



南洋小学
NANYANG PRIMARY SCHOOL

PRIMARY 4 SCIENCE
SEMESTRAL ASSESSMENT 1
2007

BOOKLET A

Date : 7th May

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 4 _____

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Parent's signature: _____

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FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet A consists of 16 printed pages including this cover page.

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 provided.**

1. Which one of the following is not matter?

- (1) Cat
- (2) Light
- (3) Bread
- (4) Football

2. The table describes substances A and B.

Substance A	Substance B
Takes the shape of the container	Takes the shape of the container
Can be compressed	Cannot be compressed

Based on the information above, what can we say about substances A and B?

- (1) Both have a definite volume
- (2) Both have no definite volume
- (3) Substance A is most likely a liquid and substance B is a gas
- (4) Substance A is most likely a gas and substance B is a liquid

3. Jenna classifies 6 objects into 2 groups as shown below.

Group A	Group B
Basketball	Hot tea
Plastic Mug	Kerosene
Running Shoes	Ice Lemon Tea

What common property do the objects in Group A have that the items in Group B do not have?

- (1) They occupy space.
- (2) They have definite shape.
- (3) They can be compressed.
- (4) They have definite volume.

4. Which of the following are harmful results of oil spills in seas?

- A. Aquatic animals are poisoned.
- B. Aquatic animals change their diet.
- C. Aquatic animals are unable to breathe.
- D. Aquatic Animals may be covered by the oil affecting their movements.

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

5. Recent newspaper articles reported that the deforestation and heavy rain situation in Sumatra had led to the death of many aquatic animals in the nearby rivers. The diagram below shows the situation of deforestation and heavy rain.



Which of the following is a possible reason for the death of aquatic animals?

- (1) There was an increase in competition for food.
- (2) There was a change in eating habits of the forest animals.
- (3) The aquatic animals were unable to get food from the forest.
- (4) The plants in the river were affected by the deforestation.

6. Which of the following are uses of water?

- A. Drinking
- B. Transporting people
- C. Cleaning of public toilets
- D. Playing a game of water polo

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

7. Waste water in a city was collected and treated in water treatment plants before being released into the seas. The population in the city remained the same from 1990 to 2006. The table shows the amount of treated water released into the sea in 1990 and 2006 respectively.

Year	Amount of waste water collected (litres)	Amount of treated water released back to sea (litres)
1990	80000	70000
2006	90000	64000

Which of the following is a possible reason to explain why less treated water was released back into the sea in 2006?

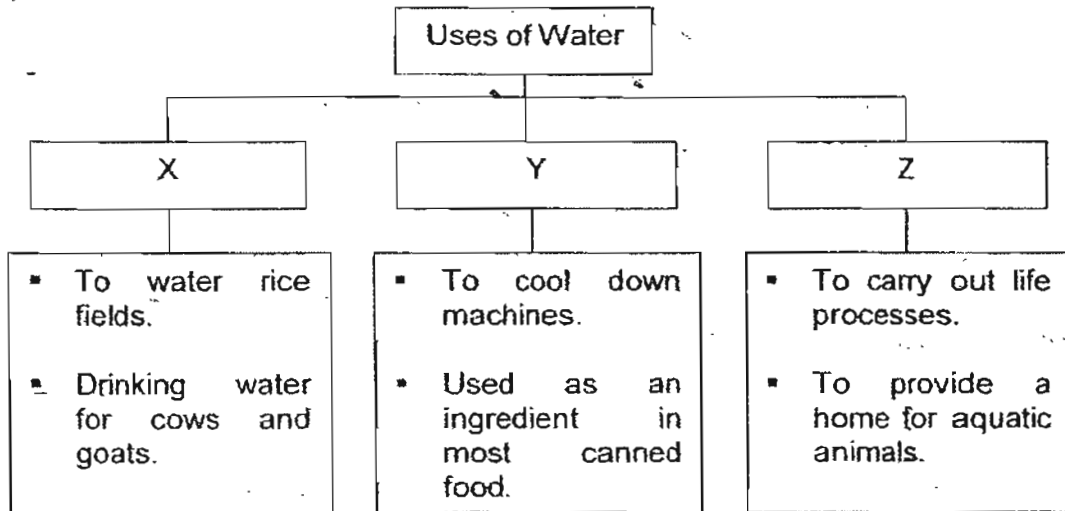
- (1) Fresh water consumption in 2006 was lower.
- (2) More canals were dug for water to flow into the sea.
- (3) A fine was imposed for using too much fresh water in 2006.
- (4) More factories were using treated water to cool machines in 2006

8. Which of the following are good habits for conserving water?

- A. Taking frequent baths.
- B. Using a basin of water to wash cutleries.
- C. Using the half flush button at the toilet whenever possible.
- D. Making use of the car wash service at the petrol kiosk if possible.


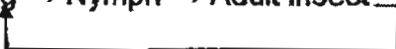


- (1) A and C only
- (2) B and C only
- (3) A, B and D only
- (4) A, C and D only

9. The classification table below shows the uses of water in 3 main ways X, Y and Z.



Which one of the following are suitable headings for ^X P, ^Y Q and ^Z R?

	X	Y	Z
(1)	In farming	By animals	By plants
(2)	In factory	In farming	By plants
(3)	In farming	In factory	By animals
(4)	In factory	In farming	By animals

10. Which of the following statements explains why it is important for animals to have young?
- (1) The young look like their parents.
 - (2) The parents help the young to look for food.
 - (3) All old animals are looked after by their young.
 - (4) There will always be living things of the same kind around.
11. Which of the following pairs of living things have a 4-stage life cycle?
- (1) Mayfly and Dragonfly
 - (2) Butterfly and Mosquito
 - (3) Frog and Grasshopper
 - (4) Cockroach and Housefly
12. Which of the following examples show that characteristics can be passed on from parent to young?
- A. A bean seed will grow into a young bean plant.
 - B. A child having the same eye colour as his parent.
 - C. The young having the same life cycle as their parents.
- (1) B only
 - (2) B and C only
 - (3) A and B only
 - (4) A, B and C
13. Which one of the following correctly shows the life cycle of a butterfly in the correct sequence?
- (1) Adult insect → Egg → Nymph 
 - (2) Egg → Nymph → Adult insect 
 - (3) Adult insect → Egg → Pupa → Larva 
 - (4) Egg → Larva → Pupa → Adult insect 

14. Study the diagram below.



Which of the following correctly shows the stages of the life cycle of a plant in the correct order?

(1) A → B → C → D

(2) B → A → D → C

(3) C → D → B → A

(4) D → B → C → A

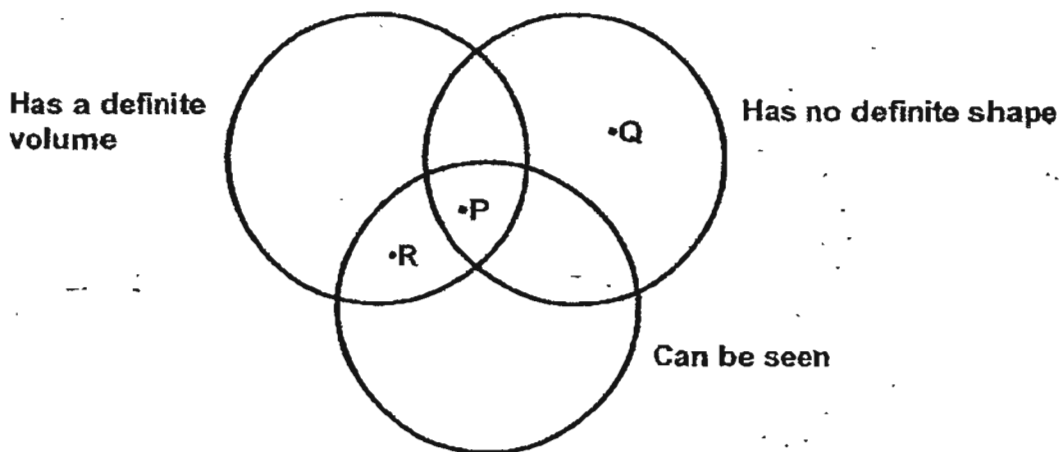
17. The table below shows the melting points and boiling points of substances A, B, C and D.

Substance	Melting point(°C)	Boiling point (°C)
A	45	92
B	63	112
C	-8	24
D	0	100

At room temperature (30°C), which one of the following observation(s) is/are correct?

- (1) Substance D is in the solid state.
- (2) Substances A and B are in the solid state.
- (3) Substances C and D are in the liquid state.
- (4) Substances A, B and D are in the gaseous state.

18. Study the Venn diagram below.



Which of these options are likely to be P, Q and R?

	P	Q	R
(X)	dew	nitrogen	heat
(Z)	milk	stone	carbon dioxide
(X)	honey	water vapour	flour
(4)	oxygen	sand	oil

21. Jane filled a plastic transparent water bottle to the brim with water. She then placed it in the freezer. Two days later, she took it out and she made some observations. Which of the following are her observations?

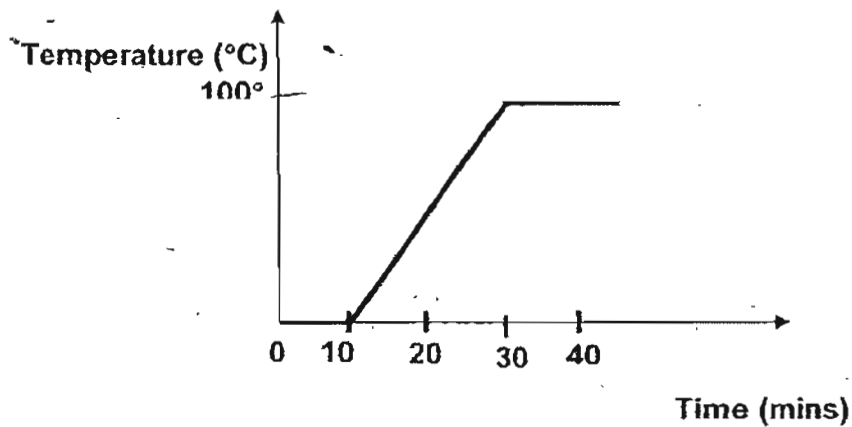
- A. The water has turned to ice.
- B. Only some of the water is left.
- C. The bottle appears slightly larger
- D. There was an increase in the mass of the water.

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

22. Sally was told to list the differences between the freezing and evaporation of water. In which of the following comparisons has she made a mistake?

	Evaporation	Freezing
(1)	No heat is needed.	Heat is needed
(2)	Heat is gained by the water.	Heat is lost by the water.
(3)	Takes place at any temperature.	Takes place at a fixed temperature.
(4)	Changes from a liquid to a gas.	Changes from a liquid to a solid.

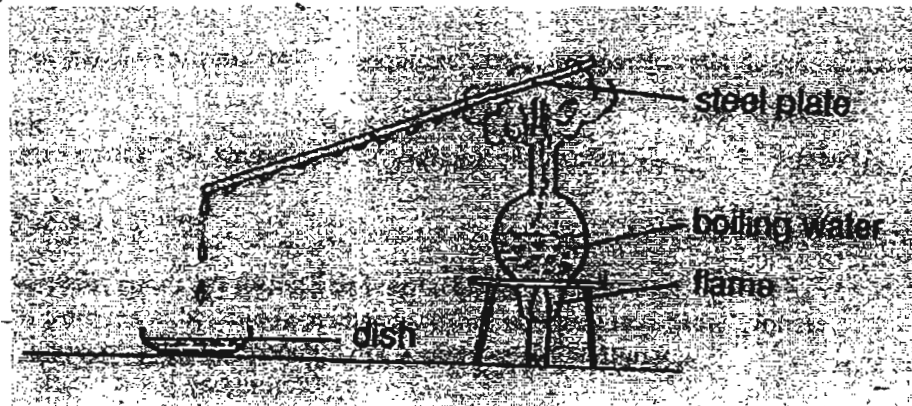
25. A beaker of ice cubes was heated for 40 minutes until there was no more water left in the beaker. The graph below shows the temperature changes of the content in the beaker against time.



What was the state of matter found in the beaker at the 20th and 35th minute?

	At the 10 th minute	At the 35 th minute
(1)	Solid only	Liquid only
(2)	Liquid only	Gas only
(3)	Solid only	Liquid and gas
(4)	Liquid only	Liquid and gas

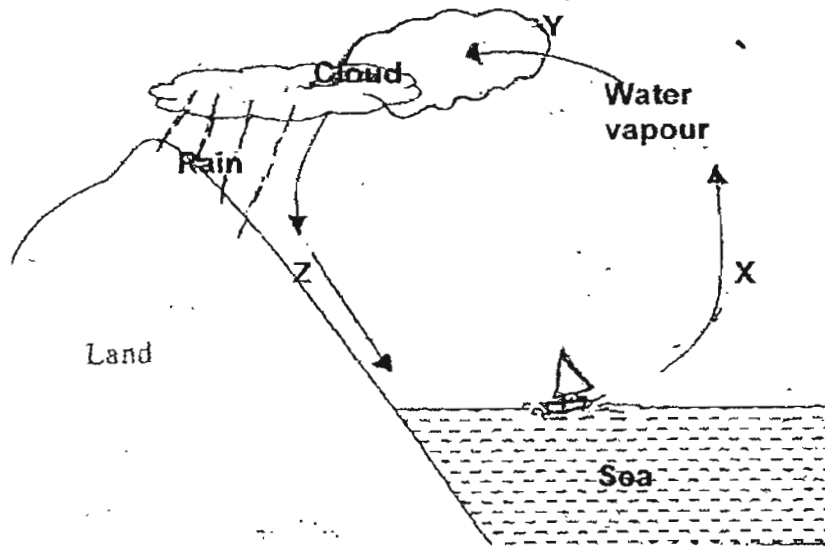
26. Sarah boiled 300ml of water over a Bunsen burner as shown in the set-up below.



After 20 minutes, although there was some water in the flask, she found that no water was dripping into the dish. What could be the possible reason?

- (1) Water has evaporated from the dish.
- (2) The rate of condensation has increased.
- (3) The steel plate has become colder than before.
- (4) The steel plate has become hotter than before.

The diagram below shows the water cycle. Study it carefully and then answer Questions 27 and 28.



27. In which of the following processes, X, Y or Z is there a change in the state of water from a gas to a liquid?

- A. X
- B. Y
- C. Z

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

28. When there is an increase in the humidity in the air and the temperature is low, which of the following statement(s) correctly describe(s) how processes X and Y would be affected?

- A. Process X would happen at a slower rate.
- B. Process Y would happen at a faster rate.
- C. Both processes would happen at a slower rate.
- D. Both processes would happen at a faster rate.

- (1) A only
- (3) C only

- (2) D only
- (4) A and C only

29. During a Science lesson, Lisa, Muthu, Xiaoming and Jonathan made these comments about the water cycle.

Lisa: Clouds are made of water vapour.

Muthu: The sun provides heat energy for evaporation to occur.

Xiaoming: The water cycle is important to all animals and plants.

Jonathan: Snow may be formed in the sky if the temperature is very low.

Who has made the wrong statement?

(1) Lisa

(2) Muthu

(3) Xiaoming

(4) Jonathan

30. Which of these activities help to contribute water vapour to the water cycle?

A. People exhaling.

B. Animals perspiring.

C. Drying hair with a hair dryer

D. Hanging wet clothes out to dry.

(1) A and B only

(2) B and C only

(3) A, B and C only

(4) A, B, C and D only



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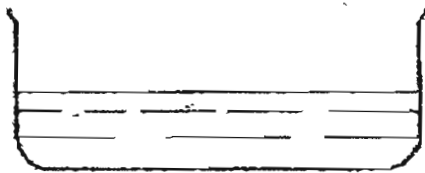
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
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Booklet B consists of 16 printed pages including this cover page.

Section B (40 marks)

Write your answers to questions 31 to 46 in the spaces provided.
Marks will be deducted for misspelt key words.

31. As water becomes more precious, many countries are building desalination plants to obtain fresh water.



Tub of seawater



Bowl



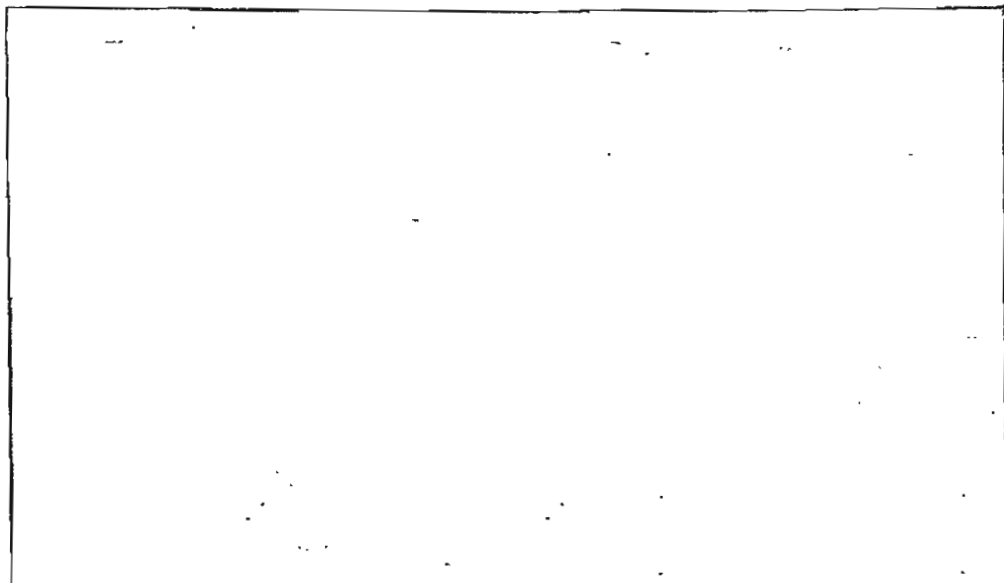
Coin

Plastic Sheet



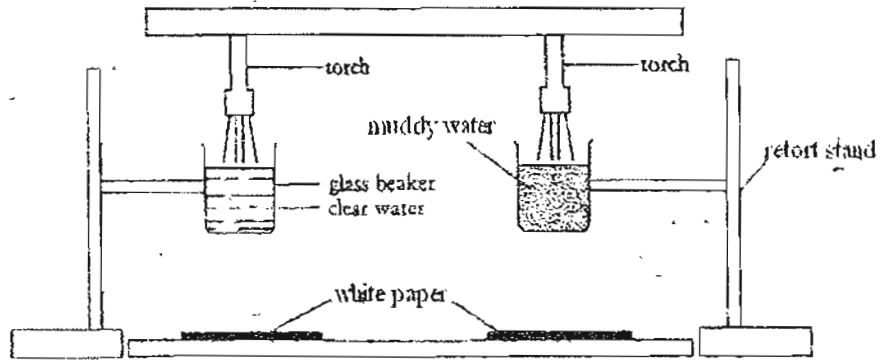
Side View of apparatus

- (a) With the given apparatus above, draw and label in the space provided below how fresh water can be obtained. (2 marks)



- (b) Name 2 processes that occur in your set-up when the sea water becomes fresh water. (1 mark)

32. Tommy set up the following experiment. He kept all the variables the same except the type of water.

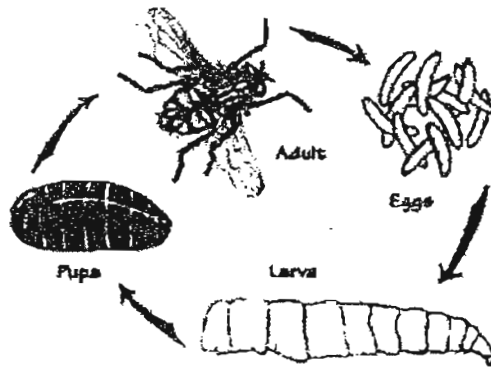


When the torches were switched on, Tommy noticed a bright patch of light on the piece of paper under the beaker of clear water. There was a grey shadow on the piece of paper under the beaker of muddy water.

- (a) What can Tommy conclude from the experiment? (1 mark)

- (b) Explain why submerged waters plants could not grow well in muddy water? (1 mark)

33. The diagram below shows the life cycle of a housefly.



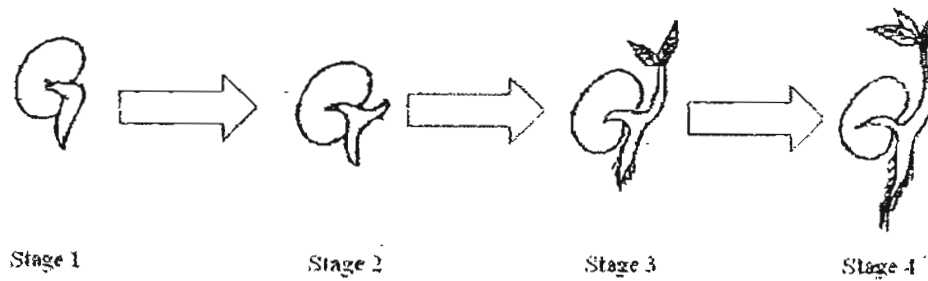
Mary saw some eggs and larvae of the housefly on a dead rat.

(a) Why did the houseflies lay its eggs on the dead rat? (1 mark)

(b) At which stage(s) does/do the housefly undergo moulting? (1 mark)

(c) The housefly will not feed during stage(s) _____ (1mark)

34. The diagram below shows how a seed develops into a young seedling .



(a) During stages 1 and 2, where does the seedling get its food from? (1 mark)

(b) Name 2 conditions necessary for the seed to germinate. (1 mark)

(c) At which stage(s) would the seed be able to **start** making its own food. Explain your choice. (2 marks)

35. The following table contains information about insects X and Y.

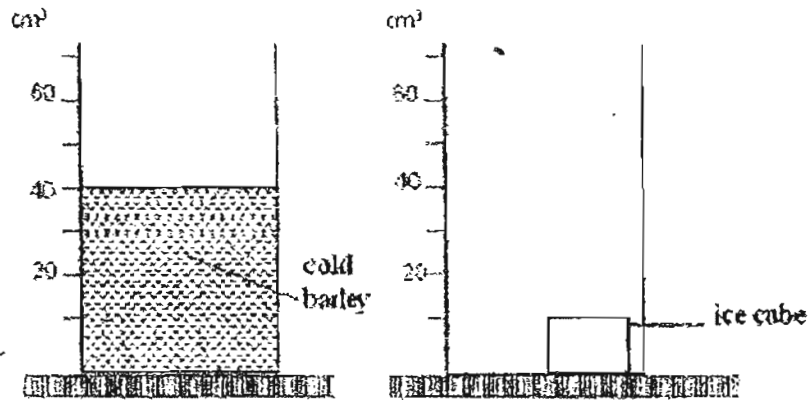
	Insect X	Insect Y
Quantity of eggs	8	8
Diet	Grass	Grass
Number of stages in its cycle	3	4
Number of days for it to develop from an egg into an adult.	8	6

Equal number of eggs of insect X and Y were placed in a tank. There was also enough grass, air and water for the adults for ten days. All the eggs hatched and none of the insects could escape from the tank.

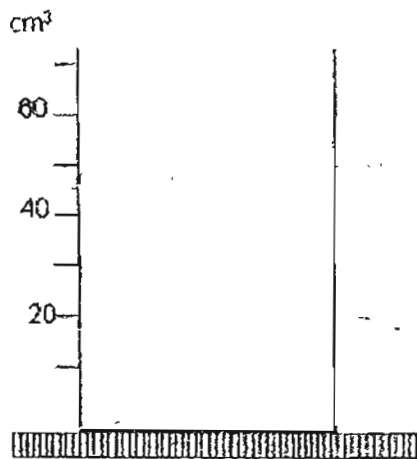
- (a) Which insect has more adults at the end of 10 days? (1 mark)

- (b) Give an example of an insect with a life cycle of 3 stages. (1 mark)

36. Michael poured a beaker of cold barley into a beaker containing one ice cube.

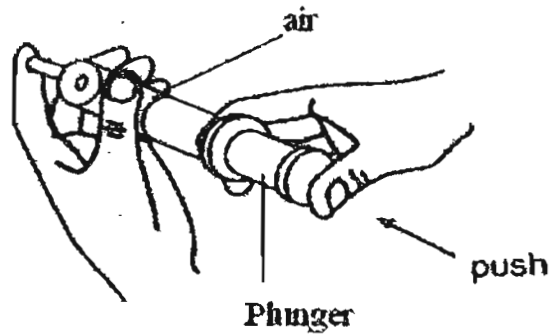


- (a) Draw in the beaker provided below the correct position of the ice cube after cold barley is added. (1 mark)



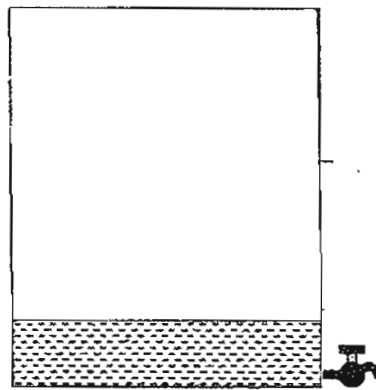
- (b) Explain his observation in (a). (1 mark)

37. Tommy conducted an experiment. Using an empty syringe, he placed his finger tightly against the tip and pushed the plunger.



- (a) What would Tommy observed if he continues to push the plunger. Explain his observation. (1 mark)

The diagram below shows a container with a tap.



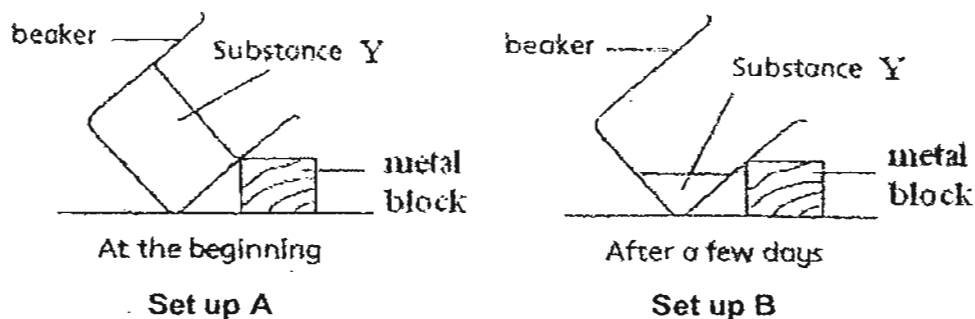
The volume of the container was 500 cm^3 and it contained 100 cm^3 of water.

- (b) When the tap was turned on, 50 cm^3 of water flowed out before the tap was turned off. What is the volume of the air in the container after the water has flowed out?

_____ cm^3

(1 mark)

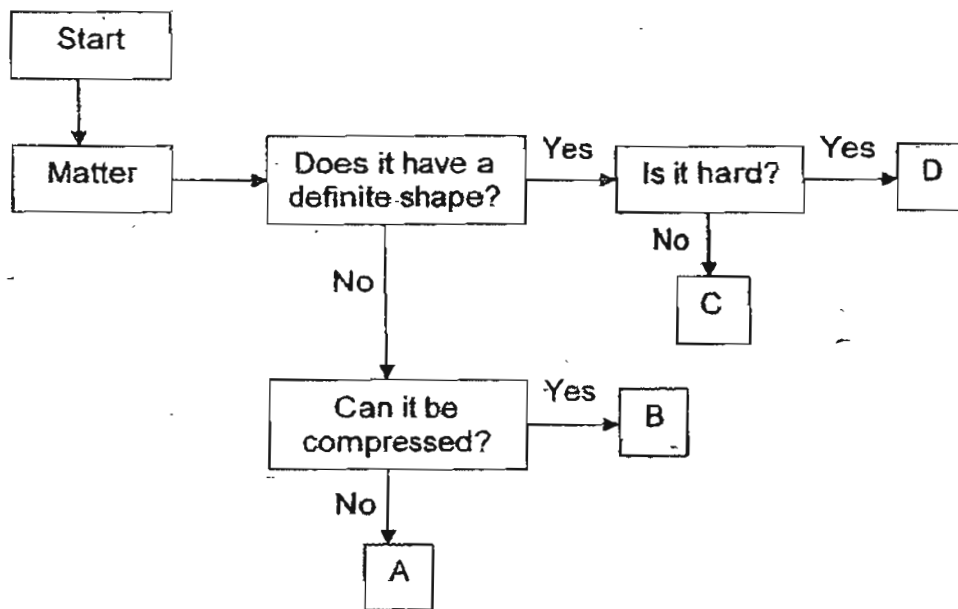
38. The diagram below shows what happens to substance Y at the beginning and after a few days.



- (a) What processes have taken place in the above set-ups to cause the change after a few days? (1 mark)

- (b) What is the state of matter of substance Y at the beginning stage? (1 mark)

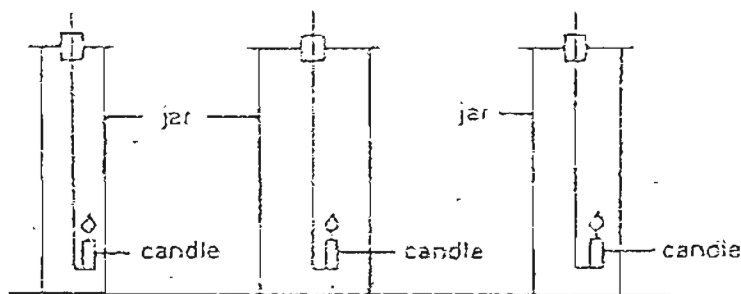
39. The flow chart below shows the properties of 5 substances A, B, C and D.



Based on the flow chart above, identify the following substances by writing the letters A, B, C or D in the brackets provided. (2 marks)

- (a) Iron rod ()
(b) Cooking oil ()
(c) Cotton wool ()
(d) Water vapour ()

40. Samy put 3 similar candles into 3 different jars as shown in the set-ups below.



He noted the time taken by each candle to go off and recorded them in the table shown below.

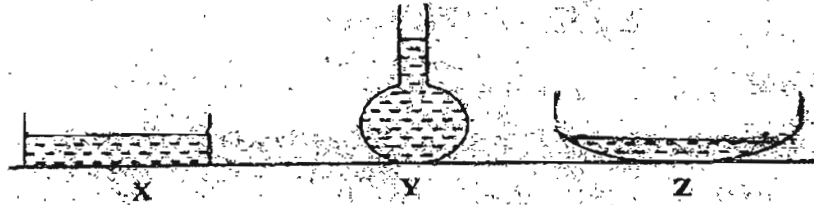
Put a tick (✓) in the correct boxes to indicate which variable(s) must be changed or kept the same so as to ensure a fair test. (2 marks)

Variables	Changed	Kept the same
i) Size of candles		
ii) Size of jar		
iii) Material of jar		

41. The table below lists water in its different states when it interacts with its surroundings. Put a tick (✓) to show whether heat is gained or lost by the water to its surrounding during each process: (2 marks)

	States of water	Heat gained	Heat lost
(a)	Snow falling on the ground in winter.		
(b)	A puddle of rain water under the sun.		
(c)	Air bubbles rising to the surface of a pot of hot soup.		
(d)	Dew forming on the surface of leaves.		

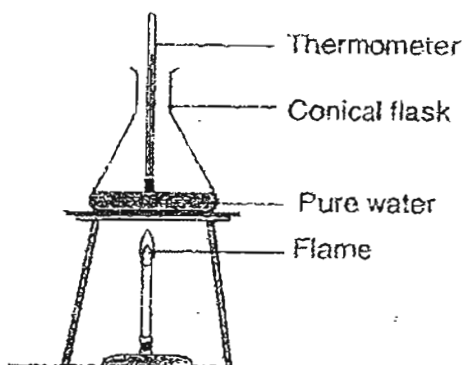
42. Susan conducted an experiment using the set-up as shown below. She filled three containers, X, Y and Z with 200ml of water each. Then she placed the containers in a windy place. After 3 hours, she measured the amount of water left in each container.



Below are 3 sentences based on her results. Indicate whether each of the statements is **True**, **Not True** or **Not possible to tell** by putting a tick (✓) in the correct box. (3 marks)

Statements	True	Not True	Not possible to tell
(1) There is less water left in X than in Y after 3 mins.			
(2) There is no more water left in Z.			
(3) The water in Y evaporates the slowest			

43. Liming carried out an experiment as shown in the set-up below.



She filled a conical flask with 150ml of water and allowed it to boil and noted its temperature. Next she added 5g of salt into the water and again measured its temperature when the water boiled. She repeated the experiment using different amount of salt. Then she recorded the results in the table shown below.

Amount of salt added (g)	0	5	15	20
Temperature at which water boils ($^{\circ}\text{C}$)	100	101	104	105

- (a) What was Liming trying to find out in the above experiment? (1 mark)

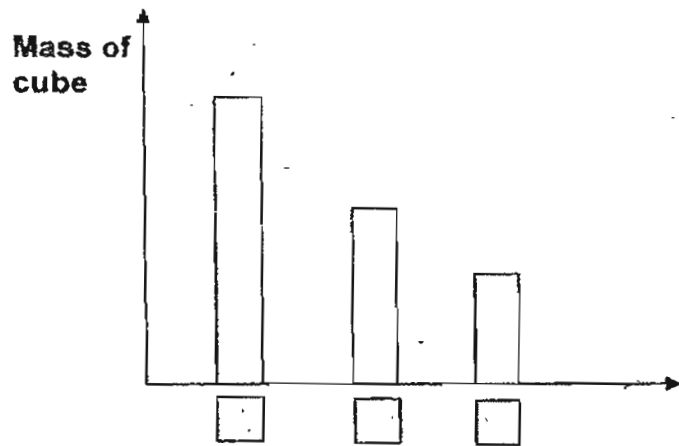
- (b) What was the relationship between the amount of salt added and the boiling point of the water? (1 mark)

- (c) What would be left in the conical flask if Liming continued to heat the solution until it dried up? (1 mark)

44. Marian uses a weighing balance to compare the masses of 3 similar cubes P, Q and R which are made of different materials as shown in the diagrams below.



After finding the mass of each cube, she then recorded the results in the graph shown below.



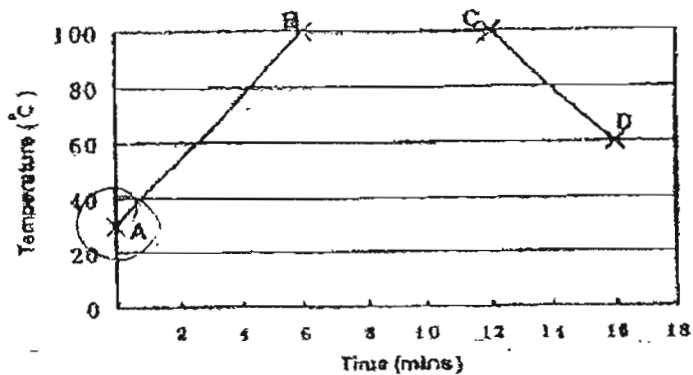
- (a) Write the letters P, Q and R in the correct boxes to name each cube in the graph above. (1 mark)
- (b) If the cubes were made of wood, Styrofoam or iron, identify each cube by filling in the correct letters, P, Q or R in the table below. (1mark)

	Cube	Material it is made of
(i)		Wood
(ii)		Styrofoam
(iii)		Iron

45. Complete the table below to show one function for each of the parts of a plant. (2 marks)

	Plant part	Function
(a)	Stem	
(b)	Leaves	

46. Jenny heated some water at room temperature in a beaker until it boiled. It was left on the kitchen table to cool. She recorded her results in the graph as shown below.



- (a) For how long was the water boiling? (1mark)

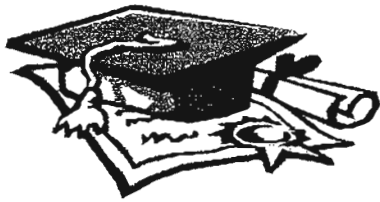
- (b) Which part of the graph shows that water was gaining heat? (1mark)

- (c) What could Jenny have done to the beaker of water at point C for the temperature to fall to D? (1 mark)

- (d) If the water was left on the table for another 2 hours, what would be its final temperature? (1 mark)

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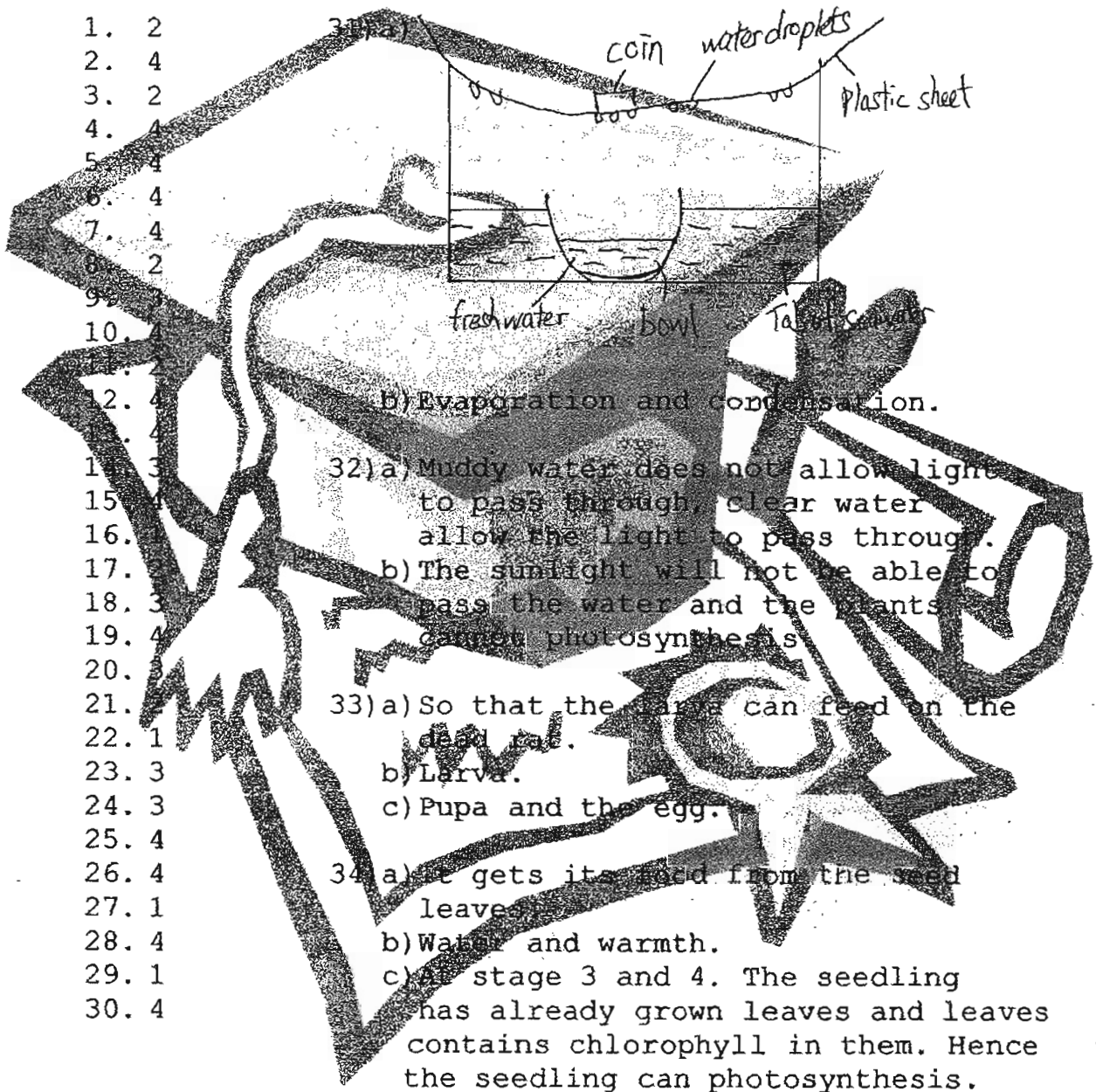
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ANSWER SHEET

NANYANG PRIMARY SCHOOL - PRIMARY 4 SCIENCE 2007
SEMESTRAL ASSESSMENT (1)

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2. 4
3. 2
4. 4
5. 4
6. 4
7. 4
8. 2
9. 3
10. 2
11. 2
12. 4
13. 4
14. 3
15. 4
16. 3
17. 4
18. 3
19. 4
20. 3
21. 3
22. 1
23. 3
24. 3
25. 4
26. 4
27. 1
28. 4
29. 1
30. 4



- 35) a) Insect Y.
b) Grasshopper.

36) a)



b) The ice cube is lighter than the cold barley. Therefore, the ice floats.

37) a) The plunger can be slightly pushed in. Air can be compressed.

b) 450.

38) a) Melting and evaporation.
b) Solid state.

39) a) D b) A c) C d) B

40) i) Kept the same ii) Changed iii) Kept the same

41) a) Heat lost b) Heat gained
c) Heat lost d) Heat lost

42) 1) True 2) Not possible to tell 3) True

43) a) Whether the salt causes the water to boil above 100°C.

b) The more salt added, the higher the temperature at which water boils.

c) Salt particles.

44) a) R, P, Q b) i) P ii) Q iii) R

45) a) Transport minerals and water to other parts of the plant.

b) Makes food for the plant.

46) a) 6min b) AB c) She could add ice d) 30°C