



NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2012
PRIMARY 4

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.

Marks Obtained

Booklet A		/ 60
Booklet B		/ 40
Total		/100

Name: _____ (-) Class: P 4 _____

Date : 3 May 2012

Parent's Signature: _____

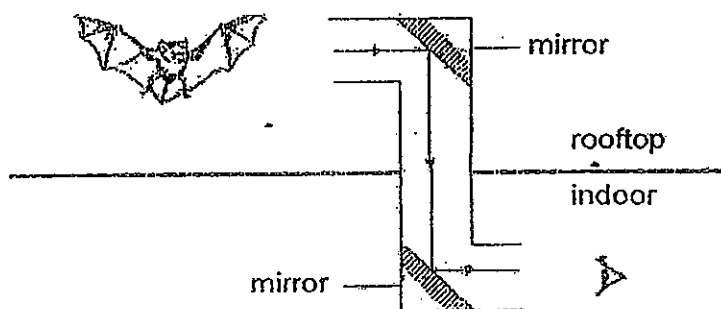
Section A: (30 x 2 marks = 60 marks)

For each question from 1 to 20, 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 one of the following group consists of light sources only?

- (1) Sun, star, lightning
- (2) Earth, mirror, lit oil lamp
- (3) Firefly, glow worms, caterpillar
- (4) Burning candle, moon, shining torch

2. The diagram below shows how a periscope helps Jason see the bat flying over his rooftop.

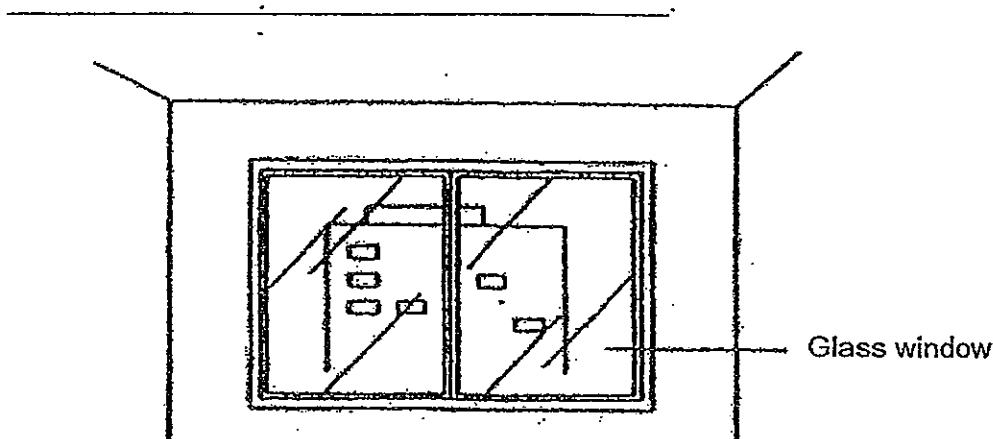


Based on the diagram above, which statements about light that allows Jason to see the bat through the periscope are correct?

- A Light is given out by all objects.
- B Light travels in a straight line.
- C Light can bend at corners.
- D Light rays can be reflected.

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

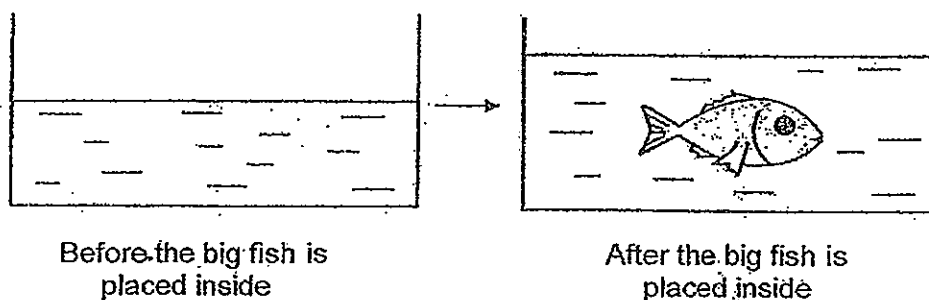
3. We are able to see objects outside a closed glass window because



- A the glass reflects light
- B the glass allows light to pass through it
- C the light that falls on the objects is reflected
- D the light from our eyes fall onto the objects

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

4. A tank is half-filled with water. When a big fish is placed into the tank, the water level rises. This experiment can be used to show one property of matter.



Which one of the following properties about matter does this experiment show?

- (1) Matter has mass.
- (2) Matter occupies space.
- (3) Matter has a definite shape.
- (4) Matter has no definite volume.

5. The table below shows the properties of three substances, X, Y and Z.

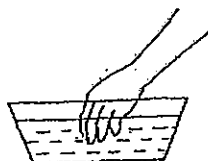
Properties	X	Y	Z
Has mass	✓	✓	✓
Has a definite shape	✓		
Has a definite volume	✓		✓

Which of the following substances above is/are a liquid(s)?

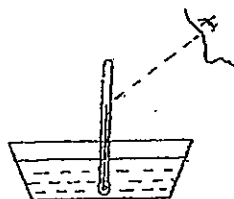
- (1) X only
- (2) Z only
- (3) X and Z only
- (4) Y and Z only

6. Which one of the following methods is an accurate measure of temperature?

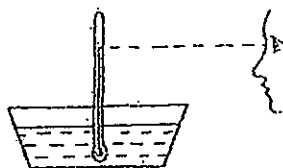
(1)



(2)



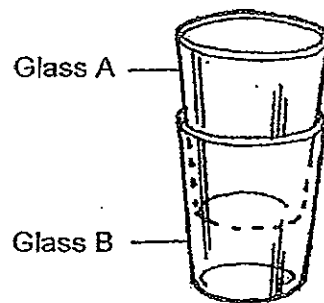
(3)



(4)



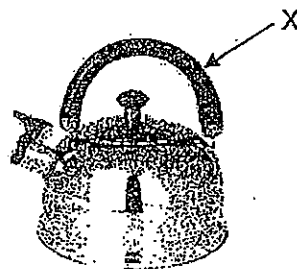
7. The two glasses as shown below are stuck to one another.



Which of the following is a good way to separate both glasses?

- (1) Put both glasses into a tub of ice.
- (2) Put both glasses into a tub of hot water.
- (3) Put ice into glass A and put glass B into a tub of hot water.
- (4) Put hot water into glass A and put glass B into a tub of ice.

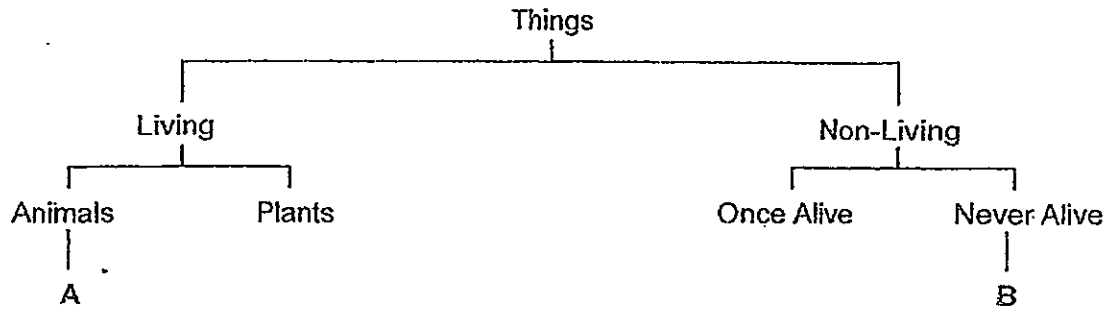
8. The diagram below shows a kettle.



Part 'X' is made of plastic because it is _____.

- (1) durable
- (2) flexible
- (3) waterproof
- (4) a poor conductor of heat

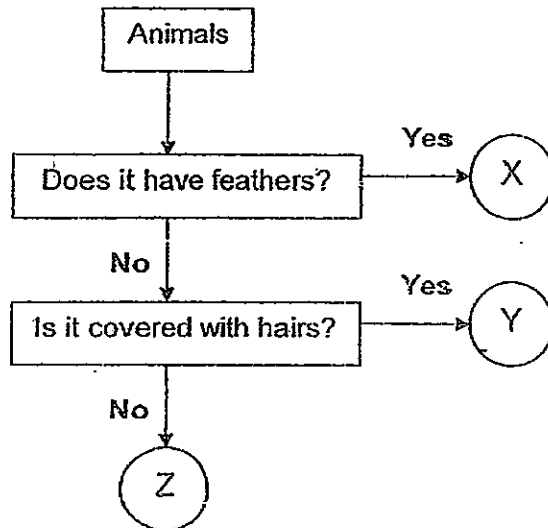
9. Study the classification table below.



Which of the following is most likely to represent A and B respectively?

	A	B
(1)	Hibiscus	Plastic ruler
(2)	Horse	Rubber gloves
(3)	Cat	Metal spoon
(4)	Tiger	Leather bag

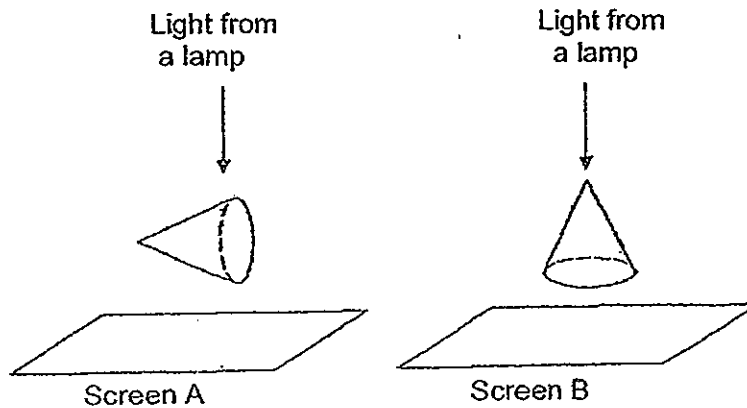
10. Study the flowchart below.



Which of the animals in the table below represent X, Y and Z correctly?

	Group X	Group Y	Group Z
(1)	Duck	Penguin	Guppy
(2)	Rooster	Cow	Swordfish
(3)	Seagull	Fish	Monkey
(4)	Parrot	Horse	Goose

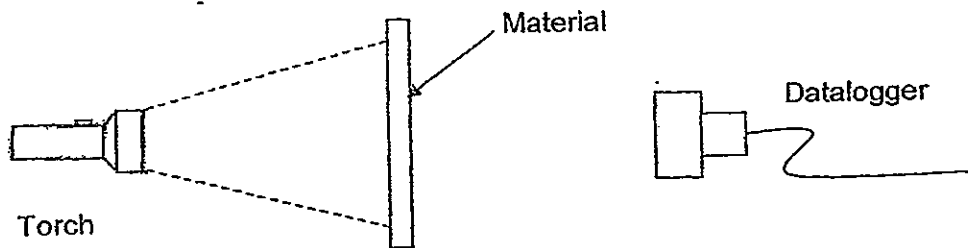
11. Jonnah planned to study the shadows formed by two identical metal cones. The cones were placed in different positions directly under identical light sources in a dark room. Shadows were formed on Screen A and B as shown below.



Which of the following shadows would be observed on the screens?

	Screen A	Screen B
(1)		
(2)		
(3)		
(4)		

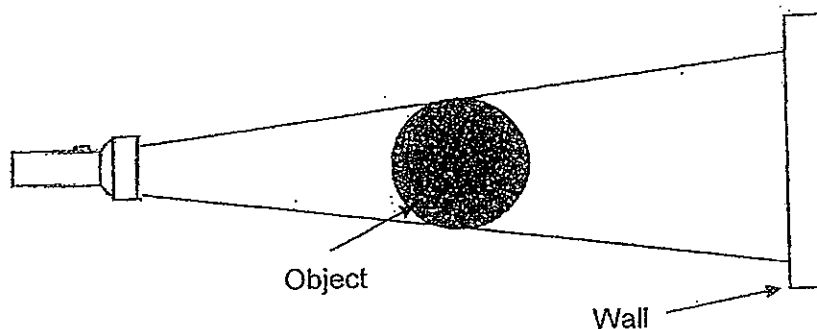
12. Linda conducted an experiment to find out how much light is allowed to pass through different materials. She set up an experiment as shown below.



First, she used Material A. Then she replaced it with Material B, followed by Material C. Which one of the following is the independent variable in this experiment?

- (1) Type of material
- (2) Width of material
- (3) Length of material
- (4) Thickness of material

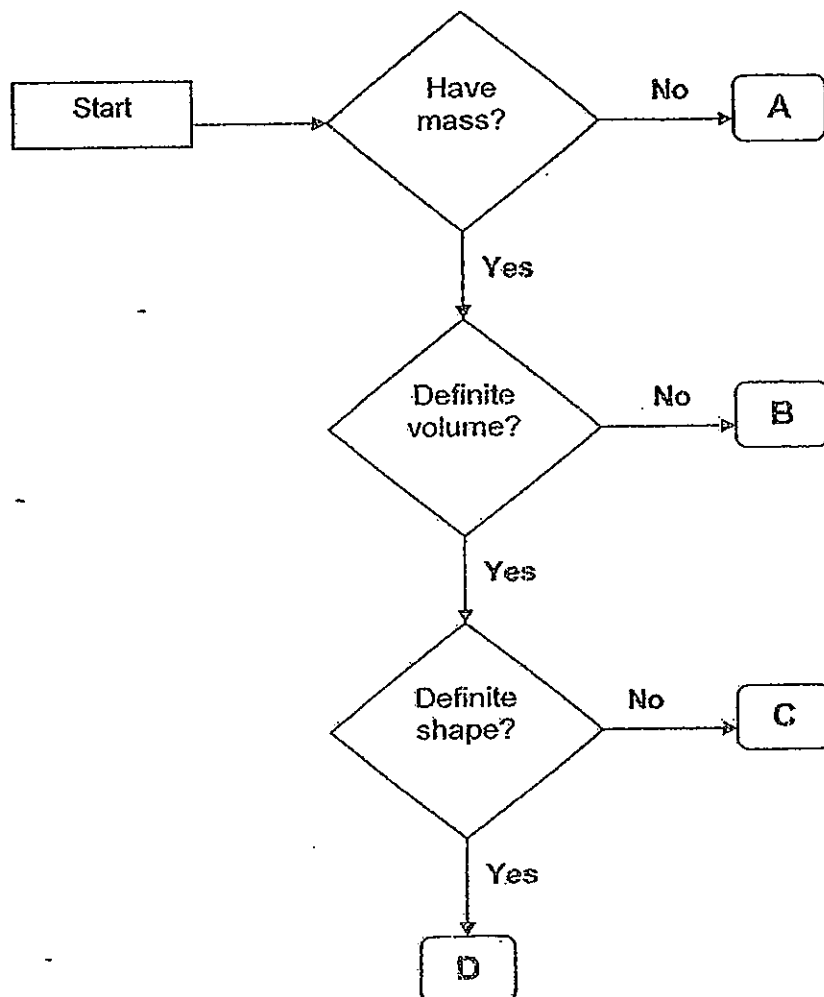
13. Samuel used a torch to cast a shadow of an object on a wall.



When the object is moved closer to the wall, the shadow formed is _____.

- (1) larger and sharper
- (2) larger and blurred
- (3) smaller and sharper
- (4) smaller and blurred

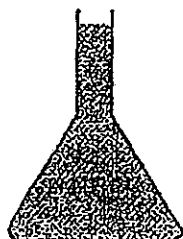
14. Study the flowchart below carefully. The flowchart is used to identify 4 items, A, B, C and D.



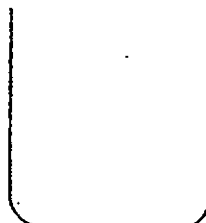
Which one of the following correctly identifies A, B, C and D?

	A	B	C	D
(1)	Radio	Ice	Water droplet	Candle
(2)	Fire	Juice	Water	Chair
(3)	Music	Water vapour	Petrol	Book
(4)	Sand	Sunlight	Juice	Computer

15. If all the water from Container A is poured into Container B, there will be



Container A

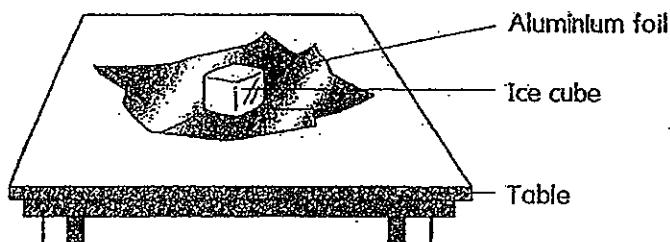


Container B

- (1) a change in the shape and the volume of the water.
- (2) a change in the water level and the shape of the water.
- (3) no change in the water level and the shape of the water.
- (4) no change in the shape of the water and volume of the water.

20

16. Carina placed an ice cube on an aluminium foil on a table in a room.



Which one of the following statements explains correctly why ice will change to water at room temperature?

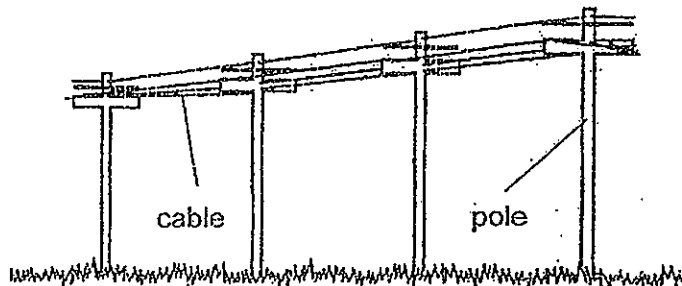
- (1) The aluminium foil gained heat from the ice.
- (2) The ice gained heat from the surroundings.
- (3) The surroundings gained heat from the ice.
- (4) The table gained heat from the ice.

17. Which of the following statement(s) about heat is/are true?

- A Our main source of heat is electricity.
- B Solids contract when they are heated.
- C Heat can be produced by rubbing two objects together.
- D Heat travels from a hotter region to a colder region of an object.

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

18. Some workmen fixed the electric cables as shown below. Their supervisor said that they had done the job **incorrectly**.

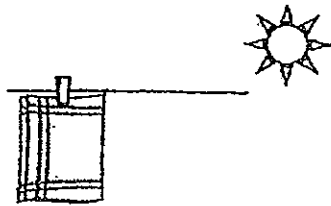


Why did the supervisor say that?

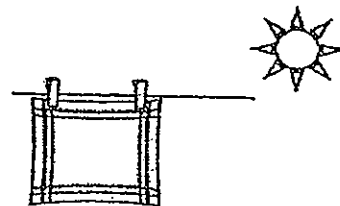
- (1) The cables will expand and snap in hot weather.
- (2) The cables will expand and snap in cold weather.
- (3) The cables will contract and snap in hot weather.
- (4) The cables will contract and snap in cold weather.

19. Four cotton handkerchiefs of equal size are hung on a laundry line for a period of time during the day and night. Arrange the handkerchiefs in the order where one dries the fastest to the one which takes the longest time.

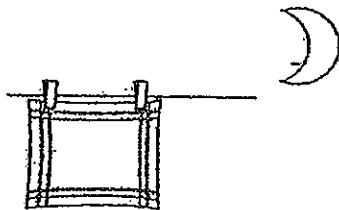
(A)



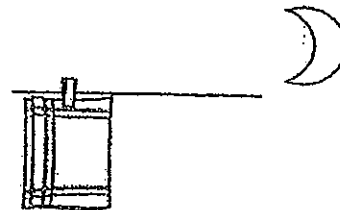
(B)



(C)



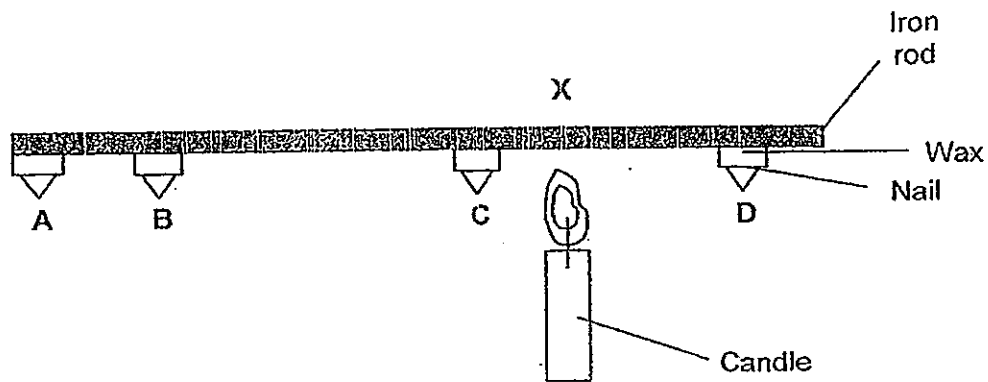
(D)



(1)
(2)
(3)
(4)

Dry the fastest → the slowest			
D	A	B	C
A	C	D	B
D	C	A	B
B	A	C	D

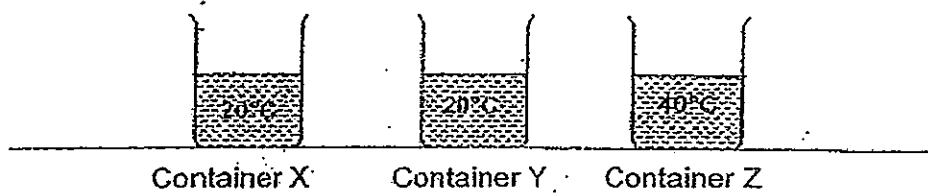
20. Joshua sets up the experiment as shown below.



He used some wax to attach 4 nails, A, B, C and D, to the iron rod. He lit a candle and held it near the rod at the part marked X. Which one of the following options shows the correct order in which the nails will drop from the rod?

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

21. The picture below shows three containers, X, Y and Z, each containing 100 ml of water at different temperature.



Janice poured the water from Container X and Y into Container Z. Then she measured the volume and the temperature of the water in Container Z.

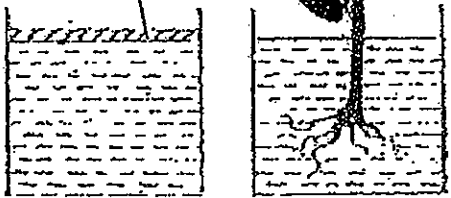
What would be the probable readings obtained?

	Volume	Temperature
(1)	100 ml	28°C
(2)	100 ml	60°C
(3)	300 ml	25°C
(4)	300 ml	80°C

22. Maria wants to find out if plants absorb water. Which one of the following pair of set-ups should she use so that her experiment is a fair one?

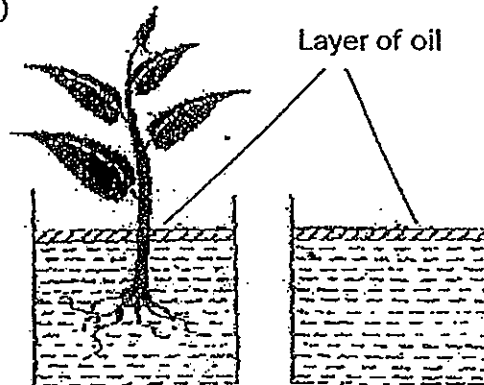
(1)

Layer of oil



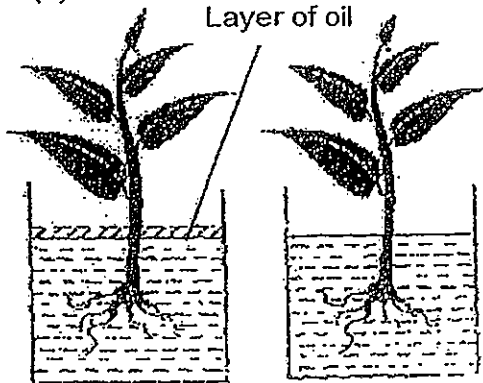
(2)

Layer of oil



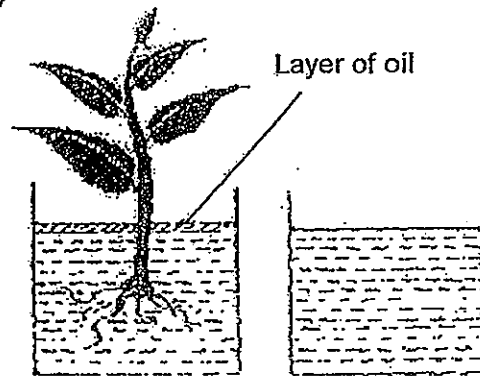
(3)

Layer of oil

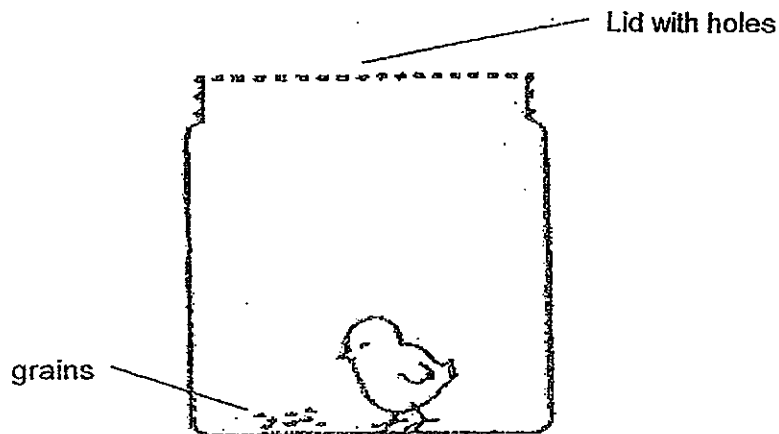


(4)

Layer of oil



23. Jack recently bought a chick from a pet shop. He put the chick in a container with tiny holes on the lid as shown below. He placed the container in his room. He fed the chick with some grains every day. After 2 days, the chick died. Jack was very upset and puzzled as to why the chick did not survive in the container.



Based on the information given above, which of the following statements is/are true?

- A The chick missed the mother hen and died.
- B The chick died of thirst as water was not given.
- C The chick did not have air to breathe and cannot survive.
- D The chick did not have enough sunlight to keep itself warm.

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

24. Kate observed 3 animals, X, Y and Z. She drew a checklist and placed a tick (✓) in the box when she made an observation. The completed checklist at the end of her observation is shown in the table below.

Observations	Animal X	Animal Y	Animal Z
Can swim	✓	✓	
Has legs	✓		✓
Lays eggs	✓	✓	✓

Which one of the following would be correct?

	Animal X	Animal Y	Animal Z
(1)	Crocodile	Peacock	Swordfish
(2)	Polar bear	Guppy	Crab
(3)	Dog	Crab	Snake
(4)	Platypus	Angel fish	Ostrich

25. Look at the two pictures below.



Mushroom

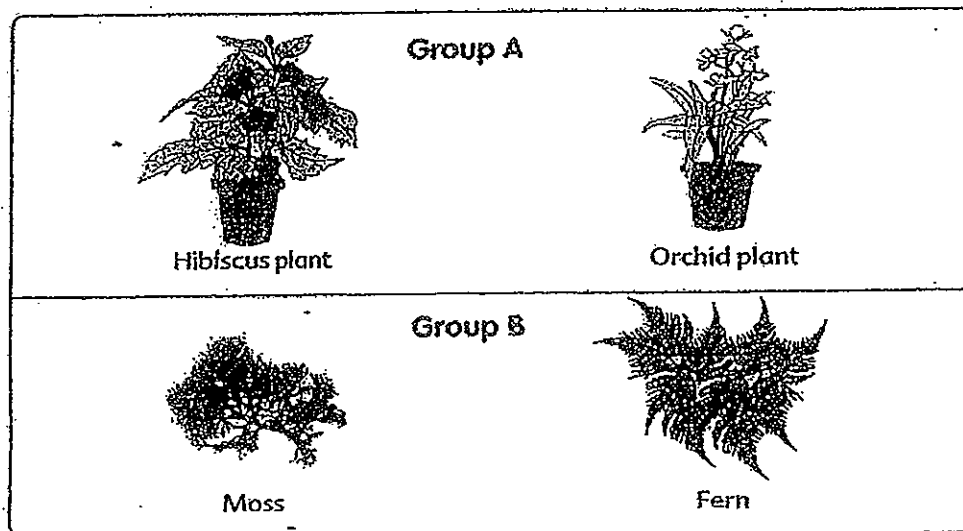


Mould

How are the above organisms similar?

- (1) They can make their own food.
- (2) They belong to the same group called fungi.
- (3) They do not need air, food and water to survive.
- (4) They can move freely on their own from place to place.

26. The plants below are classified according to _____.



- (1) water and land plants
- (2) flowering and non-flowering plants
- (3) fruits with one seed and fruits with many seeds
- (4) plants with strong stems and plants with weak stems

27. The table below shows four groups of living things, Q, R, S and T and the characteristics they have. Study the table carefully.

Animal Kingdom			
Q	R	S	T
Has scales	Has feathers	Has 3 body parts	Has hairs
Has gills	Has a beak	Has a pair of feelers	Produces milk
Most lay eggs	Lays eggs	Lays eggs	Most give birth to young alive

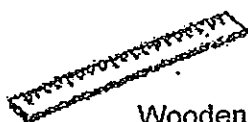
Based on the information in the above table, which of the following is the correct heading for Q, R, S and T respectively?

	Q	R	S	T
(1)	Fish	Bird	Mammal	Insect
(2)	Mammal	Insect	Bird	Fish
(3)	Mammal	Bird	Insect	Fish
(4)	Fish	Bird	Insect	Mammal

28. Jeremy wants to conduct an experiment to see which material is harder. He uses two similar rulers which are made of different materials.



Metal ruler



Wooden ruler

He found out that the metal ruler can be used to scratch the wooden ruler. However, the wooden ruler will not leave any scratch marks on the metal ruler. What can Jeremy conclude from the above experiment?

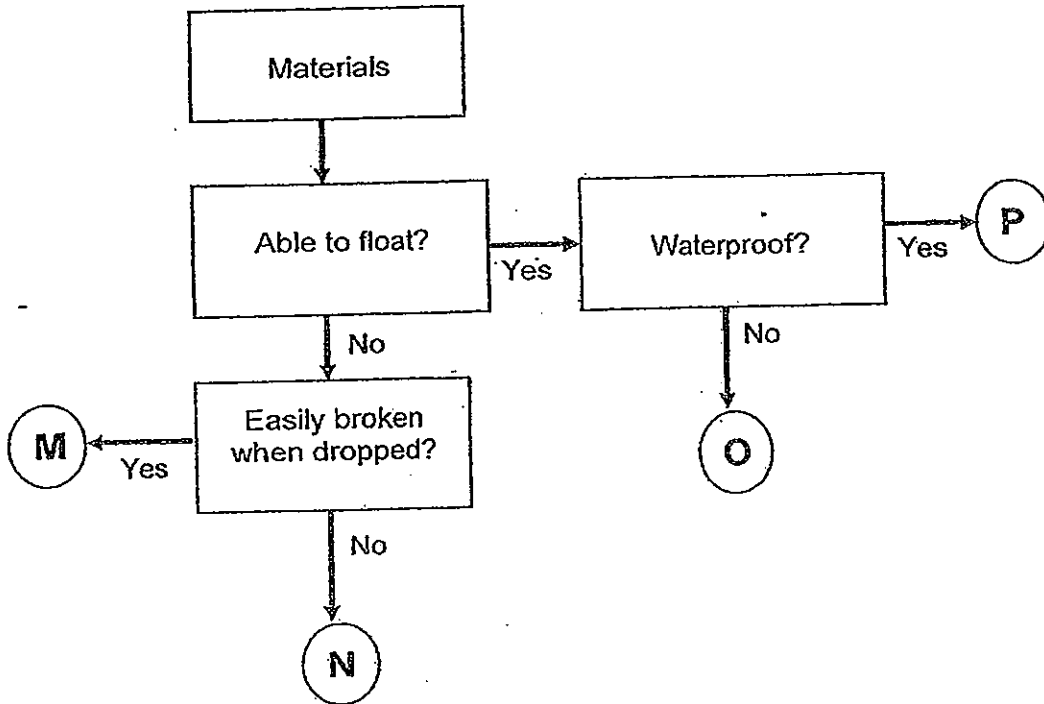
- (1) The wooden ruler is harder than the metal ruler.
 - (2) The metal ruler is harder than the wooden ruler.
 - (3) The wooden ruler and metal ruler are of about the same hardness.
 - (4) The experiment cannot be used to compare the hardness of the materials.
29. Melinda learnt that the more elastic a rubber band is, the more it can be stretched. After that, she stretched 4 different rubber bands, A, B, C and D, using the same strength. Then she measured and recorded the increase in the length of each rubber band in the table below.

Rubber band	Increase in length (cm)
A	0.2
B	0.7
C	0.8
D	0.5

- From the results in the table above, which is the least elastic rubber band?

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

30. Study the flowchart below.



Which of the following materials do M, N, O and P best represent?

	M	N	O	P
(1)	Metal	Glass	Paper	Plastic
(2)	Glass	Metal	Plastic	Paper
(3)	Plastic	Paper	Metal	Glass
(4)	Glass	Metal	Paper	Plastic



NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2012
PRIMARY 4

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.

Marks Obtained

Section B

	/40
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Name: _____ () Class: P 4 _____

Date : 3 May 2012

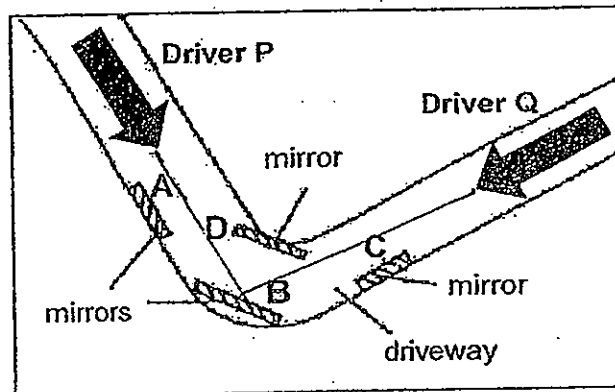
Parent's Signature: _____

Section B: (40marks)

Write your answers to question 31 to 44.

The number of marks available is shown in brackets [] at the end of each question or part question.

31. Study the diagram below.



- (a) Based on the diagram above, at which position(s) A, B, C or D should I place the mirror(s) so that Driver P and Driver Q are able to see each other coming from the opposite direction? [1]

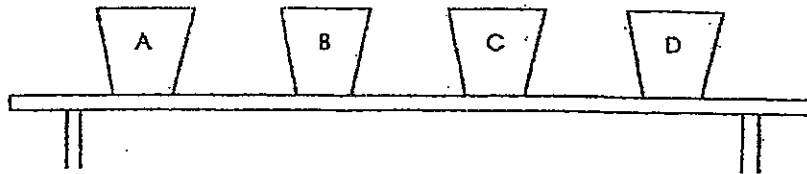
- (b) What are the 2 properties of light which enable Driver P and Driver Q to be able to see each other after placing the mirror at the position(s) as mentioned in (a)? [2]

(i) _____

(ii) _____

Score	3
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32. Four cups, A, B, C and D were each made of different materials. Each of the cups was filled with 200ml of hot water at 80°C. They were then placed on a table in a room, as shown below.



After 15 minutes, the temperature of the water in each cup was measured and recorded in the table below.

Cup	Temperature (°C) after 15 minutes
A	35
B	25
C	60
D	45

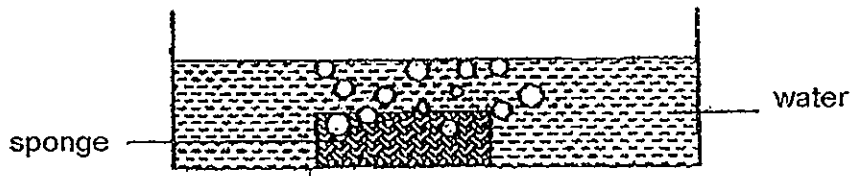
- (a) From the table above, which cup would you choose if you want the hot water to stay warm the longest? [1]

- (b) If the cups were made of four materials namely paper, metal, styrofoam and glass, which 2 materials were Cup B and Cup C made of? [2]

Cup B: _____

Cup C: _____

33. Study the setup below carefully.

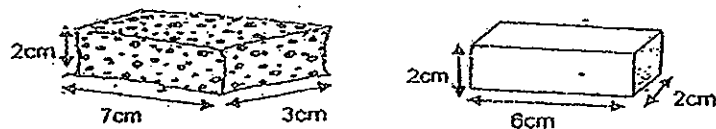


When Joanna pushed the sponge into the basin of water, she saw bubbles coming out of the sponge.

- (a) What do the bubbles contain? [1]

- (b) Make a comparison between the mass of the sponge before and after it was pushed into the basin of water. [1]

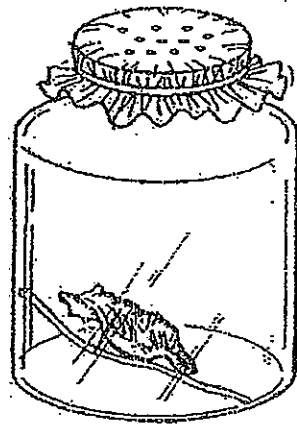
- (c) In another experiment, Joanna used a new sponge and a box as shown in the diagram below. She managed to squeeze the sponge into the box.



- Explain why Joanna was able to squeeze the sponge into the box? [2]

Score	
	4

34. Tom and Jerry were playing in the garden when they accidentally saw 2 pouch-like objects dangling on 2 branches. They identified the objects as the pupae of butterflies. They decided to keep the pupae as they wanted to witness the butterflies emerging from the pupae. They plucked out the branches and kept them in 2 different containers as shown in the diagram below.



Container X



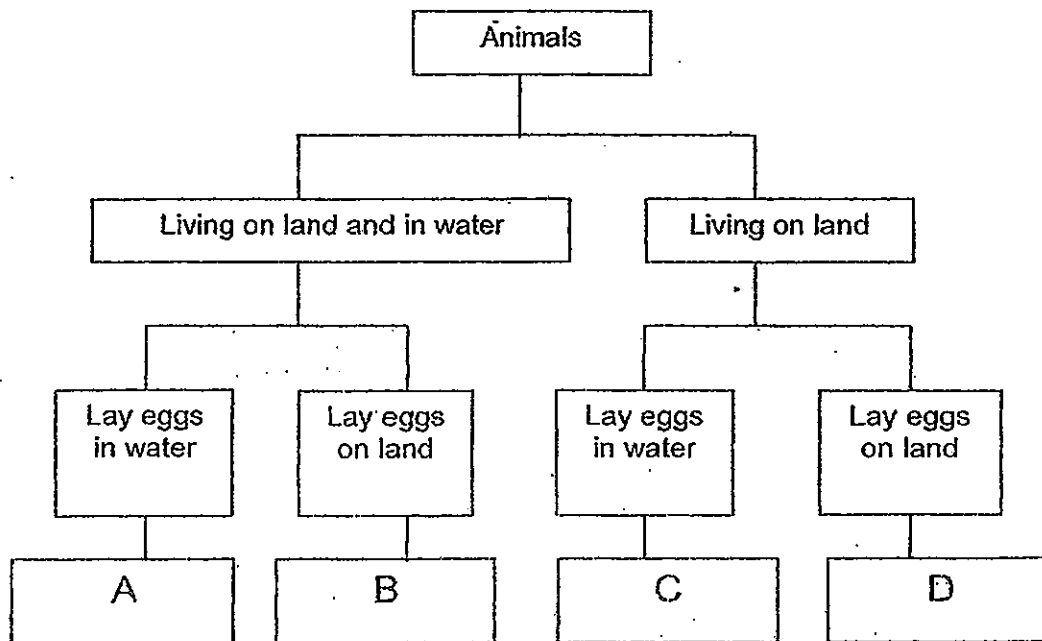
Container Y

- (a) What would they observe in two weeks' time? [1]

- (b) Explain your answer for part (a). [1]

Score	2
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35. Study the classification table below.



Classify the following animals in the correct group.

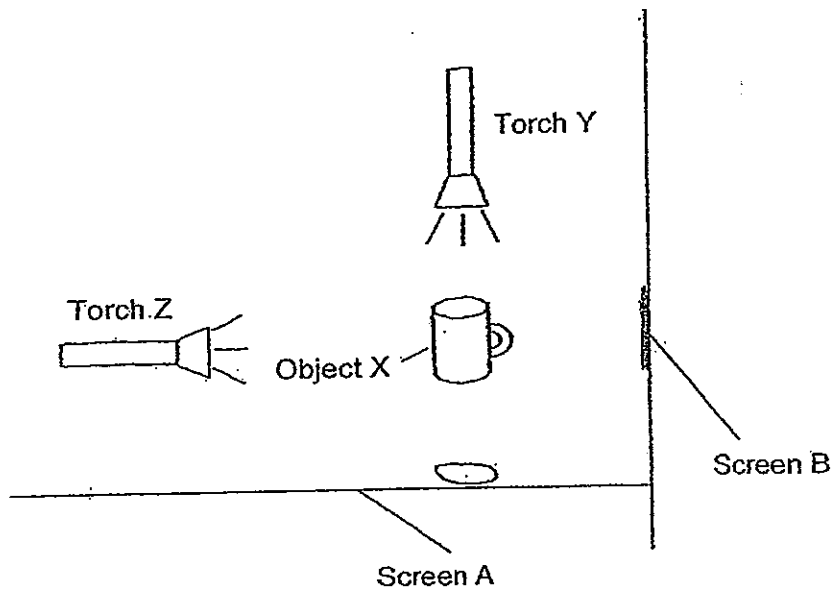
Write A, B, C or D in the box corresponding to the animal.

[2]

- (a) Frog
- (b) Chicken
- (c) Turtle
- (d) Mosquito

Score	2
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36. Andrew carried out the experiment below by placing Object X between 2 light sources and 2 screens. She then drew the shadows formed on Screen A and B.

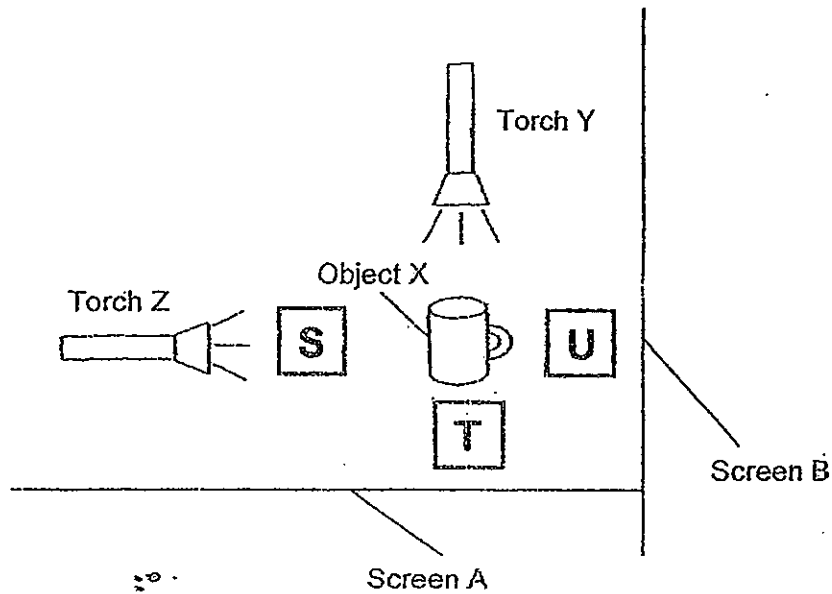


- (a) Draw the shadows that will appear on Screen A and Screen B respectively in the table below. [2]

Screen A	Screen B

Score	2
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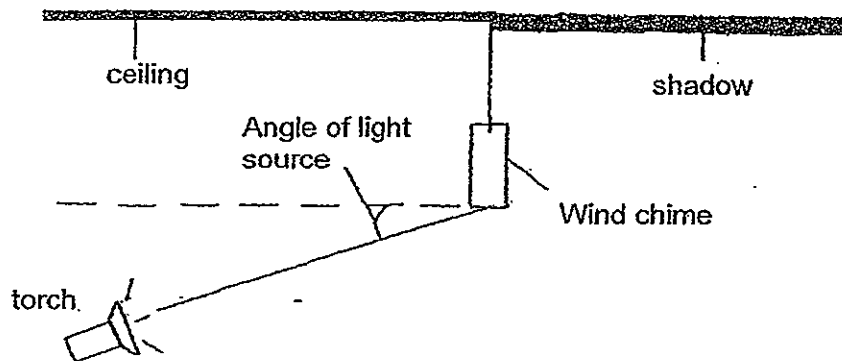
(b)



Andrew would like to create a bigger shadow of Object X on Screen B
At which position, S, T or U, should Andrew put Object X? Give a reason for
your answer. [1]

Score	1
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37. Jeremy carried out the following experiment. While keeping the distance between the wind chime and the torch the same, he shone his torch at the wind chime from different angles as shown below.



Jeremy then measured the length of each shadow formed. The table below shows his results.

Angle of light source (degree)	Length of shadow (cm)
40	35
50	30
60	25
70	20
80	15

- (a) Put a tick (✓) in the correct box to indicate whether the variables stated below is an independent variable or a dependent variable in Jeremy's experiment.

[1]

Variables	Independent	Dependent
Angle of light source		
Length of shadow		

- (b) What can Jeremy conclude from his experiment?

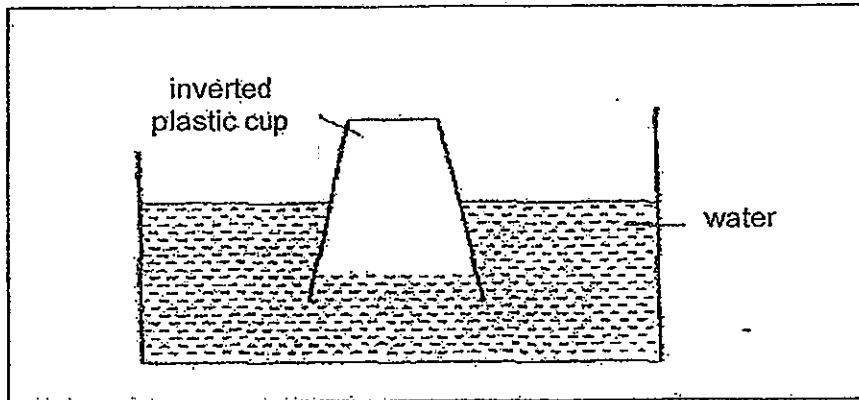
[2]

- (c) How can Jeremy ensure that his results are reliable?

[1]

Score	4
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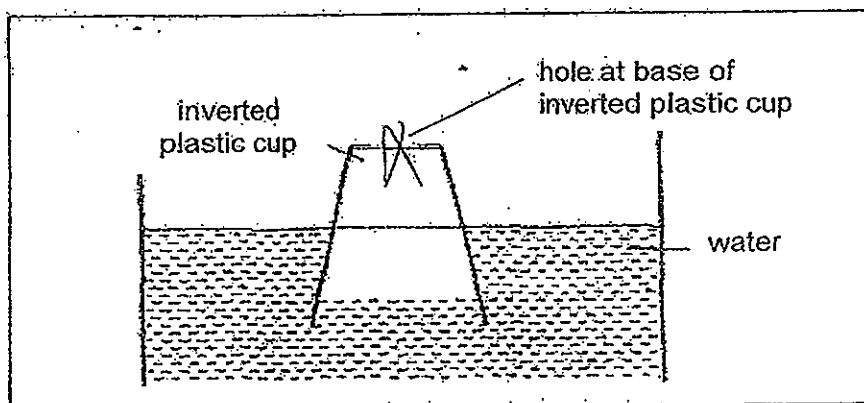
38. Diana inverted a plastic cup into a basin as shown in the diagram below. As she pushed the plastic cup into the basin of water, she observed that the water in the basin did not enter the cup completely.



- (a) Explain clearly why the water did not enter the inverted plastic cup completely?

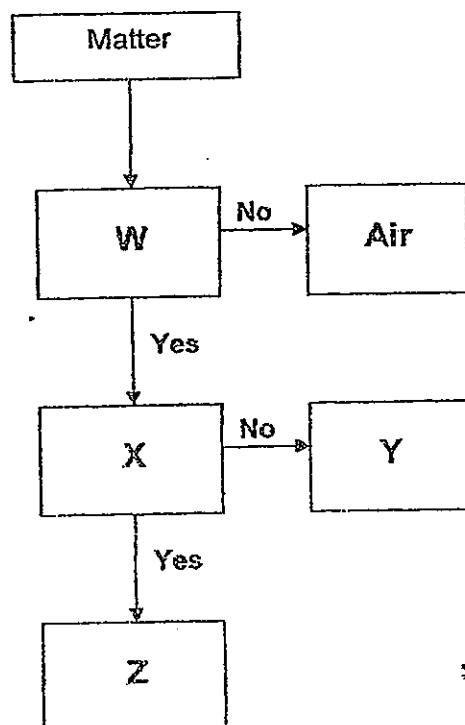
[1]

Then Diana made a big hole at the base of the inverted cup and pushed the cup into the basin of water again as shown in the diagram below. She observed that the water level in the cup had changed.



- (b) In the diagram above, draw the new water level in the cup after a hole was made at the base of the inverted plastic cup. [1]
- (c) Explain your answer in (b) after a hole was made at the base of the inverted cup. [2]

39. The diagram below shows an incomplete flowchart.



The information in the table below can replace the letters W, X, Y and Z in the flowchart. Match them with the correct letters. [2]

Hot coffee	
Pencil Case	
Does it have a definite volume?	
Does it have a definite shape?	

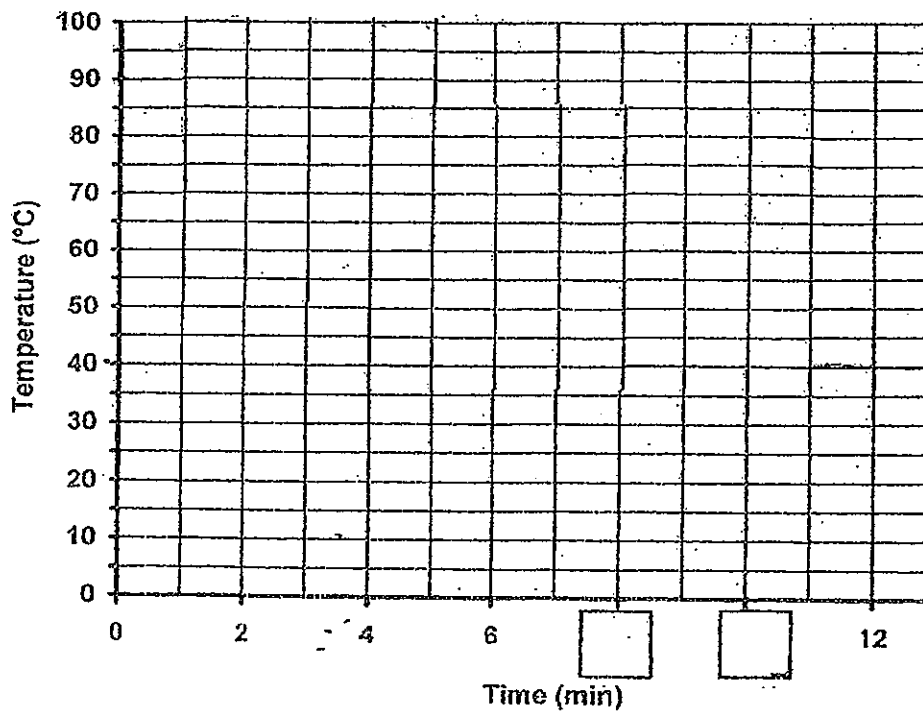
Score	2
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40. Zaccary filled a bowl with some hot chicken soup. He put the heat sensor into the bowl and used a datalogger to measure the temperature of the soup at 2-minute interval over a period of 12 minutes. He recorded the temperature of the soup in the table below.

Time (min)	Temperature ($^{\circ}\text{C}$)
0	90
2	85
4	70
6	55
8	40
10	40
12	?

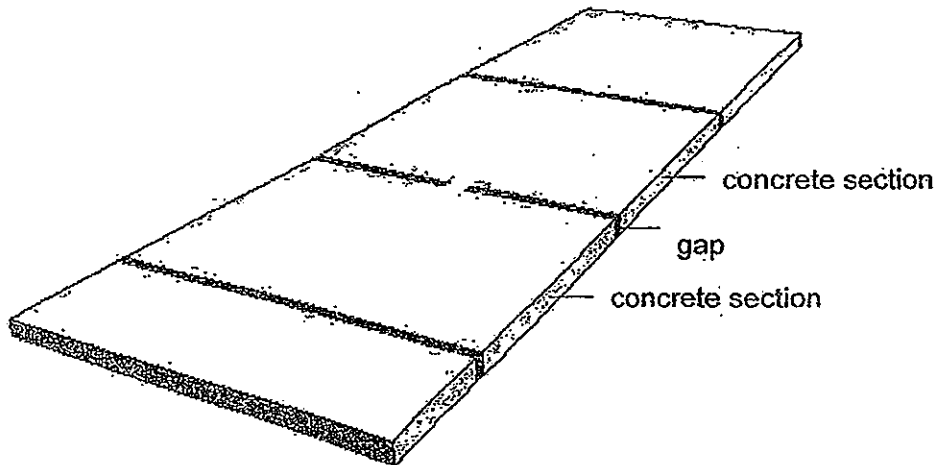
- (a) What is most likely to be the temperature of the beaker of water at the 12th minute? [1]

- (b) Plot a line graph accurately showing the change in temperature of the hot chicken soup over a period of 12 minutes below.
Complete the information on the x-axis by filling in the 2 boxes correctly. [3]



Score	4
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41. Some roads are made of concrete. The concrete is laid in sections with small gaps in between as shown below.

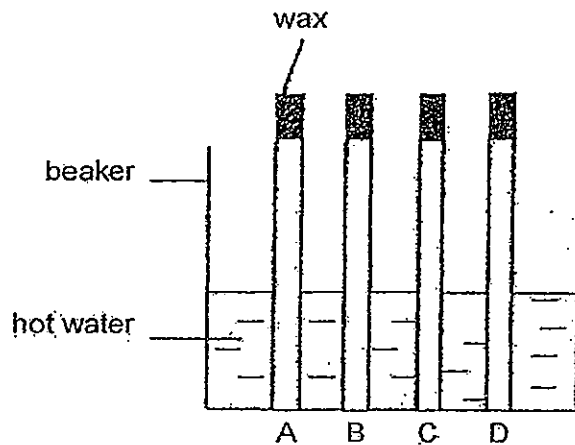


- (a) What would happen to the gaps on a hot day? [1]

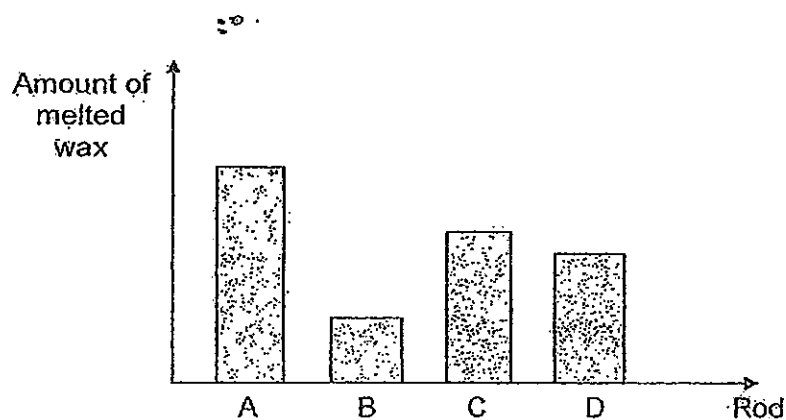
- (b) Explain your answer in (a). [1]

Score	2
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42. Michael had four rods of different materials. He placed the same amount of wax at the end of each of the four rods. He then placed the rods into a beaker of hot water and observed the wax.



The bar graph below shows the amount of wax that melted on each rod after 10 minutes.



- (a) Based on the graph above, which rod is the best conductor of heat? [1]

- (b) Explain your answer in (a). [2]

Score	3
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43. Study the two organisms below.



Toadstool



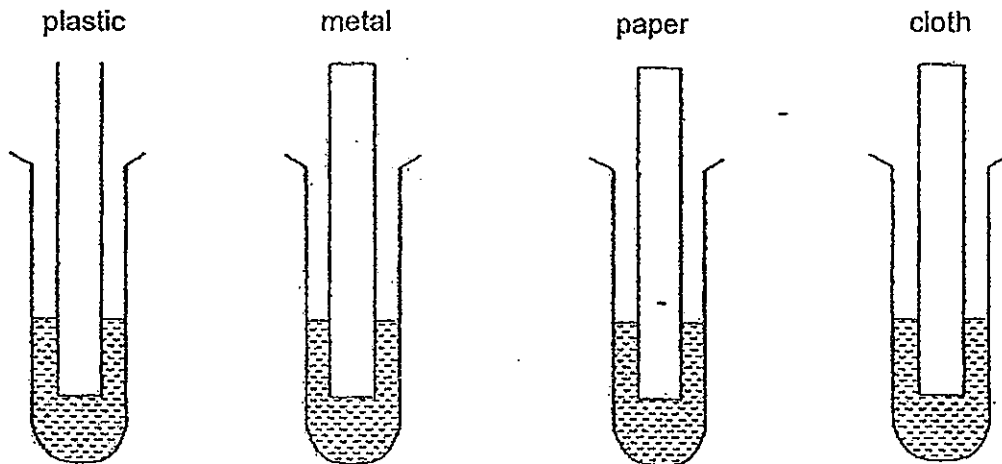
Tree Fern

- (a) Give one **difference** between the two organisms shown above in terms of how they get their food. [1]

- (b) List one **similarity** between the two organisms. (DO NOT mention size or appearance) [1]

Score	
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44. Suzy and her partner filled up four test tubes with the same amount of water each. Then she took four strips that are made of 4 different materials. She also made sure that the strips were all of the same size. She placed each strip into each of the test tubes as shown below.



- (a) Which strip(s) will absorb water? [1]

- (b) Suzy wants to make a raincoat.
Which one of the above materials should she use?
Explain your answer. [1]

End of Paper

Score	2
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ANSWER SHEET

EXAM PAPER 2012

SCHOOL : NAN HUA
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1

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

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

31)a)Position B.

b)i)Light travels in straight lines. ii)Light rays can be reflected.

32)a)Cup C.

b)B: metal C: Styrofoam

33)a)The bubbles contain air.

b)The sponge is lighter before than after it was pushed into the basin of water.

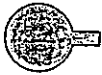
c)The sponge has holes in it. The holes contain air and air can be compressed. This allows the sponge to be squeezed into the box.

34)a)The butterfly would come out of cocoon in X but the butterfly would not come out in Container Y.

b)There are holes in Container X, so the pupa in Container X is able to receive air but there are no holes in Container Y for the pupa in Container Y to get air

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

36)a)Screen A



Screen B



36)b)Andrew should put Object X on position S. The nearer the object is to the light source, the bigger the shadow will be.

37)a) ✓

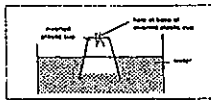
✓

b)The smaller the angle of light source is the longer the shadow will be.

c)Conduct the experiment again.

38)a)There are air in the inverted plastic cup which could not escape therefore the water did not enter the inverted cup to occupy the space.

b)

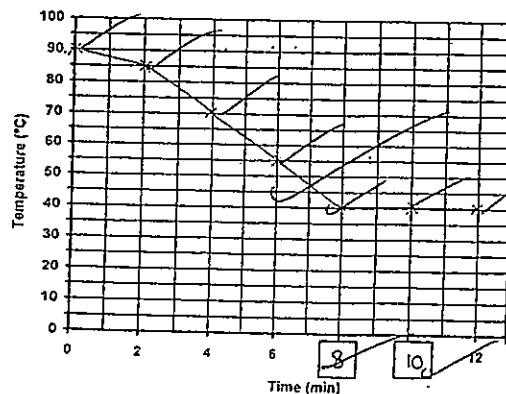


c)The hole let the trapped air escape and thus allowing the water to enter and take up the space previously occupied by the air.

39)Y , Z , W , X

40)a)40°C.

b)



41)a)The gaps would be filled up by the concrete section on a hot day.

b)The concrete section gained heat from the sun and expand, increasing in volume, thus the gaps would be filled up on a hot day.

42)a)A.

b)Rod A is the best conductor of heat because heat from the hot water travels through the rod the quickest so the wax melted the faster.

43)a)The toadstool feeds on dead or living organisms while the Tree Fern makes its own food.

b)Both cannot move from one place to another.

44)a)The paper and the cloth.

b)Plastic. Plastic is waterproof which prevent us to be wet from the rain and it is lighter allowing us to bring it around easily and more flexible than metal.

10.