

Name : \_\_\_\_\_ ( )

Date : 8 May 2007

Class : Pri. 4 ( )

Time : 1 hr 30 min

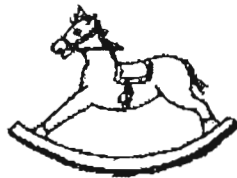
Science Teacher : \_\_\_\_\_

### Section A (25 × 2 marks)

For questions 1 to 25, choose the most suitable answer and shade its number (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

1. Which of the following can move by itself?

(1)



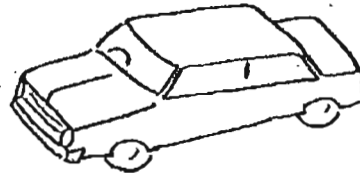
(2)



(3)



(4)



( )

2. The diagrams below show two animals.



Based on what you can observe from the diagrams, which of the statements is definitely true?

(1) Both breathe through the gills.

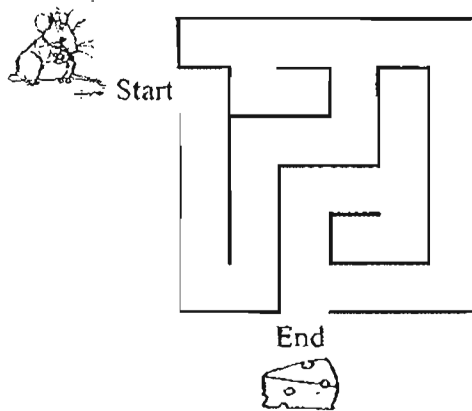
(2) Both of them have a tail.

(3) Both live in the water.

(4) Both lay eggs.

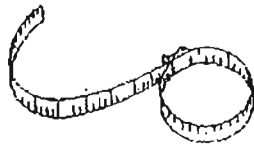
( )

3. The following diagram shows a maze that Bala has created. A mouse is placed at the start position. Cheese is placed at the end of the maze.



Bala wants to find out how long the mouse takes to reach the cheese. Which of the following instruments should he use?

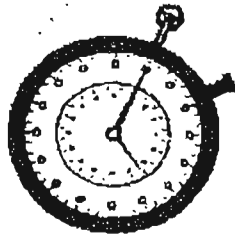
(1)



(2)



(3)

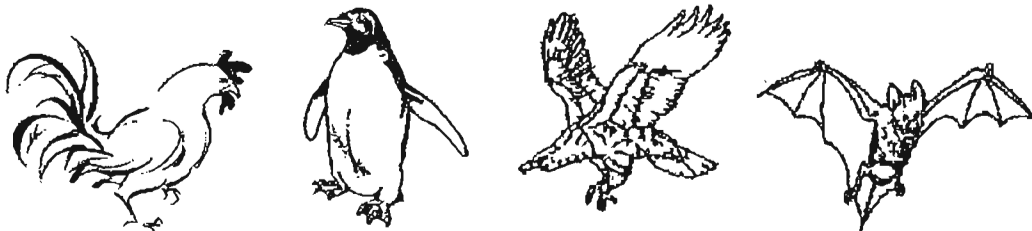


(4)



( )

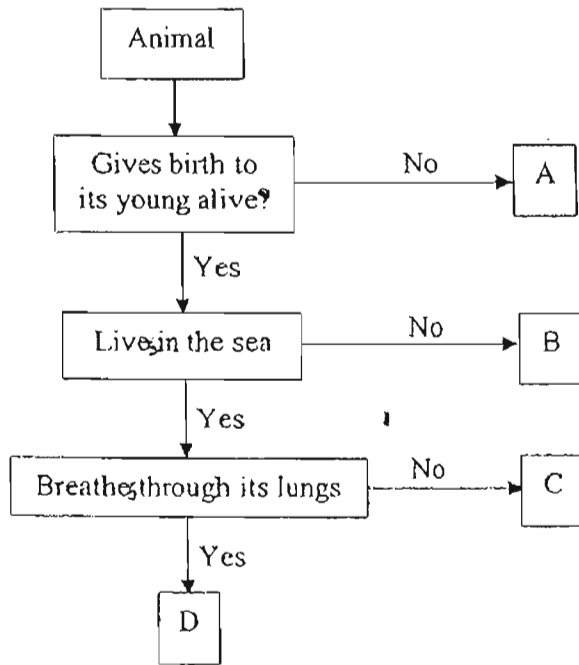
4. The following animals belong to the same group because all of them \_\_\_\_\_.



- (1) can fly
- (2) eat fish
- (3) can sing
- (4) have wings

( )

5. The flowchart below shows the characteristics of four different ~~organisms~~ <sup>animals</sup>.

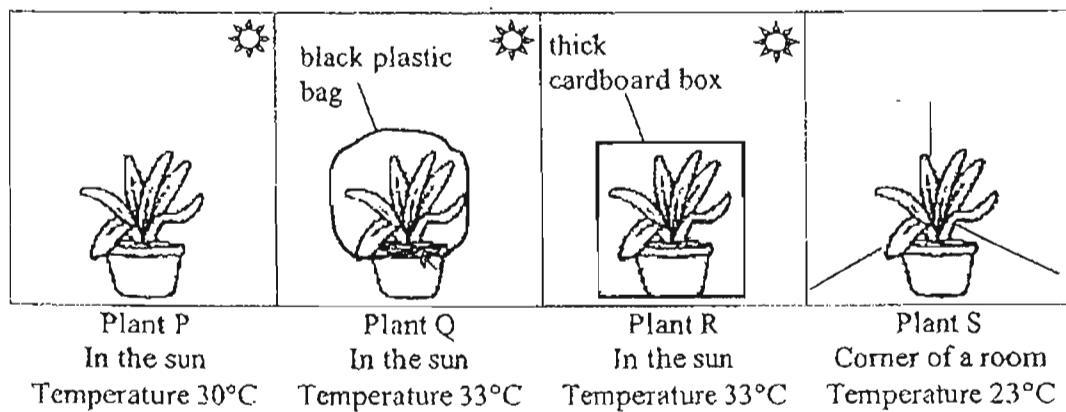


Which of the animals, A, B, C or D, matches the animal shown in the diagram below?



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

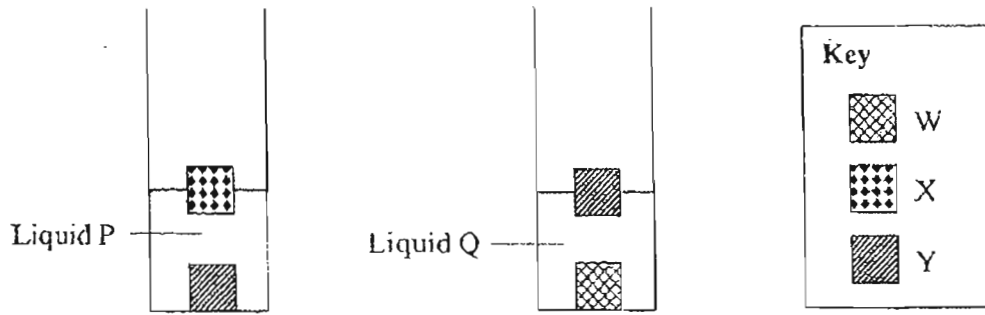
6. The diagrams below show four similar plants, P, Q, R and S.



Which of the plants above will be able to photosynthesize?

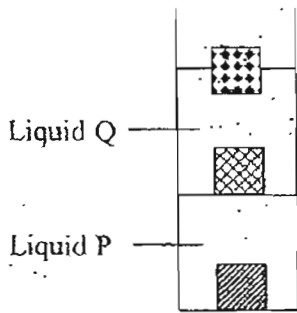
- (1) P (2) Q  
 (3) R (4) S ( )

7. The diagrams below show how different objects behave in liquids P and Q.

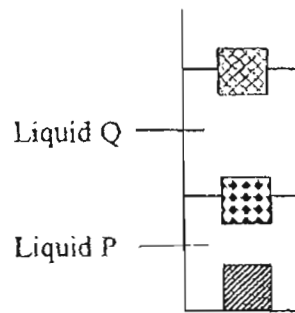


Which of the following diagrams show clearly what happens when liquids P and Q, and all the objects are placed in one container?

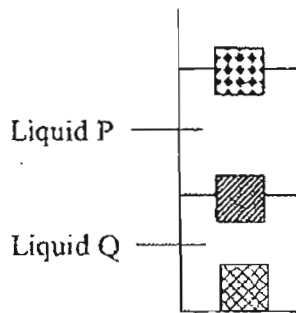
(1)



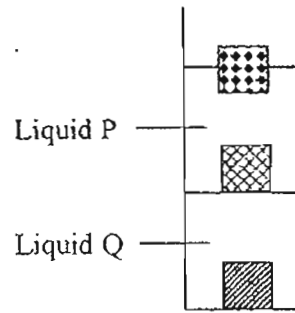
(2)



(3)

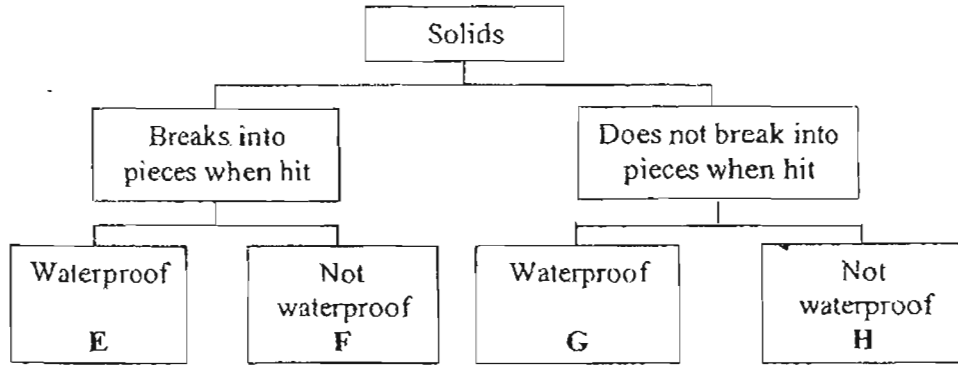


(4)



( )

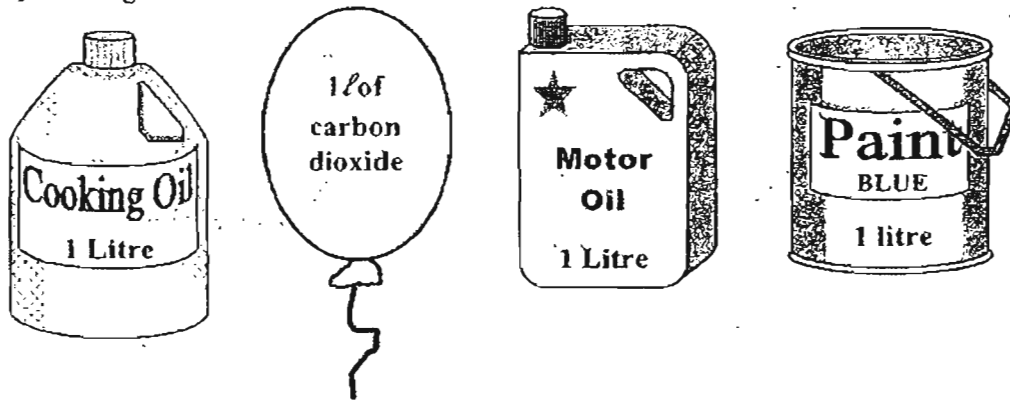
8. Study the classification chart below carefully.



In which group will you place mirror and raincoat?

	mirror	raincoat
(1)	E	G
(2)	F	G
(3)	G	E
(4)	G	H

9. Study the diagrams below.

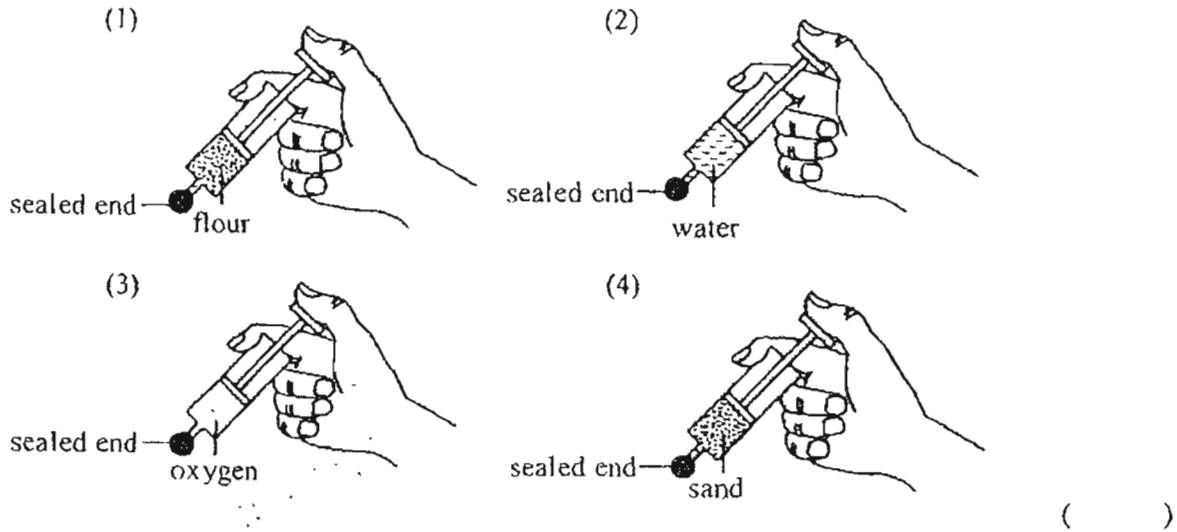


Which of the following statements about the liquids and gas in the containers and balloon are true?

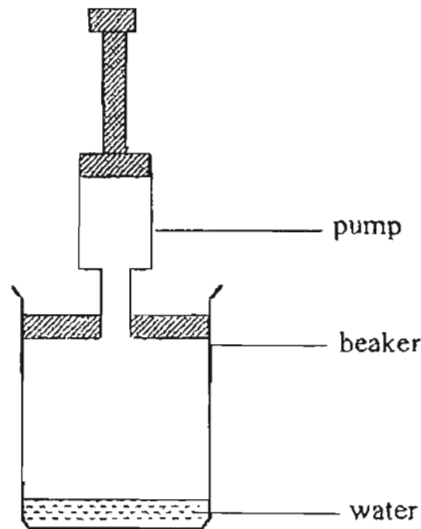
- A: They cannot be compressed.
- B: They have the same volume.
- C: They do not have a definite shape.

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

10. Equal volumes of flour, water, oxygen and sand are placed into four identical syringes. In which syringe can the plunger be pushed down the most?



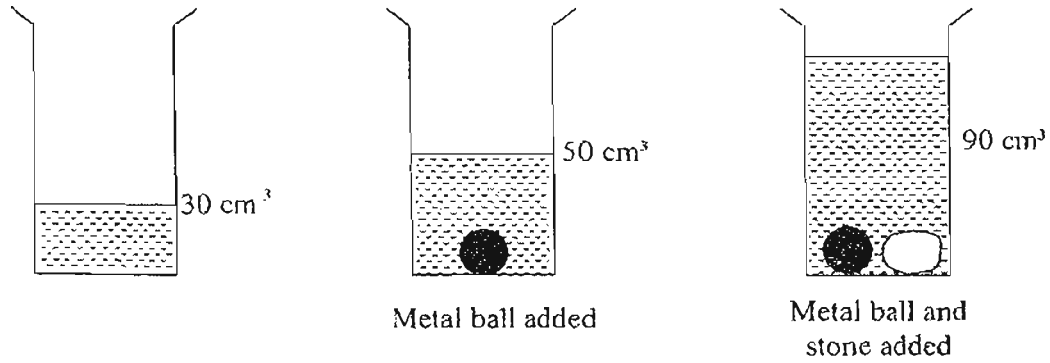
11. The diagram below shows a beaker with a capacity of 1000 cm<sup>3</sup>. Nathan filled the beaker with 100 cm<sup>3</sup> of water. Then, he fitted a pump at the top of the beaker. Each time he pushed in the pump fully, 200 cm<sup>3</sup> of air entered the beaker. He pressed the pump 2 times.



What would the volume of air in the beaker be?

- (1) 1300 cm<sup>3</sup>
  - (2) 1100 cm<sup>3</sup>
  - (3) 1000 cm<sup>3</sup>
  - (4) 900 cm<sup>3</sup>
- ( )

12. The diagram below shows a measuring cylinder which contains 30 cm<sup>3</sup> of water. When a metal ball is added, the water level rises. When both the metal ball and a stone are added, the water level rises again.



Which one of the following sets of readings shows the volumes of the metal ball and the stone?

	Volume of the metal ball ( cm <sup>3</sup> )	Volume of the stone ( cm <sup>3</sup> )
(1)	50	90
(2)	50	40
(3)	20	40
(4)	20	10

(      )

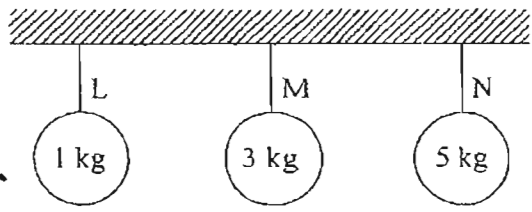
13. Cindy wants to set up an experiment to test how the exposed surface area of a liquid can affect the rate of evaporation.

	Exposed surface area of liquid (cm <sup>2</sup> ) (cm <sup>3</sup> )	Amount of water (cm <sup>2</sup> ) (cm <sup>3</sup> )
Container K	20	30
Container L	20	40
Container M	20	40
Container N	30	40

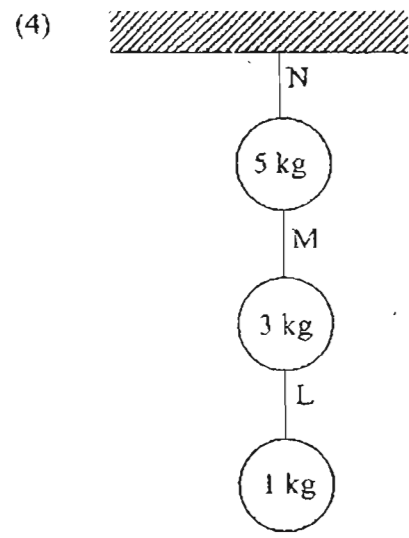
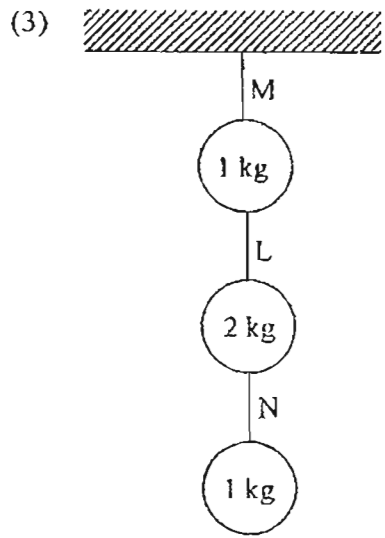
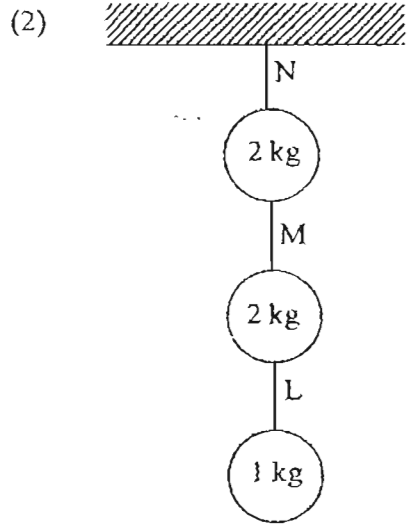
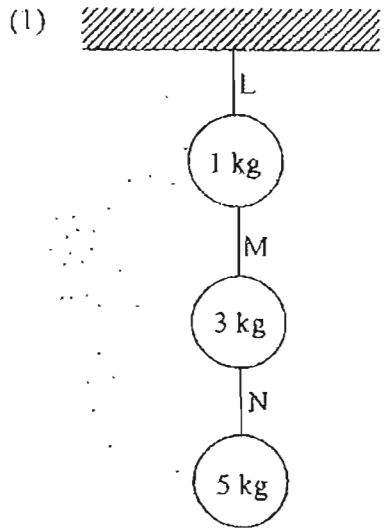
Which two of the above containers should she choose to carry out her experiment?

- (1) K and L
  - (2) K and M
  - (3) L and M
  - (4) M and N
- (      )

14. Jiaming has 3 different ropes, L, M and N. The diagram shows the maximum mass that each rope can support without breaking.



Which of the arrangements below would not cause any of the ropes to break?



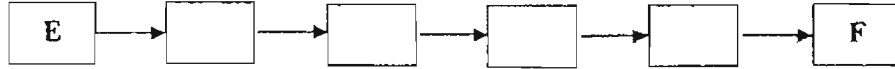
( )





18. The statements A to F describe the events that lead to the formation of rain. However, they are not in the correct order.

- A: Water evaporates from rivers and lakes
- B: Condensation happens
- C: Water vapour rises and then cools
- D: Droplets of water form clouds
- E: Heat from the sun warms the earth
- F: Water droplets become bigger and fall as rain



Which of the following completes the order?

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

( )

19. Which of the following processes of the water cycle are correctly described?

	Process	Change	
		From	To
A	Condensation	Water vapour	Water
B	Evaporation	Water	Ice
C	Freezing	Ice	Water vapour
D	Melting	Ice	Water

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

( )

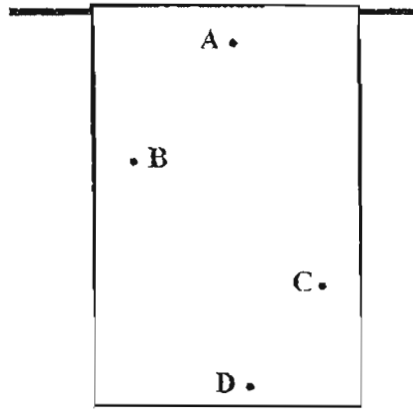
20. Which of the following statements about air are true?

- A: Inhaled air contains more oxygen than exhaled air.
- B: Air is a mixture of oxygen and carbon dioxide only.
- C: Every 100 ml of air contains 1 ml of carbon dioxide.
- D: Green plants need oxygen and carbon dioxide to live.

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

( )

21. A wet towel is hung out to dry in the sun as shown.

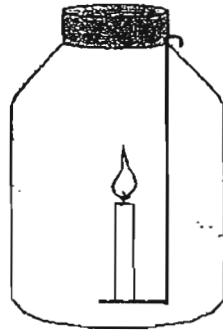


Which of the following spots (A, B, C or D) will take the shortest time to dry?

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

( )

22. Judy wanted to conduct an experiment to show that more air will keep a candle burning for a longer time. She lit a candle and put it into the container as shown. She covered the container. She measured the time taken for the candle to stop burning and repeated the experiment three times.



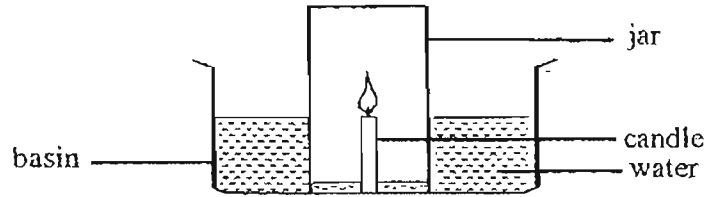
Which of the following variables should she keep the same?

- A: Size and type of the candles used
- B: Size of the sealed containers used
- C: Time taken for the candles to stop burning

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

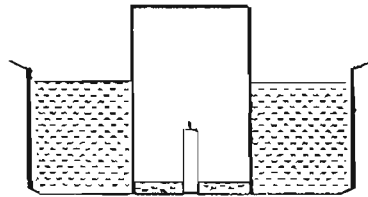
( )

23. Joel set up the following experiment.

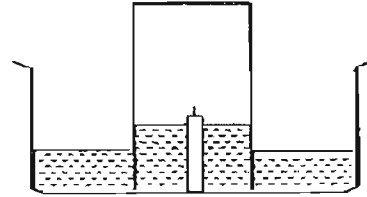


Which diagram shows what happened to the set-up at the end of the experiment?

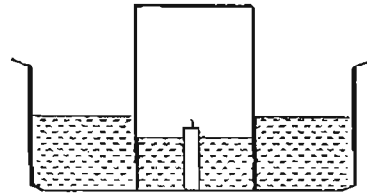
(1)



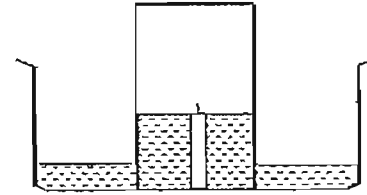
(2)



(3)

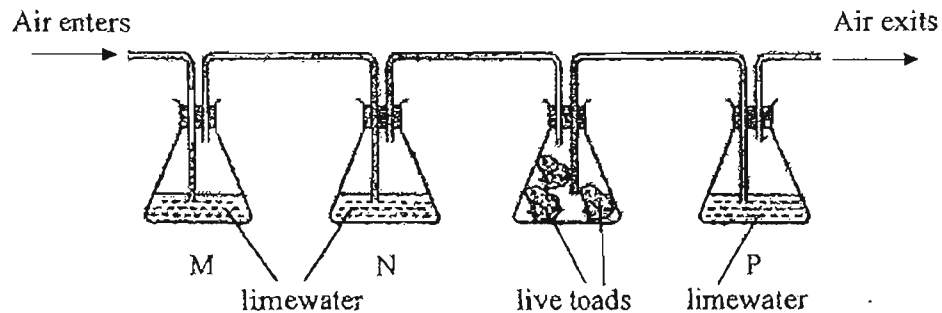


(4)



( )

24. Steffy set up an experiment as shown below. Air entered from one side of the set-up and travelled through the four beakers.



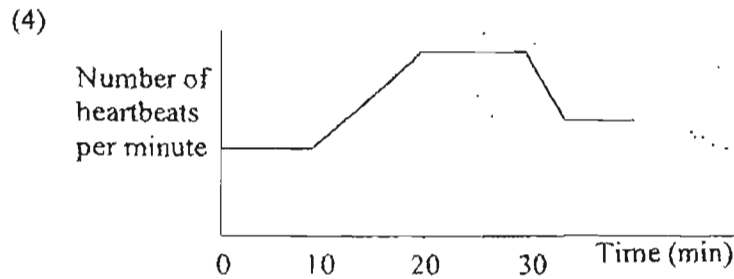
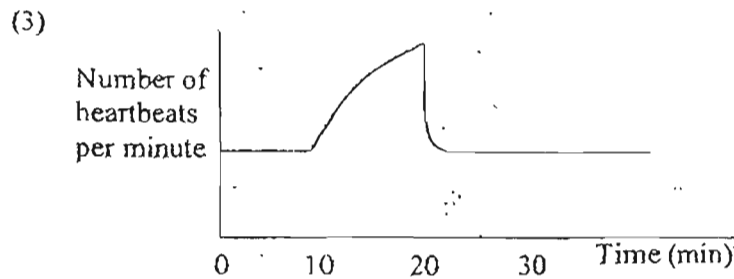
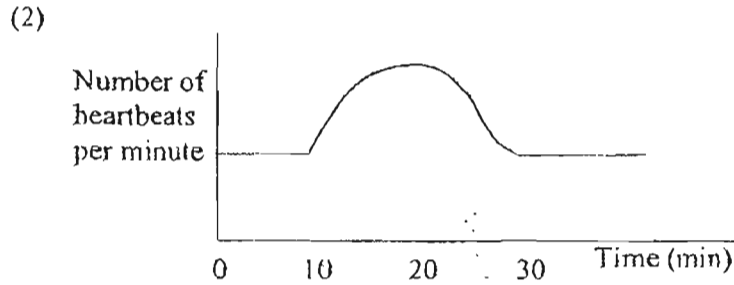
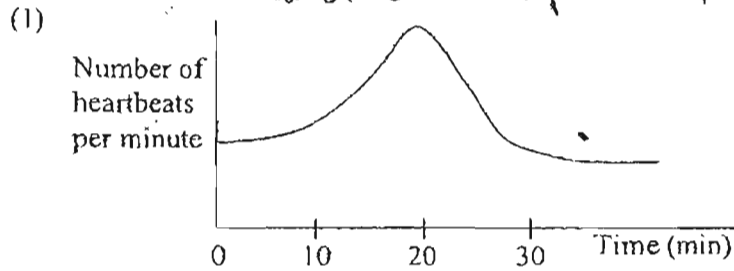
In which beaker(s) will the limewater turn chalky after some time?

- (1) Beaker N only
- (2) Beaker P only
- (3) Beakers M and N only
- (4) Beakers N and P only

( )

25. Henry walked briskly for 10 minutes from his home to a field. Then, he ran very fast for another 10 minutes, before walking home slowly. Which of the following graphs best shows his pulse rate during his journey?

*number of heartbeats per minute*



( )

For Questions 26 to 30, please refer to Booklet K.

End of Section A

Science  
Primary 4

Name : \_\_\_\_\_ ( )

Date : 8 May 2007

Class : Pri. 4 ( )

Parent's Signature : \_\_\_\_\_

Science Teacher : \_\_\_\_\_

Time : 1 hr 30 min

Marks for Section A	60
Marks for Section B	30
Marks for Booklet K (exclude Section A Qns. 26 to 30)	10
Total Marks	100

**Section B (30 marks)**

For questions 31 to 42, write your answers in the spaces provided.

31. Look at the following diagram.



adult cockroach



cockroach nymph

- a) Based on the diagram, what is one difference between the adult cockroach and the cockroach nymph? (Do not compare their sizes.) (1 m)

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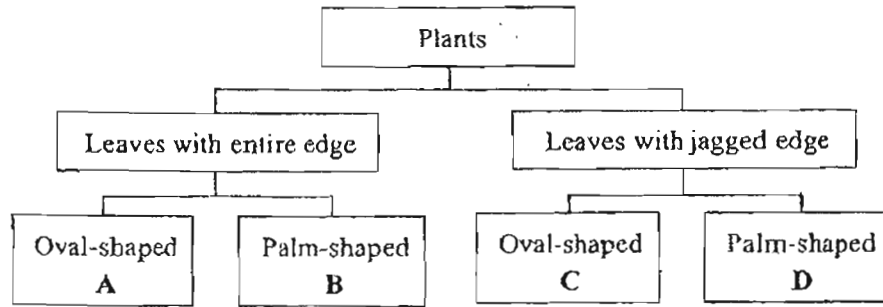


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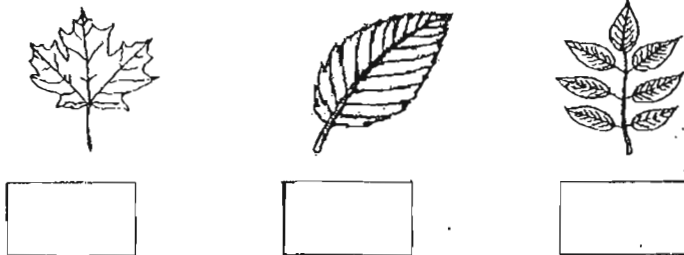
- b) Name the process that the cockroach nymph goes through before it becomes an adult. (1 m)

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32. Study the classification chart below.



a) In which group would you place the leaves of the three different plants below? Write A, B, C or D in the boxes below. (1½ m)



b) Based on the classification chart, what are the characteristics of plant B? (1 m)

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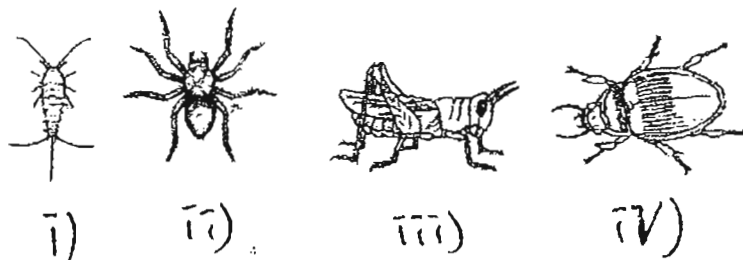
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33. The diagram below shows the three body parts of an insect.

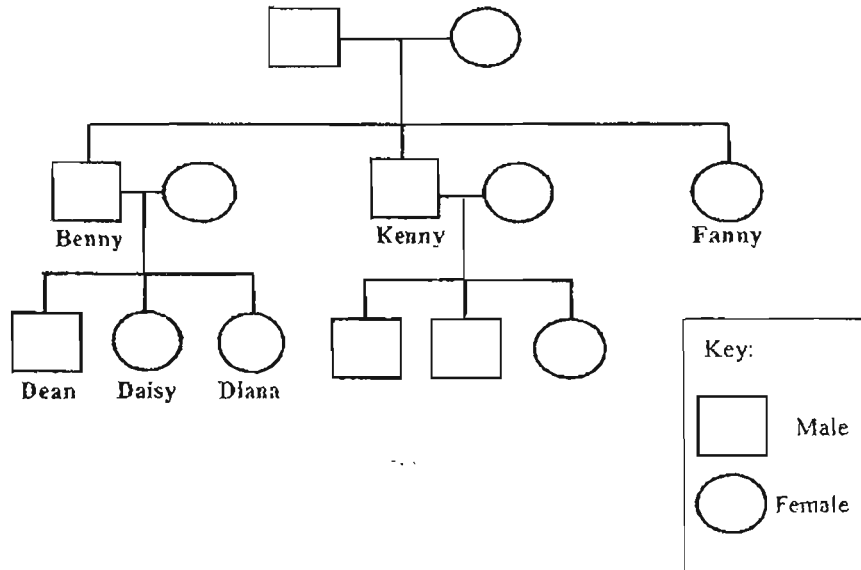


a) Draw the legs of the insect on the diagram above. (1 m)

b) Look at the following diagrams carefully. Circle the insects. (1 m)



34. Study Dean's family tree below.

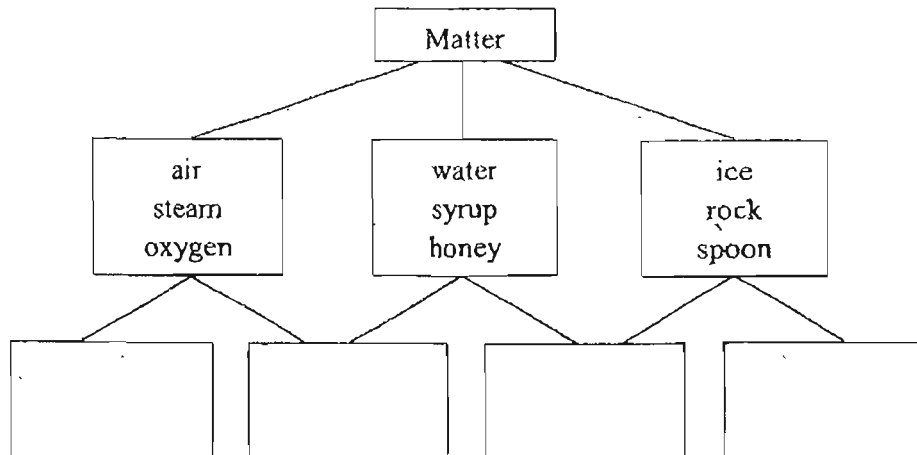


Put a tick (✓) in the correct boxes against the following statements.

(2 m)

Statement	True	False	Not possible to tell
Diana has two sisters.			
Daisy has three cousins.			
Kenny is older than Dean, Diana and Daisy.			
Dean's grandparents have two daughters.			

35. The diagram below shows some examples of the three groups of matter.

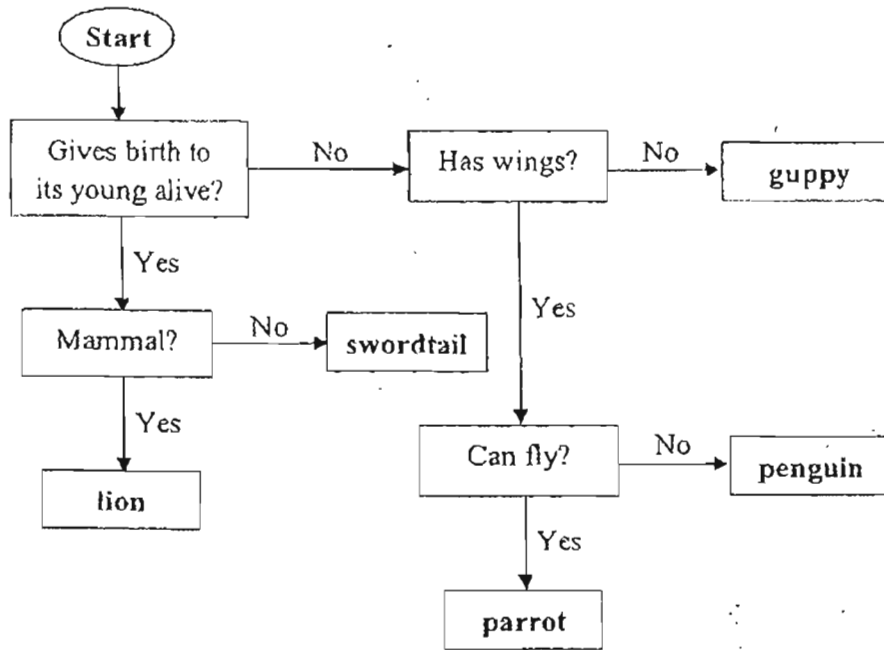


Fill in each box with the correct property that describes the matching state(s) of matter.

(2 m)



36. Study the following flow chart which describes different animals.



a) Which of the above animals is wrongly classified? Why? (2 m)

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b) Based on the flowchart above, write down the characteristics of the parrot. (1½ m)

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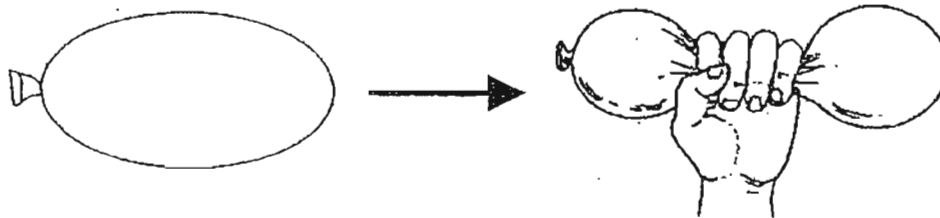


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c) How does a swordtail reproduce? (1 m)

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37. Meili received a balloon from her friend. The diagram below shows what happened to the balloon when she squeezed it.



a) What does this show about air?

(1 m)

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b) Tom noticed that the water level in the bathtub rose when he got into the water. Why did the water level rise?

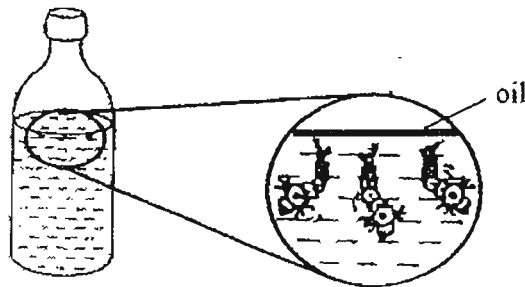
(1 m)



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38. Mrs Fatimah poured some cooking oil into a bottle of water with some wigglers in it.



a) What would Mrs Fatimah observe after 3 days?

(1 m)

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b) Explain your answer in (a).

(1 m)

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39. Cynthia puts ticks (✓) against the characteristics that her hamsters had and crosses (✗) for those they did not have.

Characteristic	Cynthia's hamsters					
	Allyham	Billyham	Collyham	Dillyham	Easyham	Fillyham
Short tail	✓	✗	✓	✗	✓	✓
Furry tail	✓	✗	✓	✓	✓	✗
Short fur	✗	✗	✗	✓	✓	✗
Pointed ears	✓	✗	✗	✓	✓	✗
Curved claws	✓	✓	✓	✗	✗	✓
Single colour	✗	✓	✗	✗	✓	✓

- a) Cynthia placed her hamsters into two groups according to one of the characteristics.

Group P	Group Q
Allyham	Billyham
Dillyham	Collyham
Easyham	Fillyham

Which characteristic did she use to group the hamsters?

(1 m)

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- b) What was the difference between Billyham and Fillyham?

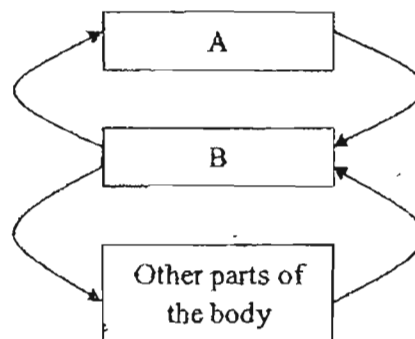
(1 m)

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40. The diagram below shows the circulatory system in our body,



a) Name the parts marked A and B. (1 m)

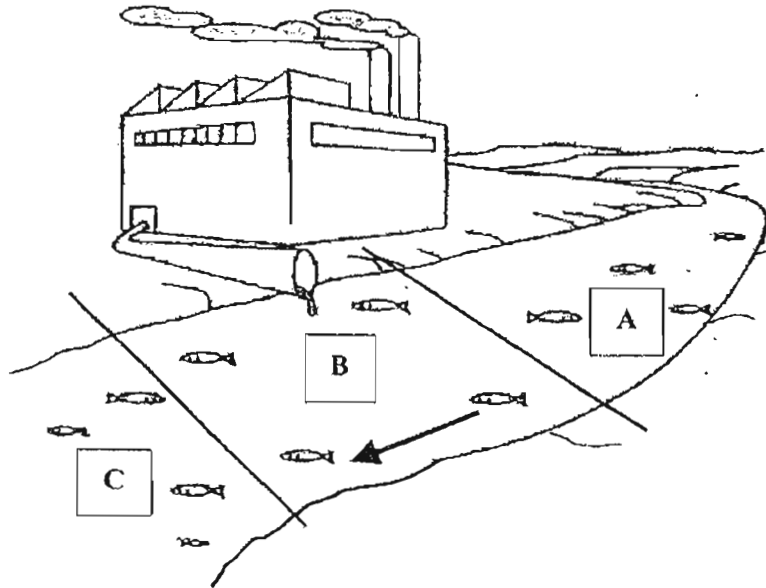
A: \_\_\_\_\_ B: \_\_\_\_\_

b) What is the difference between the blood entering the lungs and the blood leaving the lungs? (1 m)

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41. The diagram below shows a factory discharging harmful chemical waste into the river. The arrow shows the direction of the river flow.



a) Which part of the river, A, B or C, is the most polluted? (1 m)

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b) Which part of the river, A, B or C, will you find the most fish surviving? (1 m)

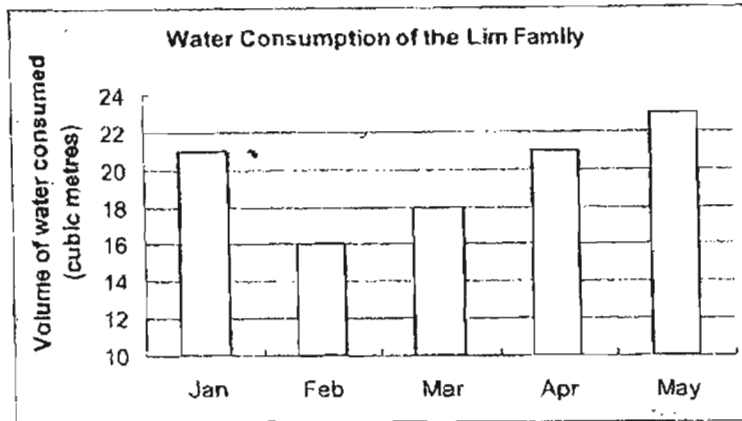
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c) Explain your answer in (b). (1 m)

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42. The bar graph below shows the water consumption of the Lim family for the months January to May 2007



a) In which month did the Lim family use the most water? (1 m)

\_\_\_\_\_

b) How much water did the Lim family use that month? (1 m)

\_\_\_\_\_

c) State whether the following statements about the water consumption of the Lim family are true or false. (1 m)

	True/ False
The Lim family consumed more and more water from January to May 2007.	
They consumed the least amount of water in February.	

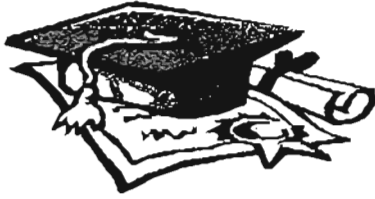
d) Tick against the boxes that show possible ways in which the Lim family can reduce their consumption of water. (1 m)

	Activities	Tick (✓)
i	Use a hose when washing the car.	
ii	Water the plants with a watering can.	
iii	Do not leave taps running unnecessarily.	

For Questions 43 to 46, please refer to Booklet K.

End of Paper

Set by : Ms Chua Hui Zhi  
 Vetted by: P4 Science Committee teachers



# ANSWER SHEET

PEI CHUN PRIMARY SCHOOL - PRIMARY 4 SCIENCE 2007  
SEMESTRAL ASSESSMENT (1)

- 1. 3
  - 2. 2
  - 3. 3
  - 4. 4
  - 5. 4
  - 6. 1
  - 7. 3
  - 8. 1
- The adult cockroach has wings  
but the cockroach nymph does  
have wings.
- b) Molting
- 32) a) D, C, B, A  
b) Plant B is a palm-shaped leaf  
with an entire edge.

10. 3      33) a)      b) i, ii, iv



- 11. 3
  - 12. 3
  - 13. 4
  - 14. 2
  - 15. 2
  - 16. 4
  - 17. 2
  - 18. 2
  - 19. 2
  - 20. 2
  - 21. 1
- 34) False  
True  
False

- 22. 1
  - 23. 3
  - 24. 2
  - 25. 1
- 35) no definite volume  
no definite shape  
definite volume  
definite shape
- 36) a) the guppy. what says that  
guppies do not give birth to their young alive, but  
guppies do give birth to their young alive.  
b) parrot has wings, can fly and  
does not give birth to its young alive.  
c) It gives birth to its young alive.

37) a) Air can be compressed.

b) When Tom stepped into the bathtub, he occupied the space the water needed to maintain the same water level, causing the water level to rise.

38) a) The wriggler would be dead.

b) The layer of cooking prevents the wrigglers from getting the oxygen they needed.

39) a) The pointed ears. The hamsters of Group P have pointed ears but the hamsters of Group Q do not have pointed ears.

b) Fishy ham has a short tail but Billy ham does not have a short tail.

40) a) lung b) heart

c) The blood entering the lungs contains little oxygen but the blood leaving the lungs contains a lot of oxygen.

41) C and A

Because the harmful chemicals get washed into the river, the flow of water carries it downstream to locations B and C. As location A is upstream, it is least affected by the harmful chemicals the factory discharge.

42) a) May

b) 23m<sup>3</sup>

c) False

True

d) ii, iii