blue eyes

14. How many female cousins without blue eyes does Jane have?
- (1) 1  
 (2) 2  
 (3) 3  
 (4) 4
15. Which of the following information that is obtained from Jane's family tree is **true**?
- A Jane has 3 male cousins without blue eyes  
 B Both of Jane's parents do not have blue eyes.  
 C All of Jane's maternal uncles do not have blue eyes.  
 D Jane's paternal grandparents have 2 sons without blue eyes and a daughter with blue eyes.
- (1) A and B only  
 (2) A and C only  
 (3) B and D only  
 (4) B, C and D only

16. Which of the following actions help in conserving water?

- A Use half-flush to flush the toilet.
- B Use water from rinsing fruits to water the houseplants.
- C Use a hose for washing cars to reduce spilling of water from buckets.
- D Use recycled water instead of fresh water to cool down machinery in the factories.

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

17. Which of the following statements about matter are true?

- A All matter has mass.
- B All matter can be seen.
- C All matter cannot be compressed
- D Matter can be living or non-living things.

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

18. Tim took some pieces of ice cubes from the freezer compartment and placed them on a dish. He then observed the change in the ice cubes for the next 10 minutes.

Which one of the following correctly describes the change in the ice cubes when they were melting?

- (1) The mass of the ice cube increased.
- (2) The ~~temperature~~<sup>volume</sup> of the ice cube increased.
- (3) The ice cubes gave off heat to the surroundings.
- (4) The ice cubes absorbed heat from the surroundings.

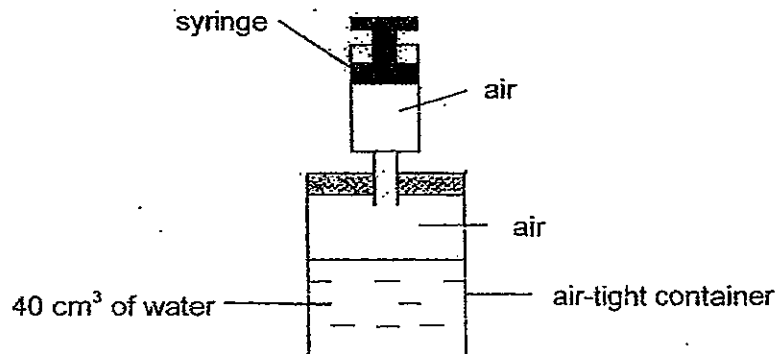
- 19 Jamie observed the properties of an unknown substance. It could exist in 3 different states, P, Q and R.

Properties of Matter	States		
	P	Q	R
takes up some space and has mass	Yes	Yes	Yes
takes the shape of the container	No	Yes	Yes
can be compressed	No	No	Yes

Which one of the following correctly identified the states of P, Q and R?

	P	Q	R
(1)	Solid	Gas	Liquid
(2)	Gas	Liquid	Solid
(3)	Liquid	Gas	Solid
(4)	Solid	Liquid	Gas

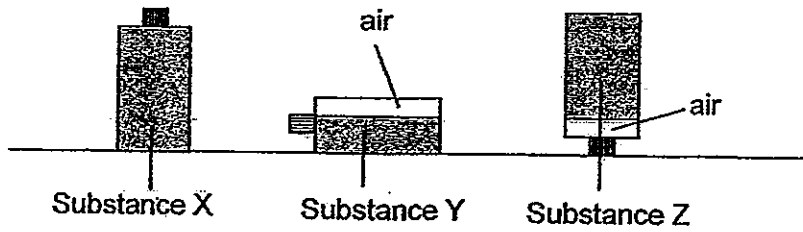
20. The diagram below shows an air-tight container filled with 40 cm<sup>3</sup> of water and some air. The container has a capacity of 70 cm<sup>3</sup>. A syringe was used to draw out some air from the container.



Which of the following statements about the volume of air left in the container is true?

- (1) The amount of air in the container increased.
- (2) The amount of air in the container decreased.
- (3) The amount of air in the container remained the same.
- (4) The amount of air in the container increased and then decreased.

21. The diagram below shows 3 identical bottles filled with substances X, Y and Z, placed on a table top.

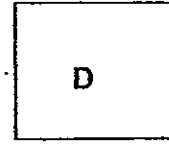
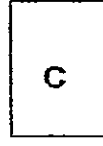
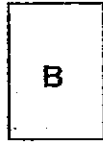
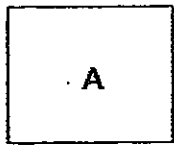


Based on the diagrams above, which of the following statements correctly describe the 3 substances labelled X, Y and Z?

- A Substance Z is a solid.
  - B Substance X has mass.
  - C Substance Y has a definite volume.
  - D Substances X, Y and Z are the same substance but it exists in different states.
- 
- (1) A and C only
  - (2) B and D only
  - (3) A, B and C only
  - (4) A, C and D only



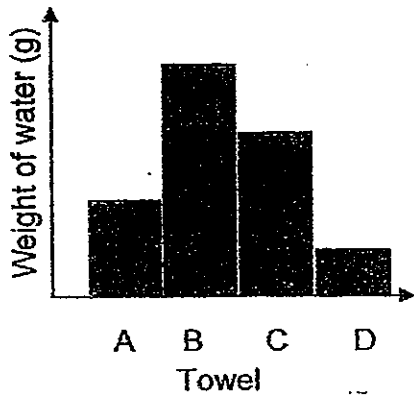
22. Four identical towels with the same mass labelled A, B, C and D were soaked with the same amount of water for 5 minutes and then laid out to dry under different conditions as shown below for 1 hour.



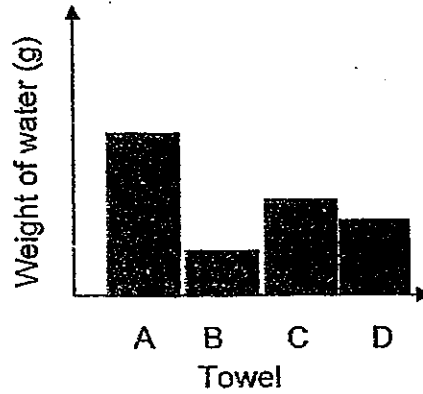
- Fully opened
- Placed indoors under a fan
- Folded in half
- Placed in an air-conditioned room set at 20°C
- Folded in half
- Placed under the sun
- Fully opened
- Placed under the sun

After 1 hour, the towels were weighed and the weight of water was calculated and recorded down. Which one of the following graphs shows the weight of water left in towels A, B, C and D after one hour?

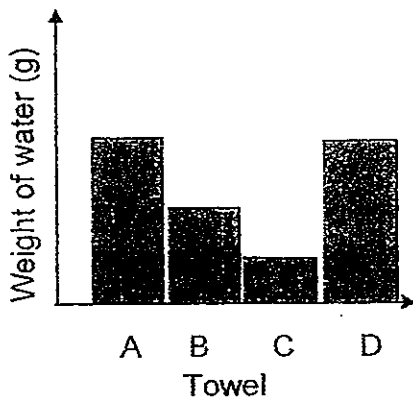
(1)



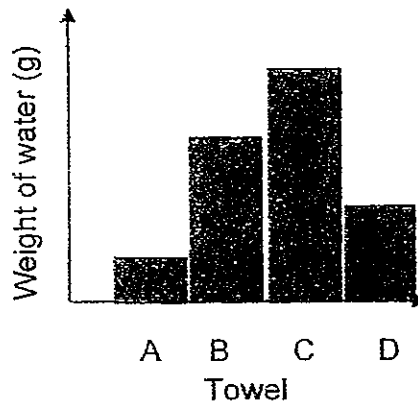
(2)



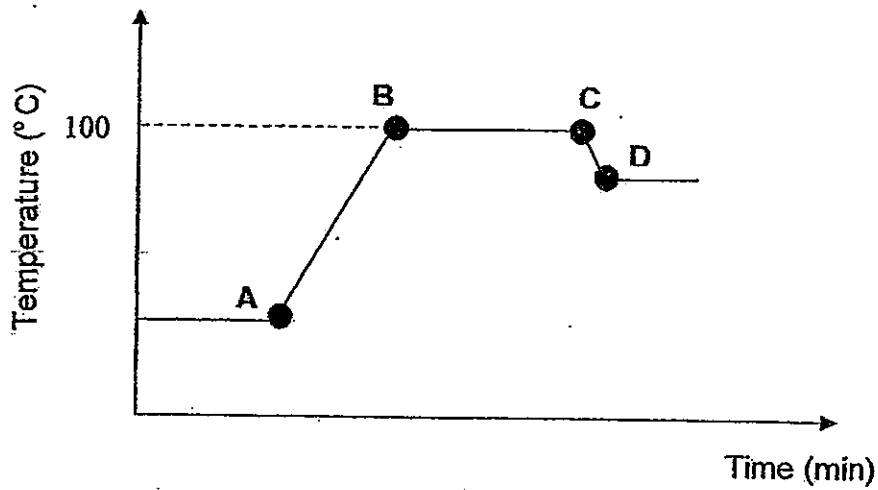
(3)



(4)



- 23 The graph below represents the change in the temperature of water over a period of time.



Based on the graph above, which one of the following correctly describes the cause of the changes in the temperature of water?

	From A to B	From B to C	From C to D
(1)	Heat gain	Heat gain	Heat loss
(2)	Heat gain	No heat gain and loss	Heat loss
(3)	Heat loss	Heat gain	Heat gain
(4)	Heat loss	No heat gain and loss	Heat gain

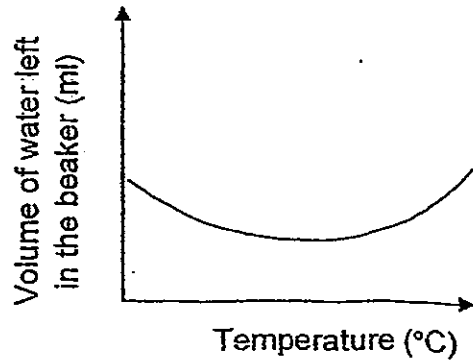
24. Which of the following shows the similarity between plants and animals?

- (1) They make their own food.
- (2) They need air, water and food.
- (3) They respond quickly to changes.
- (4) They can move from place to place

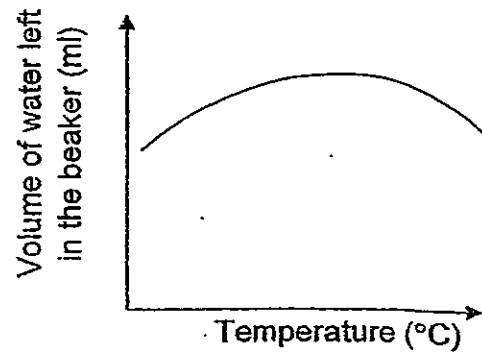
5. William carried out an experiment to find out how temperature affected the rate of evaporation of water. He then plotted his results.

Which one of the following graphs likely shows the results of his experiment?

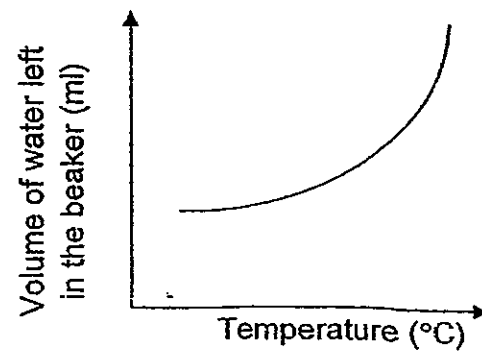
(1)



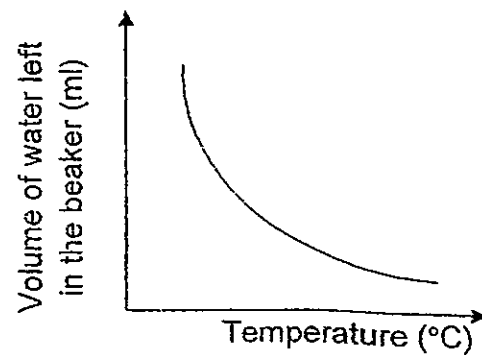
(2)



(3)



(4)





- 26 John found an unknown animal in the school garden. He observed it closely and concluded that it was an insect.

Which one of the following observations had helped John to make the correct conclusion?

- A It had wings.
- B It had a pair of feelers.
- C It had three pairs of jointed legs.
- D Its body was divided into many parts.

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

27. Aaron placed 6 similar plates of sawdust, A to F, under the conditions as stated in the table below. He then deposited equal amounts of mushroom spores onto each plate. One week later, he checked them to see if there were any mushrooms growing on the 6 plates.

Plate	Presence of water	Temperature of the surrounding air ( °C)	Light Conditions
A	Yes	10	Dark
B	No	10	Bright
C	Yes	20	Dark
D	Yes	20	Bright
E	No	30	Bright
F	Yes	30	Dark

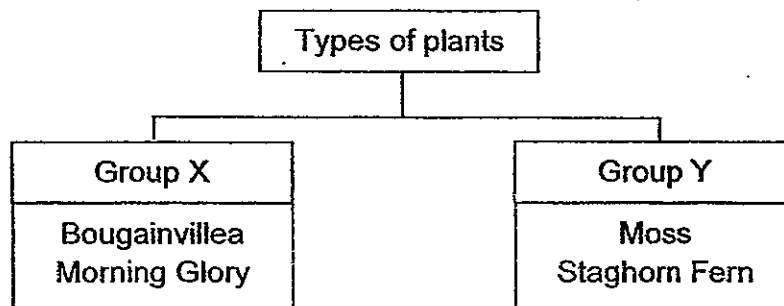
Which plates should Aaron compare to find out how the change in the temperature of the surrounding air affected the germination of mushroom spores?

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

28. The table states some similarities and differences between Bird's Nest ferns and mushrooms. Which of the following correctly compare the two types of organisms?

	Similarities	Differences
(1)	Both reproduce by spores	Bird's Nest ferns can make their own food but mushrooms cannot.
(2)	Both are living things.	Bird's Nest ferns are poisonous but mushrooms are not.
(3)	Both cannot make their own food.	Bird's Nest ferns have leaves but mushroom do not have leaves.
(4)	Both are examples of fungi	Mushrooms can make their own food but Bird's Nest ferns cannot.

29. Study the classification chart below.



Which one of the following best represents Group X and Y respectively?

	Group X	Group Y
(1)	Plants with chlorophyll	Plants without chlorophyll
(2)	Land plants	Water plants
(3)	Flowering plants	Non-flowering plants
(4)	Poisonous plants	Non-poisonous plants

30 The table below describes the characteristics of 3 organisms labeled W, X and Y.

A tick (✓) shows that the organism has the characteristic.

Characteristics	W	X	Y
Lives in water		✓	✓
Has hairs on its body	✓		✓
Can make its own food		✓	
Can move about on its own	✓		✓

Based on the information above, which of the following statements about W, X and Y are true?

- A X is a plant.
- B W is the only mammal.
- C X and Y are aquatic organisms

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







**PRIMARY FIVE**  
**SCIENCE**  
**SEMESTRAL ASSESSMENT 1**

**2012**

**BOOKLET B**

**Date : 8 May 2012**  
**Duration : 1 h 45 min**

**Name :** \_\_\_\_\_ (       )

**Class:** Primary 5 (       )

**Marks Scored:**

<b>Booklet A:</b>		<b>60</b>
<b>Booklet B :</b>		<b>40</b>
<b>Total :</b>		<b>100</b>

**Any query on marks awarded should be raised by \_\_\_\_\_ We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.**

**Parent's signature:** \_\_\_\_\_

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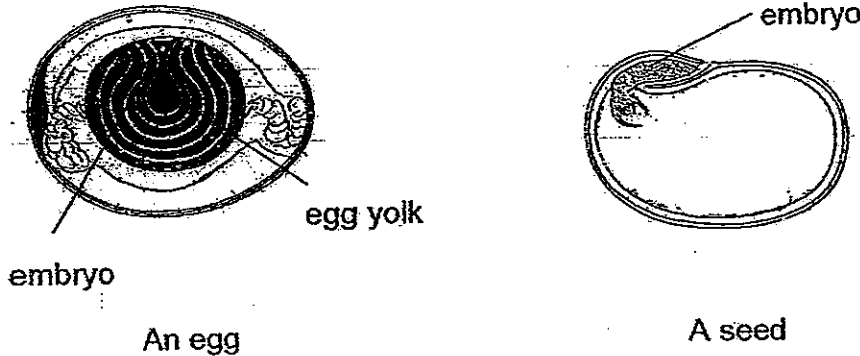
**Booklet B consists of 15 printed pages including this cover page.**



**Section B (40 marks)**

Write your answers to questions 31 to 44 in the spaces provided.  
Marks will be deducted for misspelt key words.

31. The diagrams below shows the embryos found in an egg and a seed.



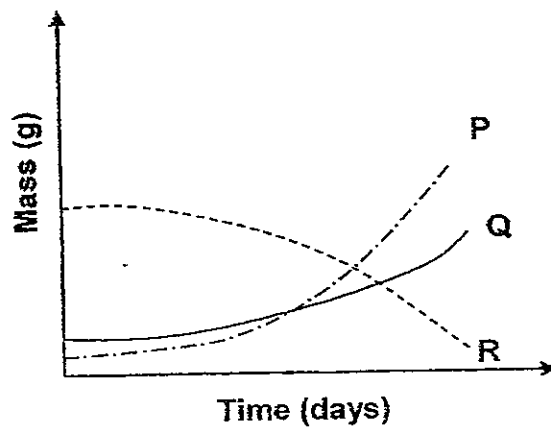
(a) Name the part of the seed that has the same function as the egg yolk. [1]

\_\_\_\_\_

(b) Explain how the part in (a) is similar to the egg yolk. [1]

\_\_\_\_\_  
\_\_\_\_\_

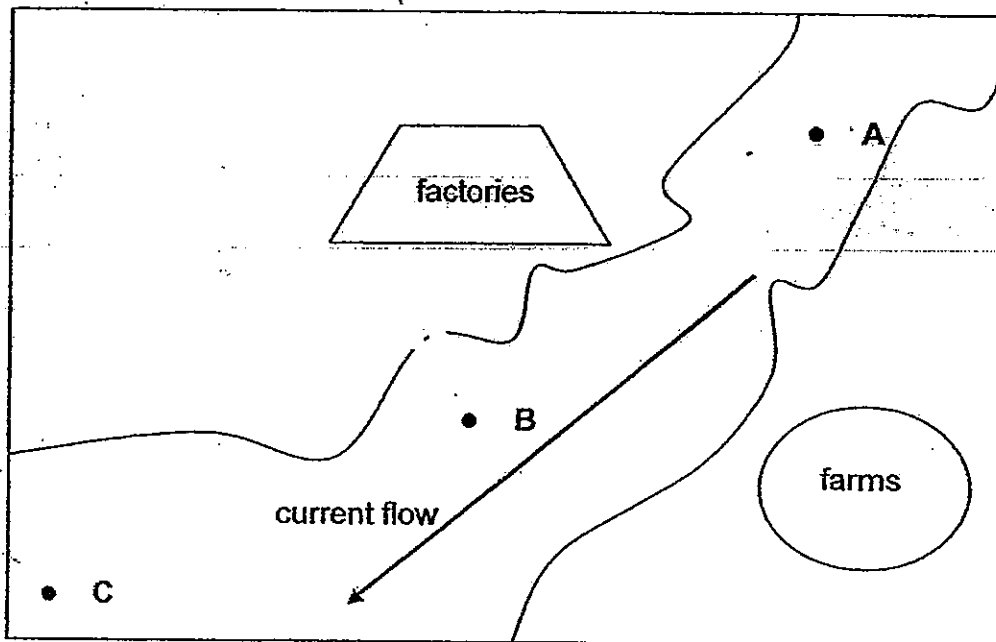
The graph below shows the masses of the different parts of a developing seed.



(c) Which of these curves, P, Q or R, represents the mass of your answer in (a) [2]  
over a period of time? Explain your answer.

\_\_\_\_\_  
\_\_\_\_\_

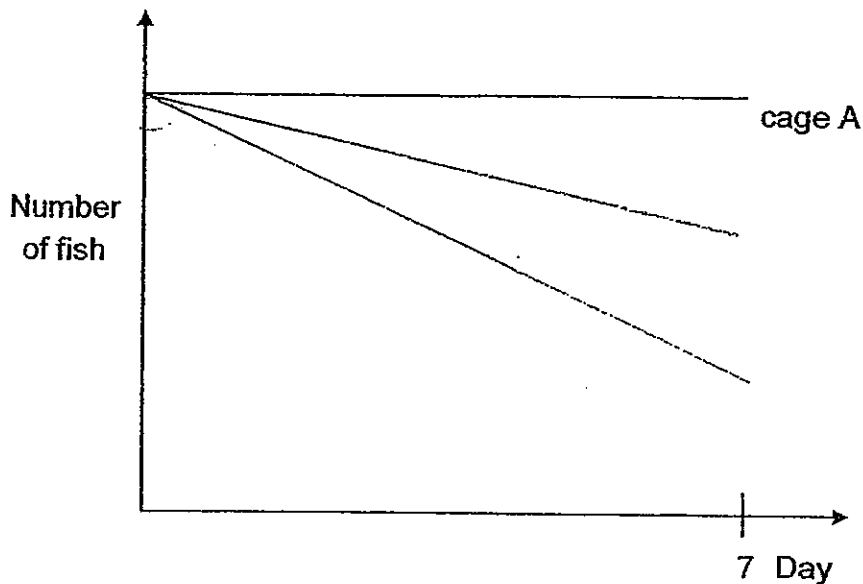
32. The diagram below shows a stream. The factories and farms discharges waste into the stream.



3 cages with the same number of similar fish were lowered into the stream at three points A, B and C. The number of live fish in each cage was counted daily for 1 week. The result for the number of fish in Cage A is shown in the graph below.

Draw two lines on the graph below to show the predicted results for the number of fish in cage B and C throughout the 1 week.

[2]

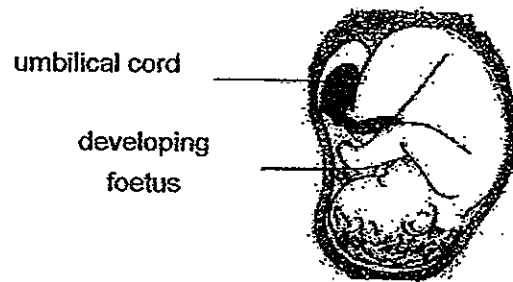


33. (a) Write 'T' for True and 'F' for False for each of the following statements in the boxes provided.

[2]

	Statements	T/F
a)	Fertilisation occurs in the female reproductive part.	
b)	A sperm can move by itself but an ovum cannot	
c)	Sexual reproduction only takes place in humans and flowering plants	
d)	The sperms that surround the egg but fail to fertilise it will eventually die.	

- (b) The developing baby in the womb is connected to the mother by an umbilical cord.



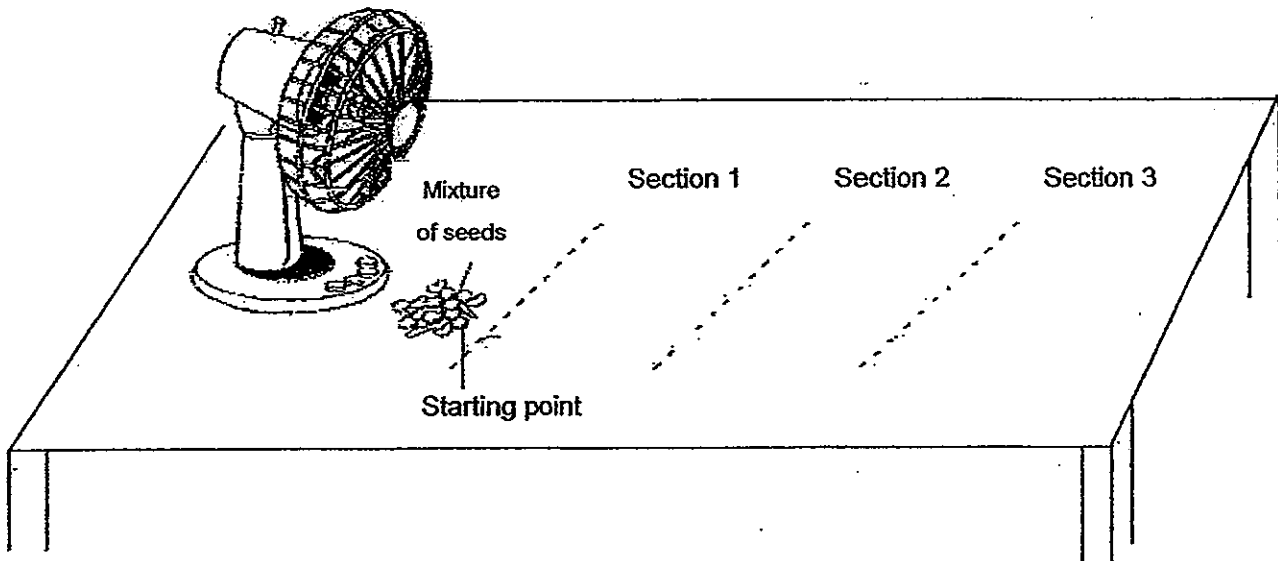
State two functions of the umbilical cord.

[2]

- (i) \_\_\_\_\_  
\_\_\_\_\_
- (ii) \_\_\_\_\_  
\_\_\_\_\_

34. Benjamin had three types of similar seeds, A, B and C of different masses. All the seeds can be dispersed by wind. He weighed and recorded the average mass of the 3 types of similar seeds in the table as shown below.

He took ten seeds of each type, mixed them together and placed them on a table in front of a fan. He switched the fan on for 30 seconds. Then he counted the number of each type of seed in the sections he had marked out on the tabletop as shown in the diagram below.



His results were recorded in the table below.

Type of seeds	Average mass of seed (g)	Section 1	Section 2	Section 3
A	1	0	1	9
B	1.5	2	8	0
C	2.2	7	3	0

- (a) What was the aim of Benjamin's experiment? [1]

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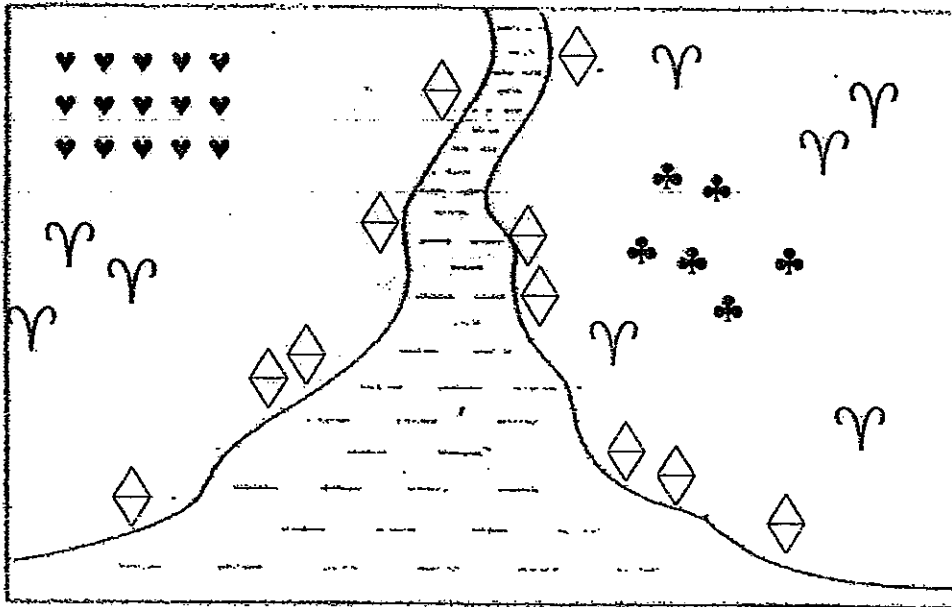


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- (b) Benjamin then conducted the experiment 2 more times. Explain why he had to do so. [1]

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35. The diagram below shows the distribution of four types of plants near a river.



(a) i) Among the four types of plants, circle the plant that was most likely not dispersed naturally. [1]

◊	3	♣	♥
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(a) ii) Explain your choice in-part (i). [1]

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36. Squirrels consume large quantities of seeds and nuts. They often gather seeds and nuts and bury them at different places. When they need food, they will locate these places to retrieve the seeds and nuts.



- (a) State one benefit for the squirrel when it buries its food in many places. [1]

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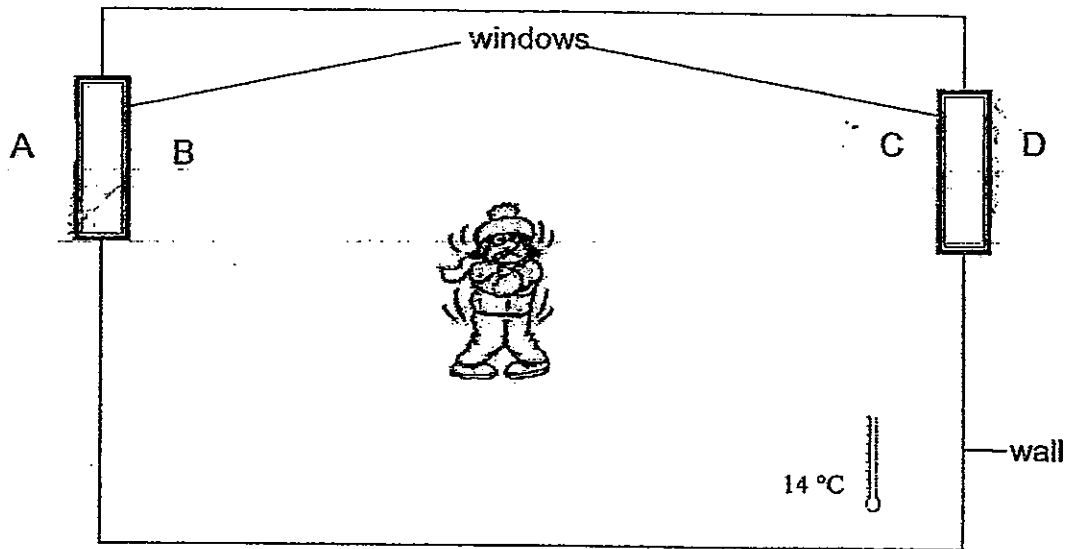
- (b) Write down 2 benefits for the plants of the nuts/fruits that are buried by the squirrel at different places. [2]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_



37. Sarah was standing in an air-conditioned room with 2 windows.



After some time, she noticed that water droplets had formed on the windows.

(a) Draw on the diagram on A, B, C or D to indicate where the water droplets could be found. [1]

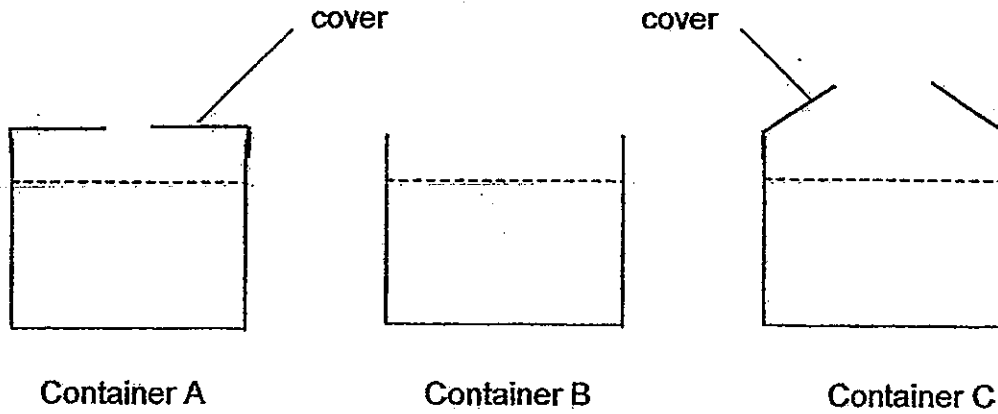
(b) Explain how the water droplets were formed. [2]

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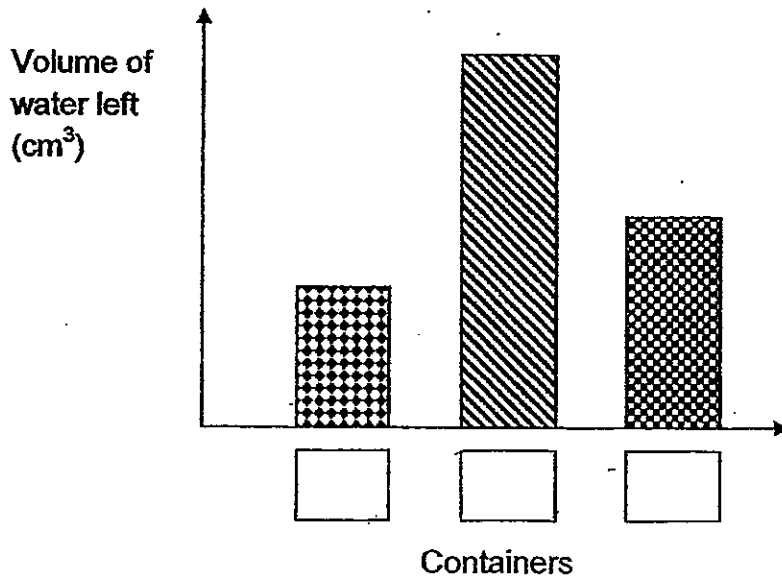
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38. 3 similar containers, A, B and C, were filled with equal amounts of water. Covers of different shapes were placed onto two of the containers as shown in the diagram below. The containers were then placed in the sun for an hour.



The volume of water left in the 3 containers after an hour was measured with a measuring cylinder. A bar graph was then plotted as shown in the diagram below. [1]

- (a) Fill in the boxes provided with the letters 'A', 'B' and 'C' to correctly identify the volume of water left in each of the 3 containers.



- (b) What could you conclude from your answers in part (a)?

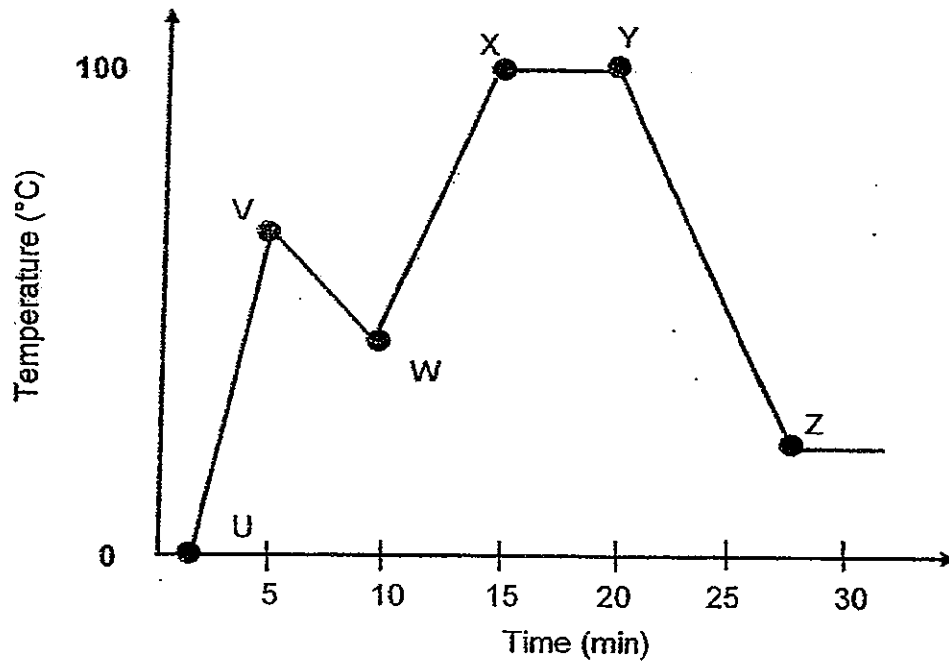
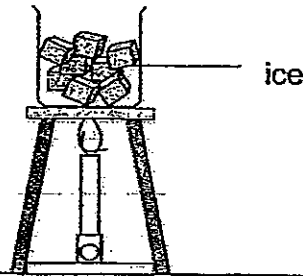
[1]

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39. Patrick heated a beaker of ice continuously for 20 minutes. He then left it to cool in the Science Room for another 10 minutes. During the entire process, he measured the temperature of the water at 5-minute intervals and plotted a graph as shown below.



- (a) At the 5<sup>th</sup> minute, Patrick did something to the above experiment and he noticed a drop in the temperature from V to W. State what he could have done to cause this drop in temperature. [1]

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- (b) Which point (U, V, W, X or Z) in the graph above correctly represented the temperature of surrounding air in the room? [1]

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40. Anne was given a mixture of salt, marbles and sand in a beaker. She wanted to separate the mixture to obtain salt only. She was given a bunsen burner, a tripod stand, a sieve and 500 ml of water.

Using the items provided below, write down the procedures needed for Anne to separate the mixture so that only the salt was obtained in the end. The first step had been written for you.

Items provided:

- a beaker containing the mixture of salt, marbles and sand
- a beaker containing 500 ml of water
- sieve
- stirrer
- tripod stand
- bunsen burner

Step	Procedure	Things Obtained
1	Pour some water into the beaker of mixture. Salt will dissolve in the water.	
2		
3		

41. Ali was swimming in a swimming pool for some time and when he got out of the pool, he felt cold and was shivering. After he had dried himself with a towel, he did not feel as cold as before.

(a) Explain why Ali felt cold when he first got out of the pool.

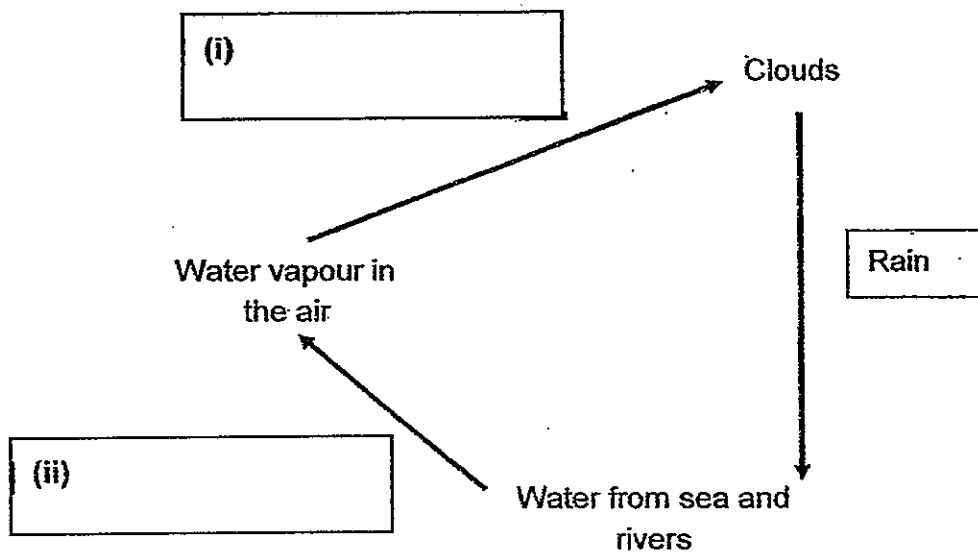
[2]

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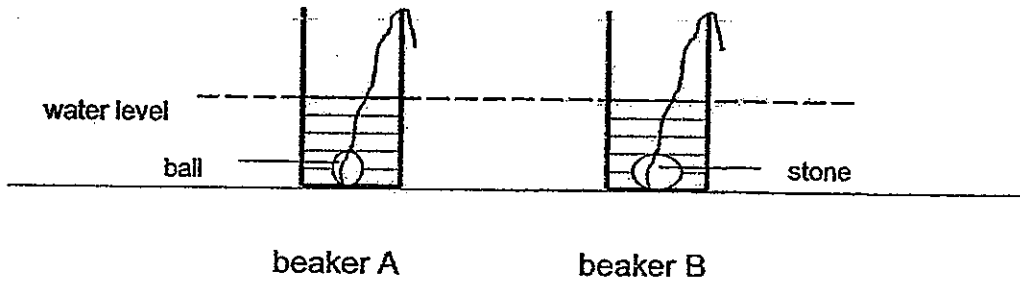
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(b) Study the diagram below and state the two processes that take place in the ~~(i)~~ water cycle in the boxes provided.



42. The diagram below showed 2 similar beakers, A and B. Gregory tied a ball with a string and placed it into beaker A. He then tied a stone with a string and placed it into beaker B. Water was then added into the beakers until the water level in both beakers was the same.



- (a) Without adding more water in or pouring any water out of the 2 beakers, how would you prove that the stone had a larger volume than the ball?

[2]

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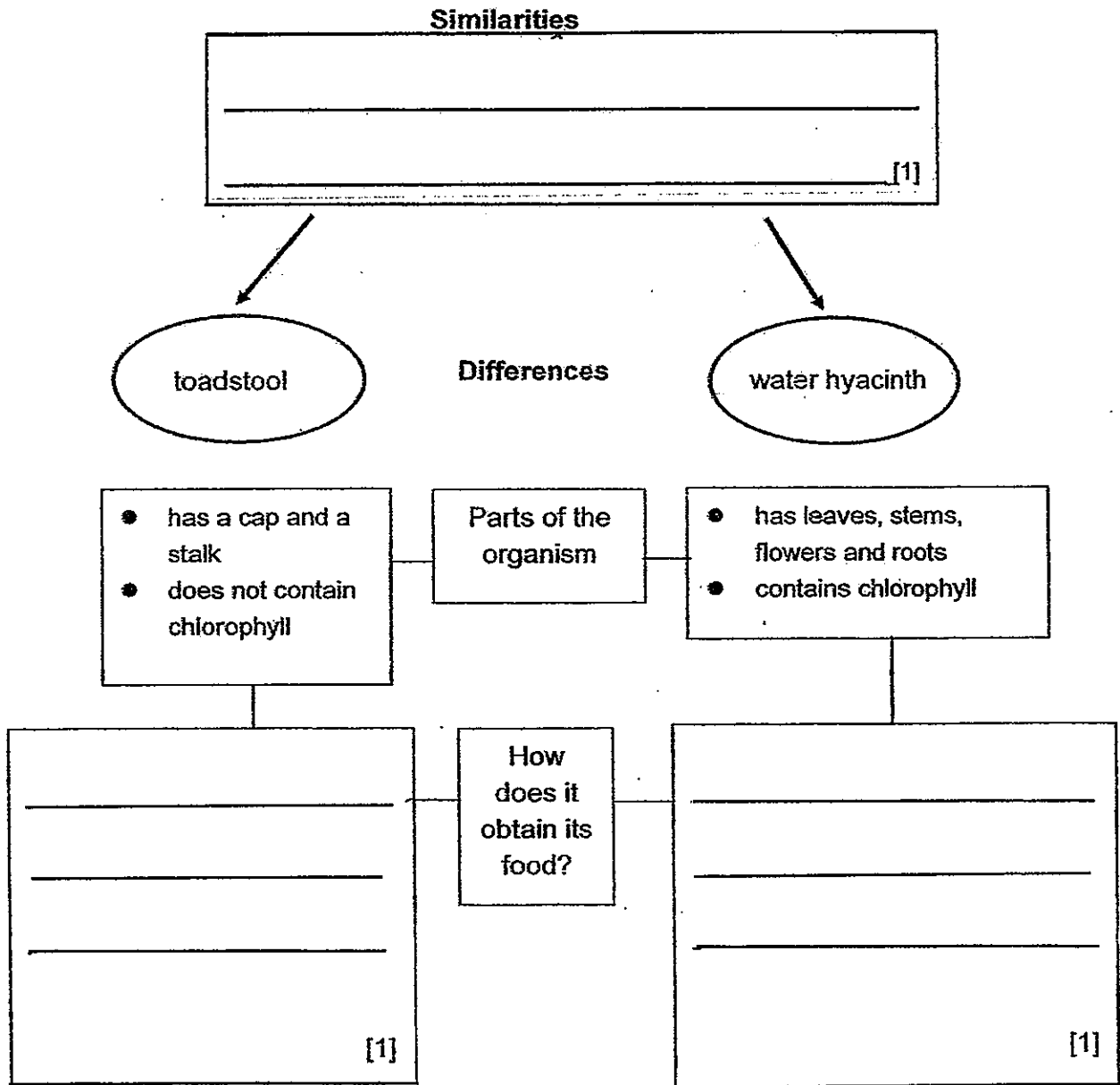
- (b) Based on the experiment, state one common property that both the ball and stone had.

[1]

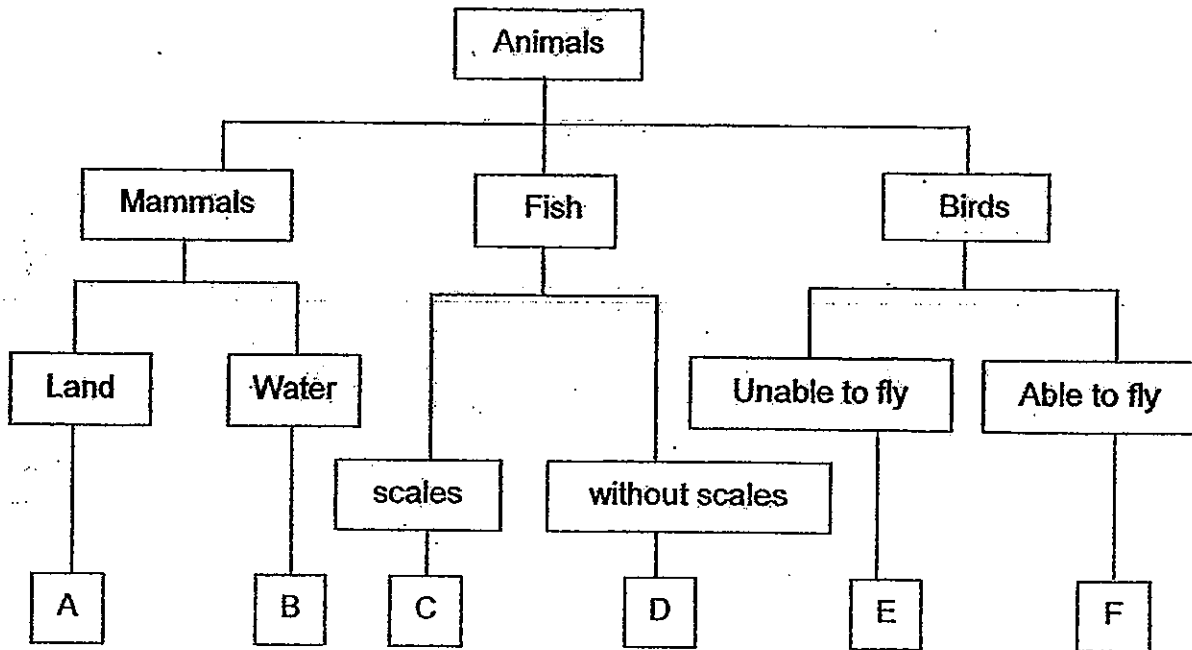
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43. Compare the similarities and differences in characteristics between a toadstool and water hyacinth. Use the information to complete the graphic organizer below.



44. Study the classification chart of animals as shown below



(a) Based on the classification chart above, write the correct answer A, B, C, D, E or F in each box to correctly identify the 4 animals as listed below. [2]

(i) dolphin

(ii) penguin

(iii) bat

(iv) goldfish

(b) Give an example for each of the following animals: [1]

(i) Animal E: \_\_\_\_\_

(ii) Animal F: \_\_\_\_\_

~ END OF PAPER ~



# ANSWER SHEET

EXAM PAPER 2012

SCHOOL : NANYANG  
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA1

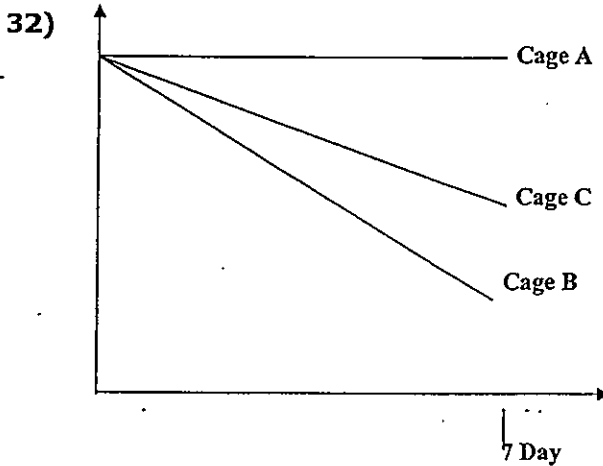
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
4	1	2	1	1	3	3	4	2	3	2	2	3	1	3	2	2

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

31)a)The seed leaves.

b)The seed leaves provides the embryo food, same as the egg yolk provides for the embryo, while both of the embryos are developing.

c)R. Decrease in mass the growing seedling absorbing nutrients.




33)a)T b)T c)F d)T

b)i)The umbilical cord allows the mother to transfer food, air and nutrients to the baby.

ii)The umbilical cord allows the baby to transfer the waste materials back to mother.

34)a)To find out how the mass of the seed would affect the distance the seed will travel.

b)He did it to ensure that the results are reliable.

35)a)i) 

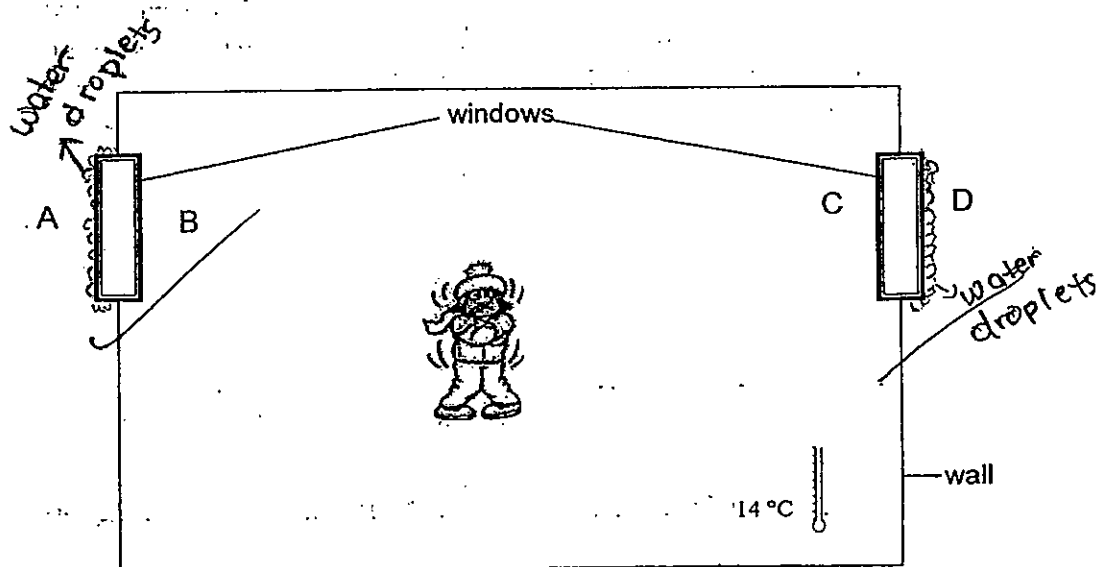
ii)They are neatly planted in rows, while the other are planted all over the place.

36)a)During winter, where there are no plants growing, the squirrel can locate the places to retrieve the seeds and nuts, so they have food during winter.

b)i)Prevent overcrowding and reduce competition for basic needs, such as light, water, space and nutrients.

ii)Seeds get the chance to grow in more fertile land.

37)a)



b)The warm water vapour surrounding the room touches the cooler surface of the window, and condenses into small water droplets.

38)a)B A C

b)The more exposed surface area the more water will be evaporated.

39)a)Patrick added some tap water.

b)Point Z.

40)2)Use the sieve to separate marbles and the salt water.

3)Heat the salt water with the bunsen burner fill all the water had evaporated.

41)a)When he first came out of the pool there were water droplets on his skin, when the water droplets evaporated there would be heat loss in the body and that is why Ali felt cold.

b)i)Condensation.

ii)Evaporation.

42)a)Remove both the ball and stone compare the water level. Beaker B has lower water level than A. Thus the stone has a greater volume.

b)Both the stone and ball had a fixed volume.

43)

Similarities

They can not move around from place to place freely.

>growing on living and dead trees and animals.

>from the sunlight the plant can photosynthesis and make it own food.

44)a)i)B ii)E iii)A iv)C

b)i)emu

ii)parrot

