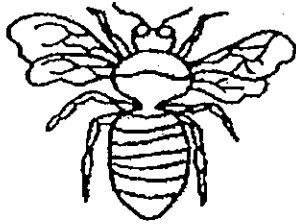


Section A (30 x 2 marks = 60 marks)

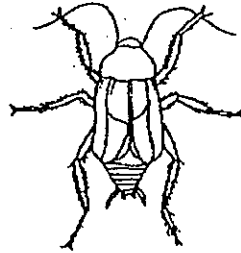
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

1. Which one of the following animals shown below is not an insect?

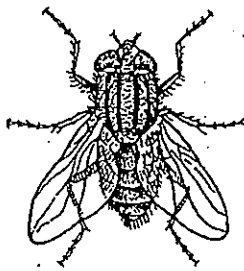
(1)



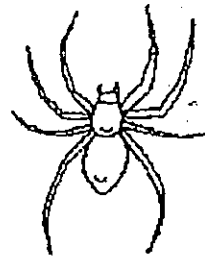
(2)



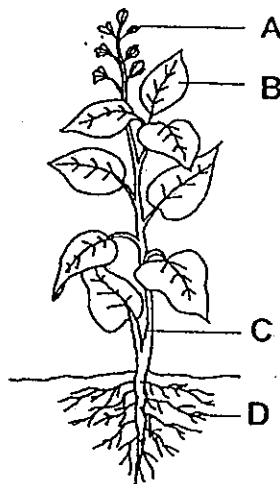
(3)



(4)



2. The diagram below shows a plant with parts labelled A, B, C and D.

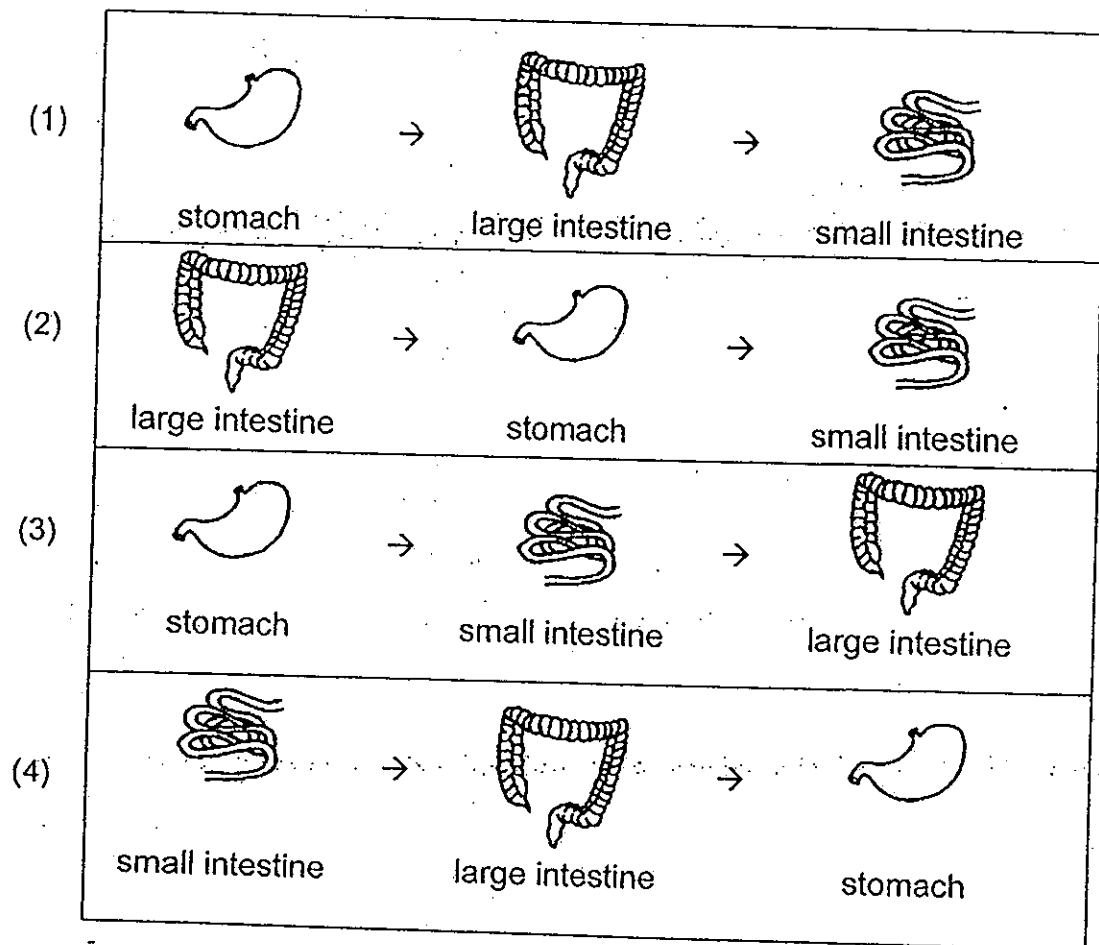


Which part of the plant makes food for the plant?

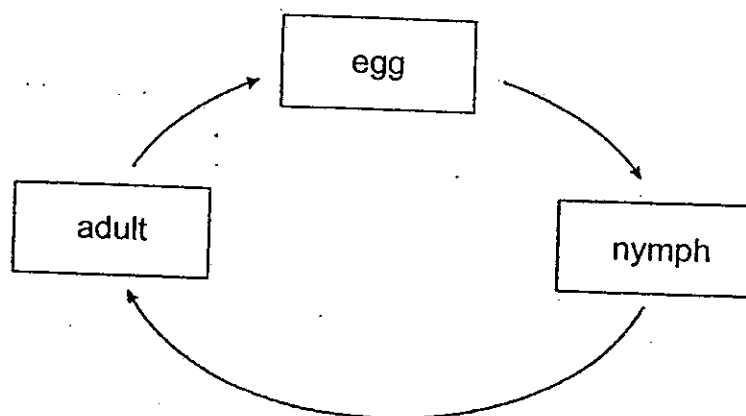
- (1) A
(3) C

- (2) B
(4) D

3. Which one of the following shows the correct order when food moves through some parts of the digestive system?



4. The diagram below shows the life cycle of an animal.



Which one of the following animals has the life cycle as shown above?

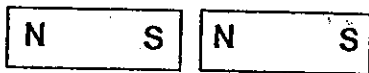
- | | |
|-------------|---------------|
| (1) beetle | (2) butterfly |
| (3) chicken | (4) cockroach |

5. Which one of the following objects can be bent without breaking?

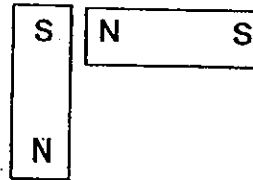
- (1) a plastic spoon
- (2) a wooden ruler
- (3) a sheet of glass
- (4) a piece of paper

6. In which one of the following set-ups will the two magnets push each other away?

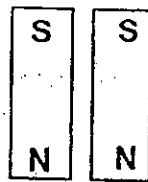
(1)



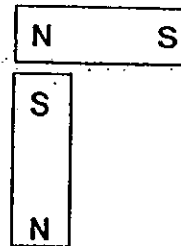
(2)



(3)



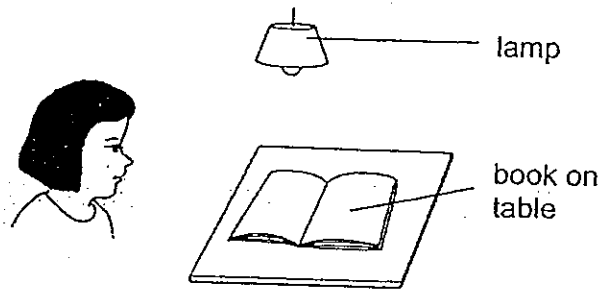
(4)



7. Which one of the following properties is true for both air and a pencil?

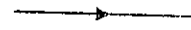
- (1) They can be seen.
- (2) They take up space.
- (3) They have fixed shapes.
- (4) They have fixed volumes.

8. Look at the picture below.

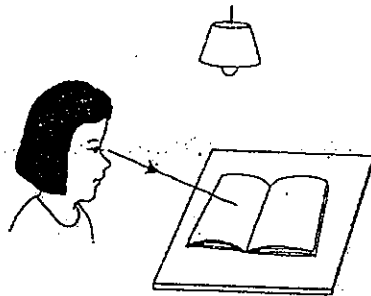


Which one of the following explains why Sue can see the book on the table when the lamp is switched on?

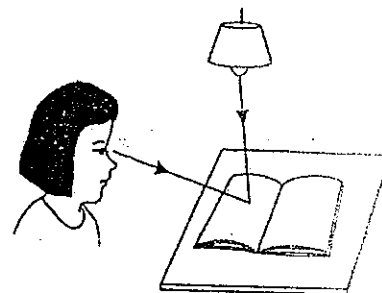
Direction
of light



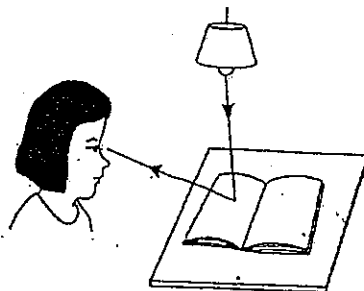
(1)



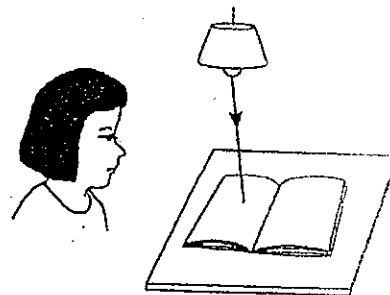
(2)



(3)



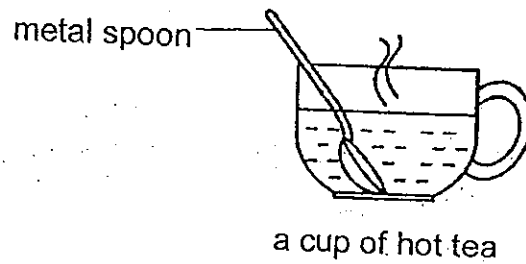
(4)



9. Which one of the following is not a source of heat?

- | | |
|--------------------|--------------------|
| (1) a candle flame | (2) a lighted bulb |
| (3) a woollen cap | (4) the Sun |

10. Ronald places a metal spoon in a cup of hot tea.



The spoon becomes hot after a while.

Which one of the following explains this observation?

- (1) The cup loses heat to the hot tea.
- (2) The spoon loses heat to the hot tea.
- (3) The hot tea gains heat from the spoon.
- (4) The spoon gains heat from the hot tea.

11. During a Science lesson, some pupils made statements about the digestive system.

- Ben : Digestion is completed in the anus.
- Sue : The large intestine absorbs water from the undigested food.
- Jaya : Digestive juices can be found in the stomach and small intestine.
- Keith : The small intestine allows undigested food to be absorbed into the bloodstream.

Which pupils had made the correct statement?

- (1) Ben and Jaya only
- (2) Jaya and Sue only
- (3) Jaya, Sue and Keith only
- (4) Ben, Jaya and Keith only

12. Muthu kept 4 different types of organisms, P, Q, R and S. He recorded his observations made of each organism as shown in the table below. A tick (✓) indicates the statement that is true about the organism.

Observation	Organisms			
	P	Q	R	S
It undergoes moulting during one of the stages.		✓	✓	
It has a 3 stage life cycle.	✓		✓	✓
It lays its eggs in water.		✓		✓
Its young looks like the adult.	✓		✓	

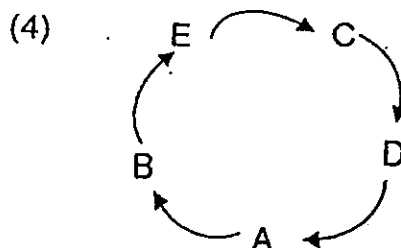
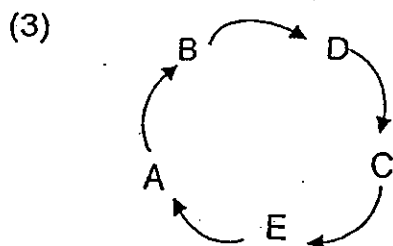
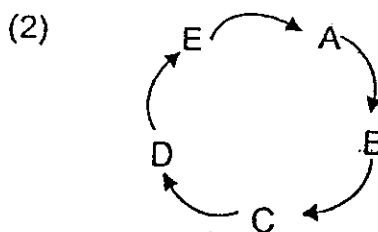
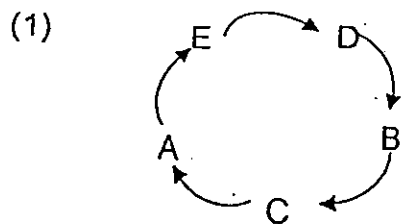
Which one of the following organisms, P, Q, R or S, best represents a frog?

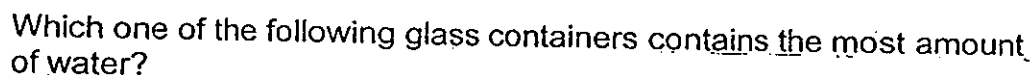
- | | | | |
|-----|---|-----|---|
| (1) | P | (2) | Q |
| (3) | R | (4) | S |

13. Li Li was asked to observe the characteristics of a green bean plant at each stage of its growth.

Stage	Characteristics observed
A	Fruits appear
B	Roots appear
C	Leaves appear
D	Shoot appears
E	Flowers appear

Which one of the following shows the correct order of the stages in the life cycle of a green bean plant as observed by Li Li?





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

15. Geraldine did an experiment where she conducted the following steps:

She then recorded the three readings in a table.

Which one of the following is mostly likely to be the set of readings that she has recorded?

8

16. Which of the following actions require light energy?

- A listening to music
- B stretching the arms and legs
- C making food by green plants
- D classifying objects according to colours

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

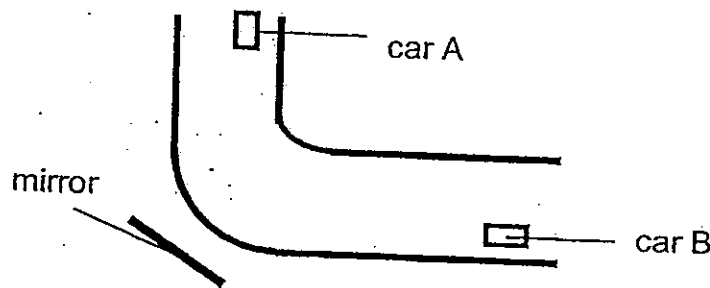
17. Four pupils each made a statement to explain why people can see things at night.

- Ali : The Sun reflects light.
 Brian : The Moon gives off light.
 Ci En : The Sun reflects the Moon's light.
 Dinesh : The Moon reflects the Sun's light.

Which pupil had made the **correct** statement?

- | | |
|-----------|------------|
| (1) Ali | (2) Brian |
| (3) Ci En | (4) Dinesh |

18. The diagram below shows the top view of a road. There is a mirror located at the bend of the road. Car A and car B are travelling towards each other.

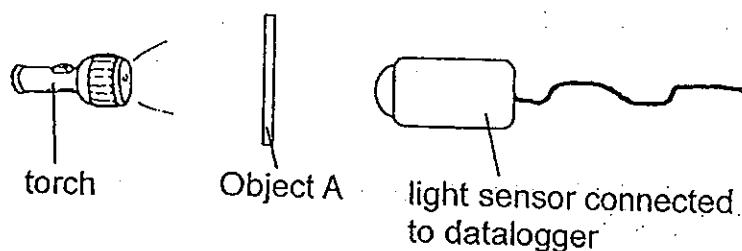


Which of the following properties of light enables the driver of car A to see car B?

- A Light travels in a straight line.
- B Light can be reflected by a mirror.
- C Light can pass through materials.
- D Light can cast a shadow when blocked by an object.

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

19. Rayna set up an experiment as shown below using object A.



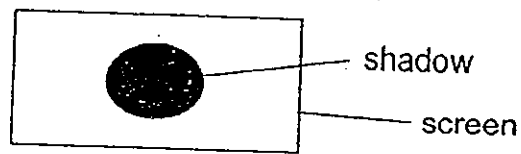
She repeated the same experiment using objects, B, C and D. The 4 objects, A, B, C and D, are similar in size and thickness, but are made of different materials. She recorded the amount of light picked up by the datalogger as shown in the table below.

Object	Amount of light picked up by datalogger (lux)
A	200
B	0
C	400
D	150

What was the aim of Rayna's experiment?

- (1) To find out how the materials used affects the amount of light passing through the object.
- (2) To find out how the position of the light source affects the amount of light that passes through the object.
- (3) To find out how the amount of light passing through the object affects the materials used.
- (4) To find out how the thickness of the object affects the amount of light that passes through.

20. The diagram below shows a shadow formed on the screen.



Which of the following could **not** have formed the shadow shown above?

 thumbtack	 wooden cone
 rubber band	 paper weight

- (1) paper weight and thumbtack
- (2) thumbtack and wooden cone
- (3) rubber band and paper weight
- (4) rubber band and wooden cone

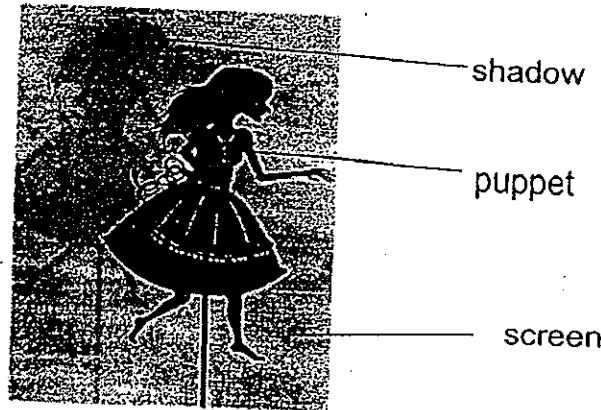
21. Study the classification table below.

Materials		
A	B	C
book cardboard	window fish tank	lamp shade frosted glass

Which one of the following objects can be placed in box B?

- (1) concrete tile
- (2) wooden door
- (3) spectacle lens
- (4) handkerchief

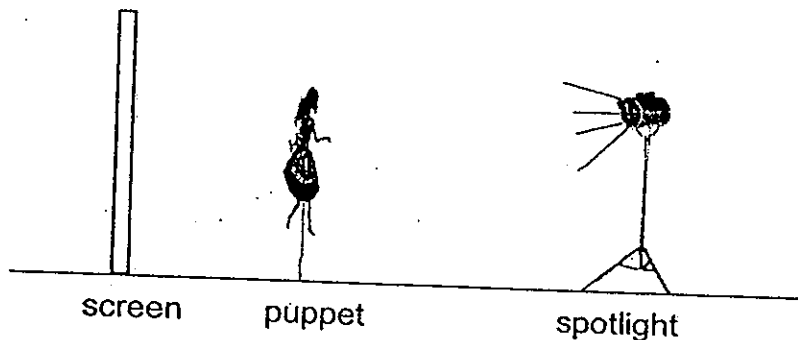
The image below shows a puppet and its shadow on the screen behind it. Study the image and answer questions 22 and 23.



22. Which one of the following statements correctly explains how the shadows were formed?

- (1) The puppet blocked the light from reaching the screen.
- (2) The screen gave out light which was blocked by the puppet.
- (3) The screen blocked the path of light from reaching the puppet.
- (4) The puppet and screen were placed in a dark room with no light source.

23. The puppet master observed that the size of the shadow changed when the puppet was moved towards the spotlight or the screen.



Which of the following actions could allow the puppet master to get a smaller shadow of the puppet on the screen?

- A Move the puppet closer to the screen.
- B Move the spotlight closer to the puppet.
- C Move the screen away from the puppet.

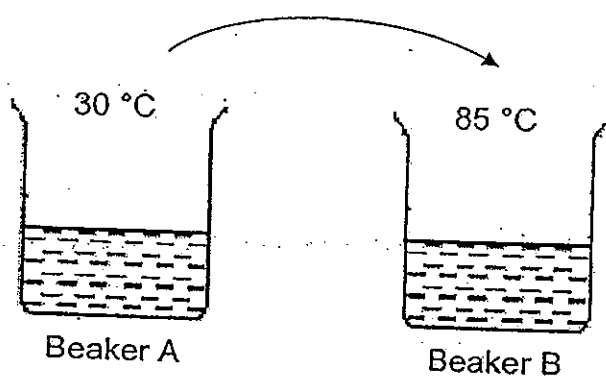
- (1) A only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

24. Which of the following actions produce heat?

- A Lighting a matchstick.
- B Hanging wet clothes out to dry.
- C Rubbing both hands together vigorously.

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

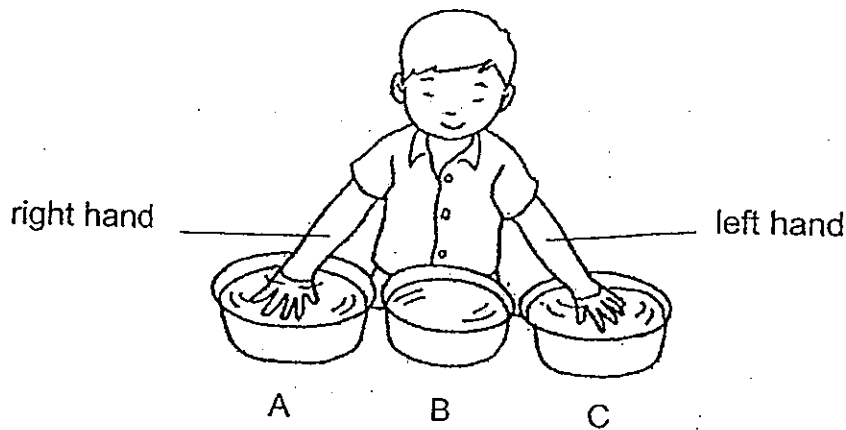
25. Han Ming filled two similar beakers, A and B, with an equal amount of water of different temperatures. He then poured all the water from beaker A into beaker B.



He then measured the temperature of the water in beaker B immediately. What would likely be the temperature of the water in beaker B?

- (1) 25 °C
- (2) 65 °C
- (3) 85 °C
- (4) 115 °C

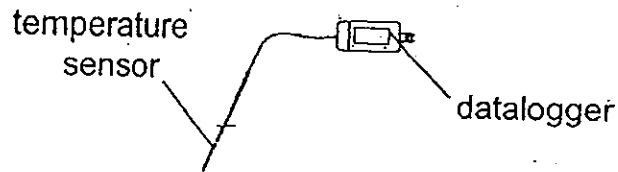
26. Chong Huat placed his right hand into the water in Basin A and his left hand into the water in Basin C at the same time. After 15 seconds, he placed both hands into the water in Basin B. His right hand felt warm but his left hand felt cool.



Which one of the following shows the possible temperatures of the water in the three basins, A, B and C?

Temperature of water ($^{\circ}\text{C}$)			
	Basin A	Basin B	Basin C
(1)	40	10	25
(2)	40	25	10
(3)	10	40	25
(4)	10	25	40

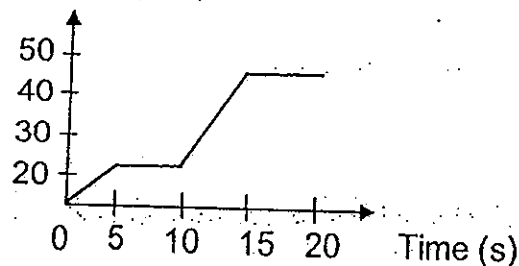
27. Janice measured the temperature of the air in a room using a temperature sensor that was connected to a datalogger, as shown in the diagram below.



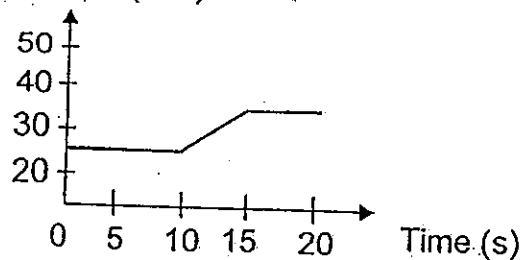
She recorded the temperature once every 5 seconds, for the first ten seconds. Then, she wrapped her fingers around the tip of the temperature sensor and recorded the temperature shown on the datalogger for the next ten seconds.

Which one of the following graphs shows the correct change in temperature over the period of 20 seconds?

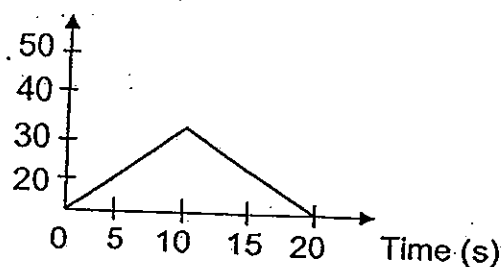
- (1) Temperature ($^{\circ}\text{C}$)



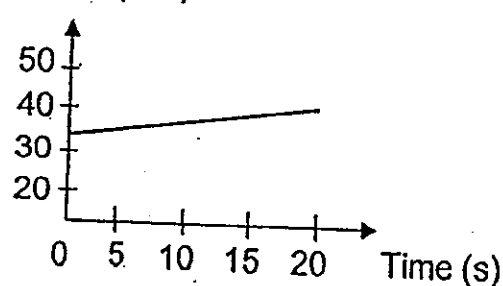
- (2) Temperature ($^{\circ}\text{C}$)



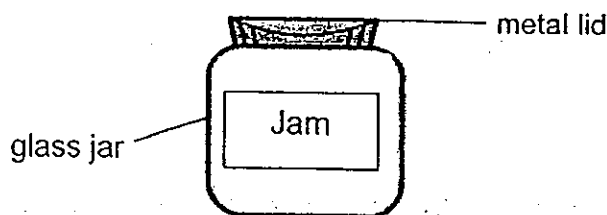
- (3) Temperature ($^{\circ}\text{C}$)



- (4) Temperature ($^{\circ}\text{C}$)

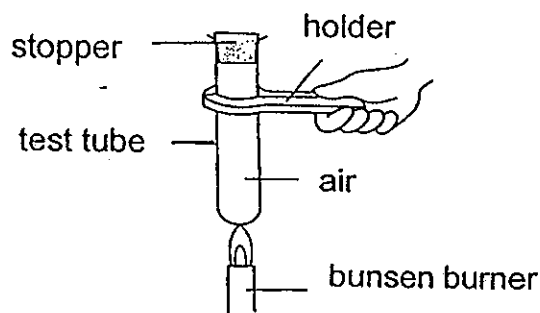


28. Mrs Singh was unable to open the metal lid of a bottle of jam at first. She poured some hot water over the lid and was then able to open it.



Which one of the following explains why Mrs Singh was now able to open the metal lid?

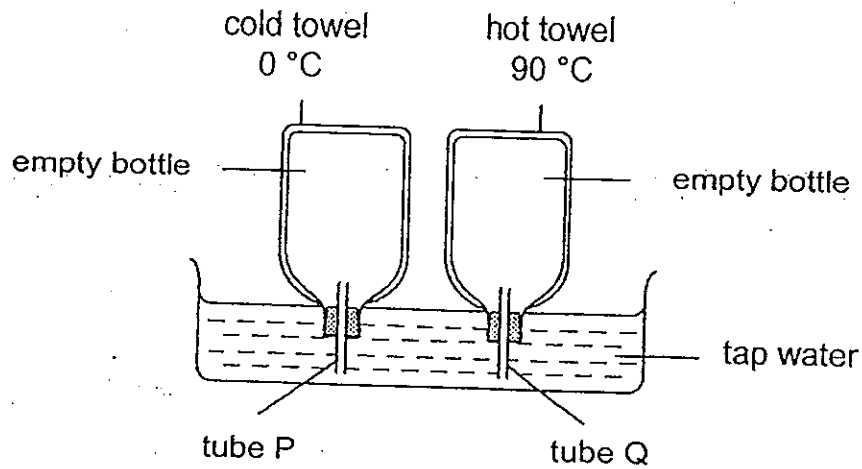
- (1) The metal lid expanded more than the glass jar.
 - (2) The glass jar expanded more than the metal lid.
 - (3) The glass jar contracted more than the metal lid.
 - (4) The metal lid contracted more than the glass jar.
29. Abdullah heated an empty test tube over a bunsen burner, as shown in the diagram below. He then observed that the stopper popped out of the test tube after some time.



Which one of the following statements could explain his observation?

- (1) The stopper expanded.
- (2) The test tube contracted.
- (3) The surrounding air contracted.
- (4) The air in the test tube expanded.

30. Peter wrapped two empty glass bottles with identical towels of different temperatures. He then used the bottles to set up the experiment as shown below.



What would Peter observe after 20 minutes?

Observations	
(1) water enters tube P	water enters tube Q
(2) bubbles escape from tube P	water enters tube Q
(3) bubbles escape from tube P	bubbles escape from tube Q
(4) water enters tube P	bubbles escape from tube Q

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations. The text further elaborates on the various methods and tools used to collect and analyze data, highlighting the need for consistency and reliability in the information gathered.

2. The second part of the document focuses on the role of technology in enhancing the efficiency of the data collection process. It describes how modern software solutions can automate repetitive tasks, reduce the risk of human error, and provide real-time insights into the organization's performance. The author also mentions the importance of training staff to effectively use these tools and ensuring that the data collected is secure and protected from unauthorized access.

3. The third part of the document addresses the challenges faced by organizations in implementing a robust data collection system. It identifies common obstacles such as limited resources, resistance to change, and the complexity of integrating different data sources. The text offers practical advice on how to overcome these challenges, including the importance of clear communication, stakeholder buy-in, and a phased approach to implementation.

4. The final part of the document concludes by summarizing the key points discussed and reiterating the importance of a well-structured data collection system. It encourages organizations to regularly review and update their processes to stay current with the latest technological advancements and industry best practices. The document ends with a call to action, urging readers to take the necessary steps to implement the recommendations provided.

NANYANG PRIMARY SCHOOL
PRIMARY FOUR SCIENCE
SEMESTRAL ASSESSMENT 2
2013

BOOKLET B

Date : 28 October 2013

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 4 ()

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Parent's signature:

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.

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

Booklet B consists of 13 printed pages including this cover page.

Section B (40 marks)

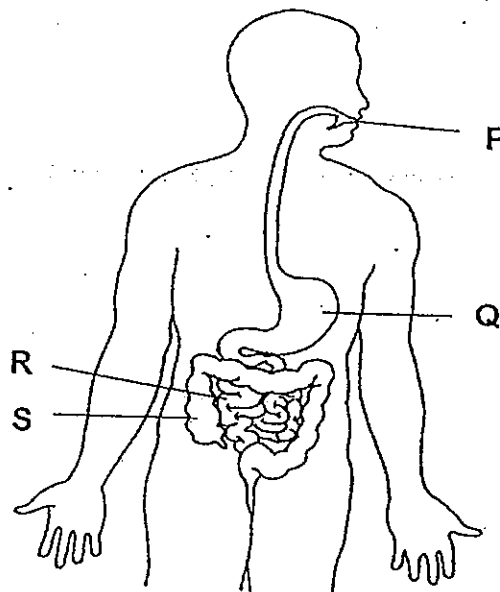
Write your answers to questions 31 to 44 in the spaces provided.
Marks will be deducted for misspelt key words.

31. Fill in the correct parts of a plant in the table.

[2]

Functions of plant parts	Plant parts
It holds the plant upright.	
It obtains water for the plant.	

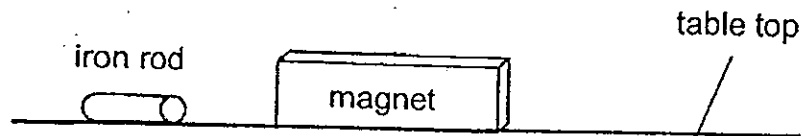
32. The diagram below shows the human digestive system with parts labelled P, Q, R and S.



In which of the following parts, P, Q, R or S, would:

- (a) digestion first take place : part _____ [1]
- (b) there be no digestion : part _____ [1]

33. Jacob placed a magnet near an iron rod. The iron rod was observed to move towards the magnet.



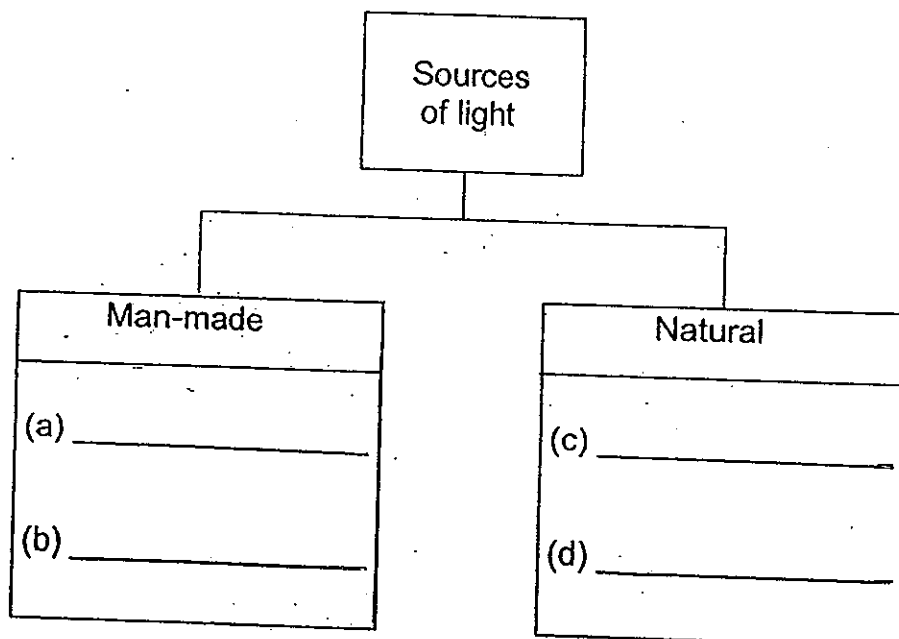
- (a) The magnet exerts a _____ on the iron rod. [1]
- (b) Choose the correct word from the box to answer the question below.

strong	magnetic	hard
--------	----------	------

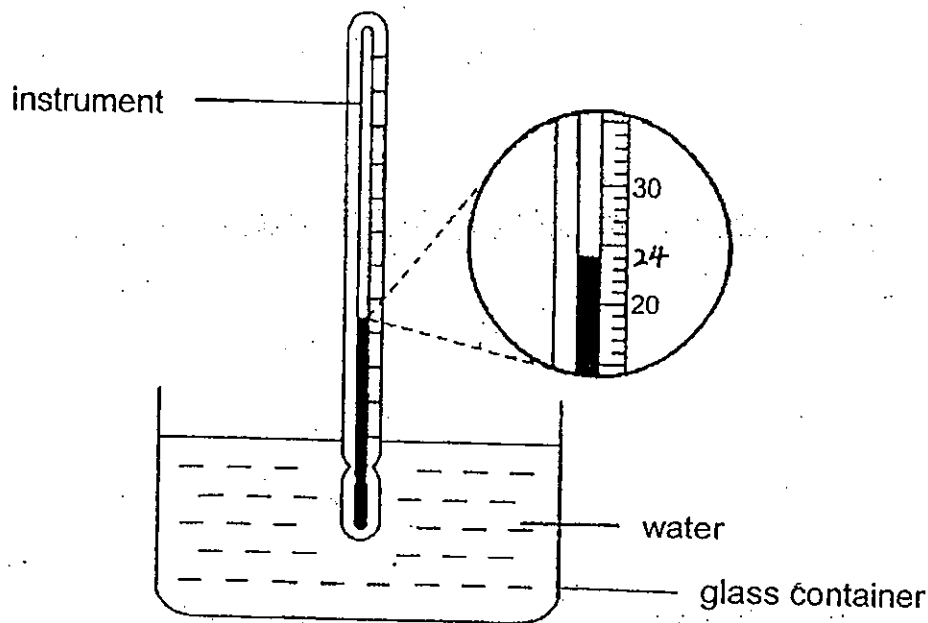
Jacob's observation shows that iron is a _____ material.

[1]

34. State two examples of man-made and natural sources of light in the diagram below. [2]



35. Jane used an instrument to measure the temperature of water in a glass container.



- (a) What is the name of the instrument? [1]

- (b) What is the temperature of the water in the glass? [1]

_____ °C

36. Jason was playing soccer in the courtyard when he was hit by the ball on his chest and on his head.

- (a) Which **two parts** of the skeletal system protected Jason's organs in this instance? [1]

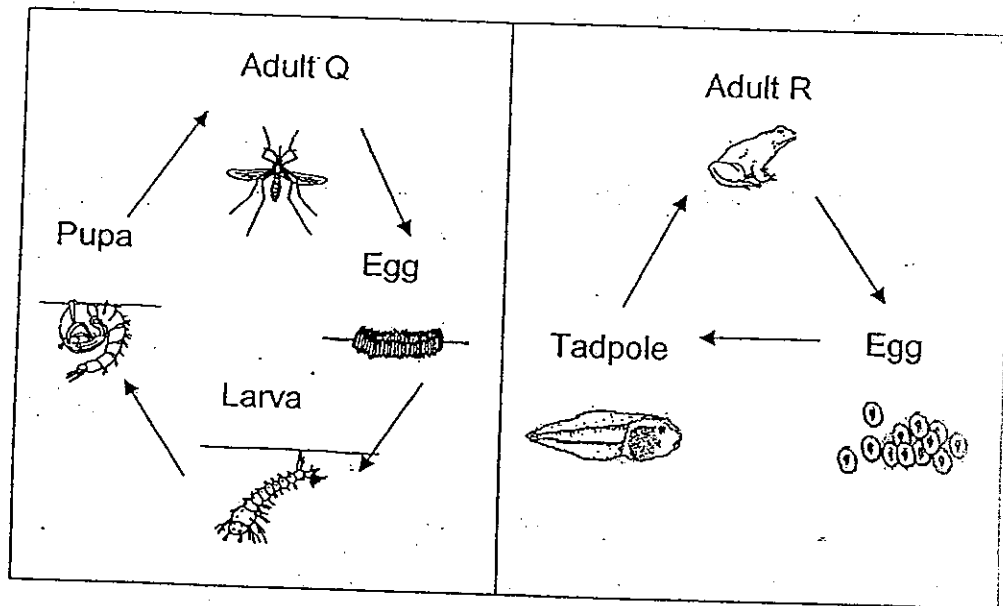
(i) _____

(ii) _____

- (b) Name another system that **works together** with the skeletal system to allow Jason to kick the soccer ball. [1]

_____ system

37. The diagrams below show the life cycle of two organisms, Q and R.

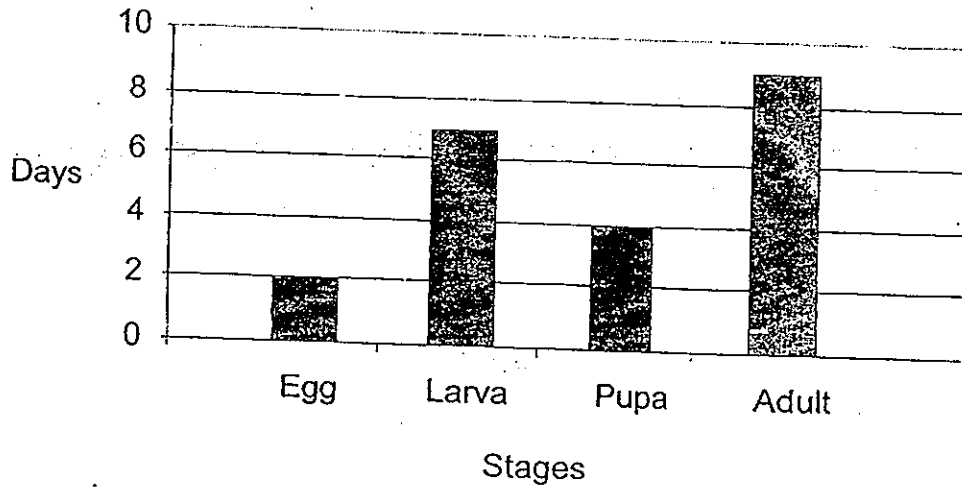


- (a) Based only on the diagrams above, state one similarity and one difference between the life cycles of organisms Q and R. (Do not describe the physical appearance). [2]

Similarity:

Difference:

The graph below shows the number of days in each stage of the life cycle of organism Q.

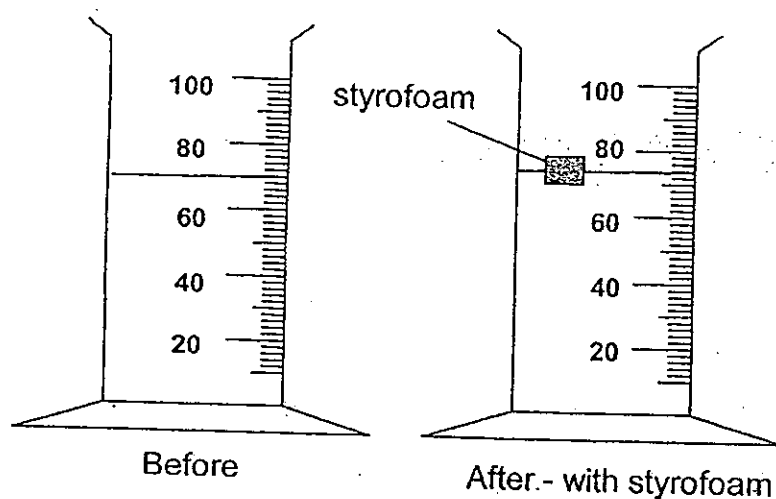


- (b) How many days did organism Q take to become an adult after hatching from the egg? [1]

_____ days

- (c) Organism Q is known to lay its eggs in the water. To prevent the breeding of organism Q, a layer of oil was sprayed onto the water surface. Explain why that was done. [1]

38. Joshua wanted to measure the volume of a piece of styrofoam. He filled a measuring cylinder with 70 ml of water and placed the styrofoam in it. The water level rose to 74 ml. Joshua concluded that the volume of the styrofoam was 4 ml.



- (a) Joshua's teacher told him that his conclusion was incorrect. State what Joshua had done wrongly in his experiment. [1]

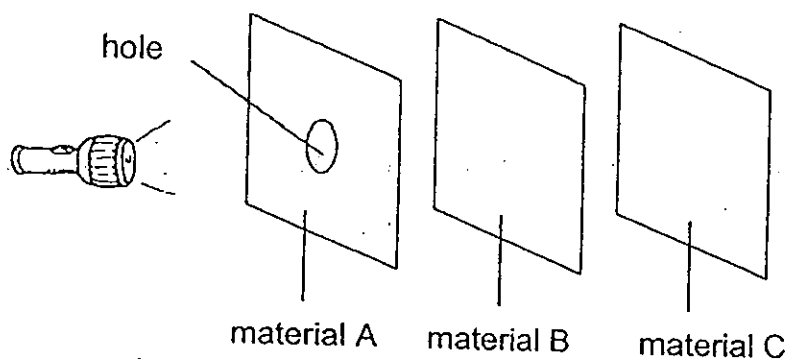
Joshua was then given the following objects by his teacher:

- a beaker of water
- a small piece of stone
- an empty measuring cylinder

He was asked to find the volume of the small piece of stone, making use of the objects given. Complete the blanks below by filling in the correct steps for 2 and 3. The first step has been provided. [2]

Step 1	Pour 50 ml of water from the beaker into the empty measuring cylinder.
Step 2	(i)
Step 3	(ii)

39. Suhailah carried out an experiment using 3 different materials in a dark room as shown below.



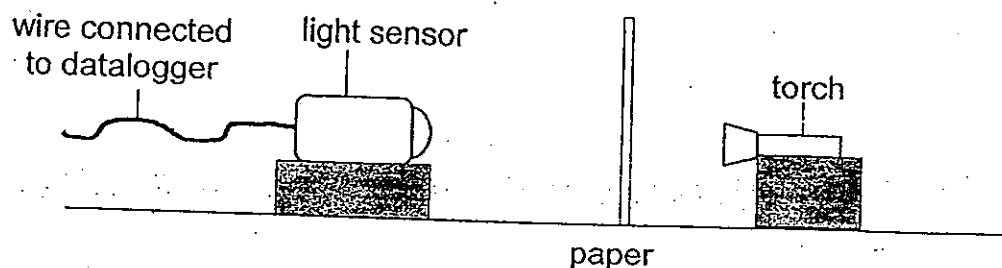
The materials A, B and C were all of the same thickness and size. She had arranged them in a straight line. She then shone a lighted torch through the hole in material A and observed that a bright circular patch of light was seen on material C only.

- (a) i) Based on her experiment, which material most likely had the same property as glass? [1]

Material _____

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

40. Rita set up the following experiment to find out how the amount of light recorded on the datalogger is affected by the number of sheets of paper that she used.

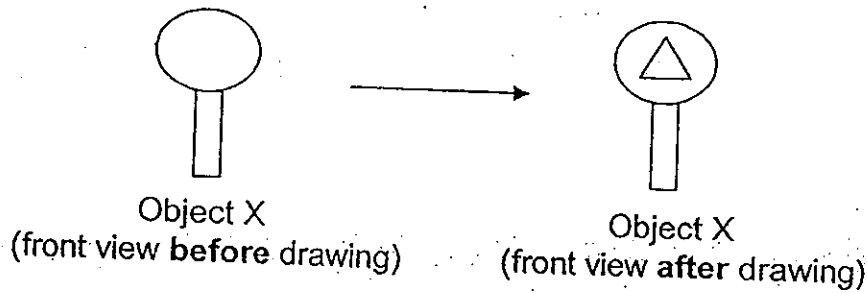


She repeated her experiment by increasing the number of sheets of identical paper used. She recorded her results in the table below.

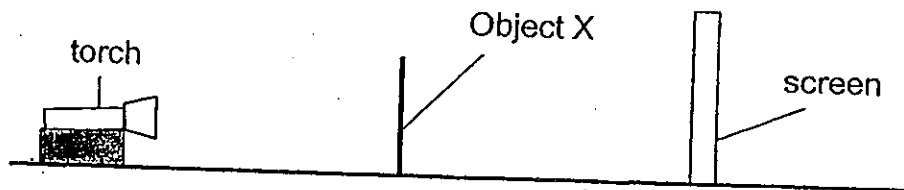
Number of sheets of paper	Amount of light detected (lux)
0	150
1	121
2	94
3	(a)
4	29
5	0

- (a) In the table above, fill in the value for the amount of light that could have been detected by the light sensor. [1]
- (b) Give a reason why she carried out the experiment with no paper in the beginning. [1]
- _____
- _____
- (c) State the relationship between the number of sheets of paper used and the amount of light detected by the light sensor. [1]
- _____
- _____
- (d) Give a reason for the results obtained when 5 sheets of paper were used. [1]
- _____
- _____

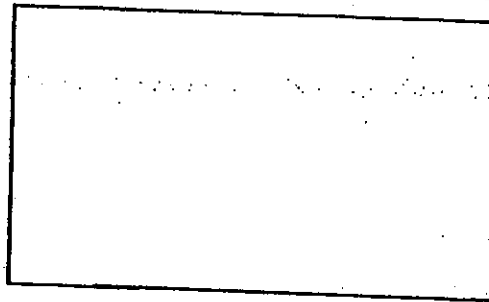
41. Lily made object X using a piece of cardboard as shown below. She then drew a triangle on object X.



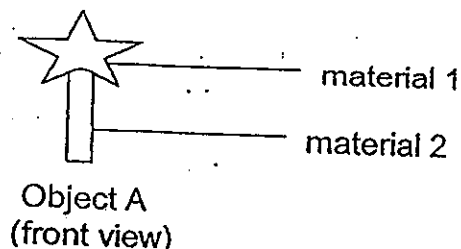
Next, she placed object X between a light source and a white screen as shown below.



- (a) In the box below, draw the shadow formed on the screen when the torch was shone onto the front view of object X. [2]



- (b) Two days later, Lily made object A using two different materials as shown below.



The shadow below was formed on the screen when the torch was shone onto object A.

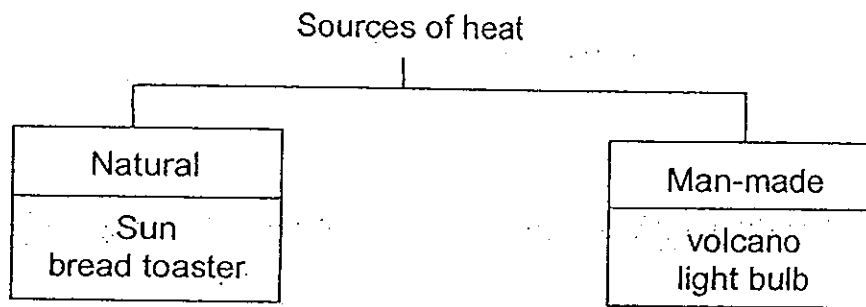


State the **degree of transparency** of the two materials used to create object A.

Material 1 : _____ [1]

Material 2 : _____ [1]

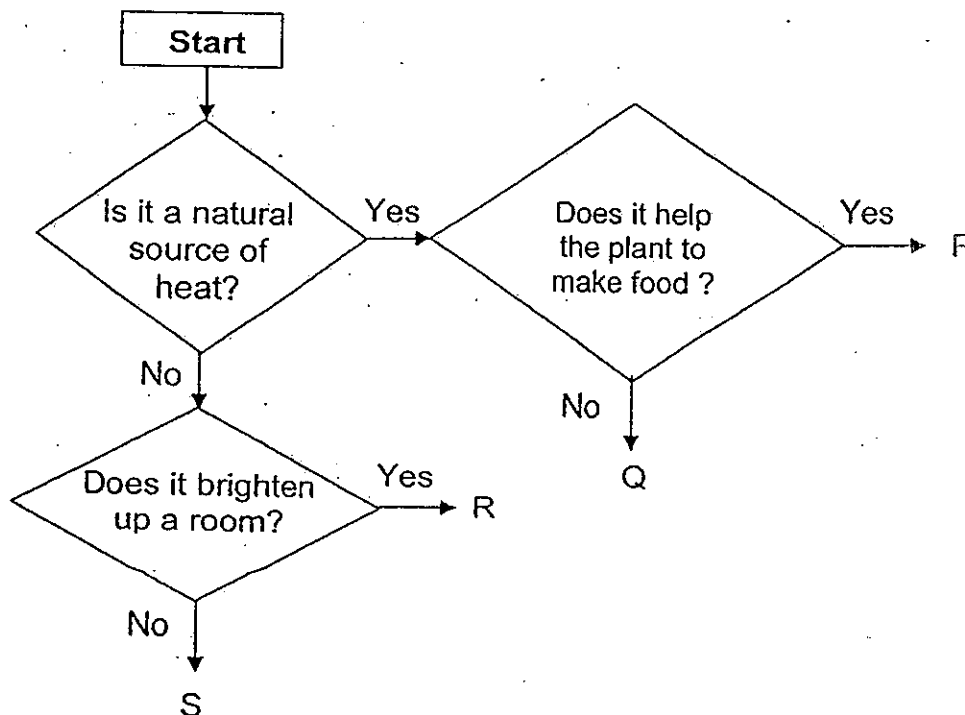
42. Danesh used his computer to draw the classification chart shown below.



His Science teacher spotted some mistakes in his classification chart.

- (a) Identify and explain the mistake(s) which Danesh had made in the chart above. [1]

Danesh then drew a flowchart as shown below.



- (b) Using only examples from the classification chart in part (a), identify P and R. [1]

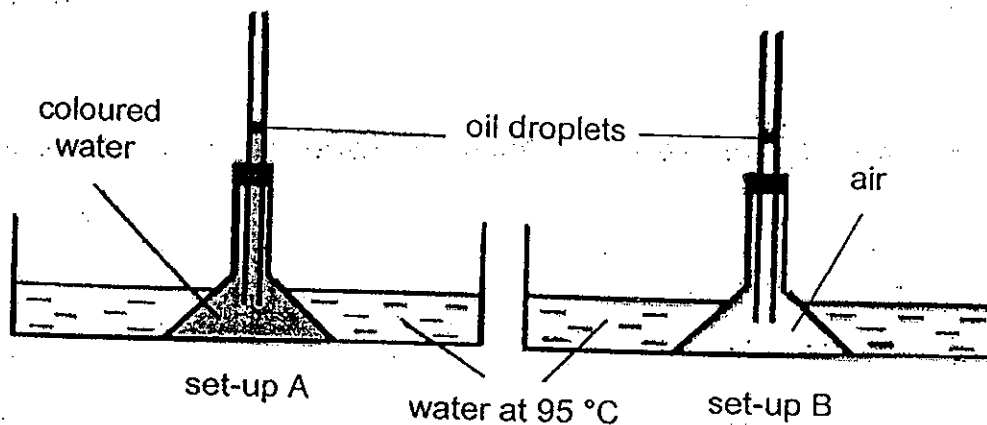
- (i) P : _____
- (ii) R : _____

- (c) After a while, Danesh realised that his computer felt hot. He noticed that a fan was found inside his computer, as shown in the diagram below.



Suggest the likely use of the fan inside the computer. [1]

43. Sam wanted to conduct an experiment to find out whether liquid or gas expands more when heated. He prepared the set-ups as shown in the diagram below. The oil droplets in set-ups A and B are at the same height at first.



When he placed both set-ups in identical basins of water of the same temperature, he noticed that the oil droplet in set-up B rose higher than that in set-up A.

- (a) Explain why the oil droplet in set-up B rose higher than that in set-up A. [2]

- (b) Had Sam conducted a fair test? Explain your answer. [1]

End of Paper

30

ANSWER SHEET

EXAM PAPER 2013

SCHOOL : NANYANG

SUBJECT : PRIMARY 4 SCIENCE

TERM : SA2

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

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

31) Stem
Roots

32)a)P b)S

33)a)Pull b)magnetic

34)a)Lighted lamp b)Candle flame c)Sun d)Lava

35)a)Thermometer b)24°C

36)a)i)Ribcage ii)Skull
b)Muscular

37)a)Similarity : Both organism Q and organism R lay eggs.

Difference : Q has four stages in its life cycle, whereas organism R has three stages in its life cycle.

b)11

c)The layer of oil blocks the air, causing organism Q to die.

38)a)The Styrofoam was not fully submerged.

Step 2 (i) Place the stone in the measuring cylinder filled with water.

Step 3 (ii) Record the new volume of water after the stone has been placed in it, and subtract the old volume from the new volume.

39)a)i)B.

ii)Material A and C had to be opaque as material A only can allow the light from the torch to pass through the hole and material C needed to be formed. Material B needed to be transparent as it had to allow most light to pass through to form a bright circular patch on material C.

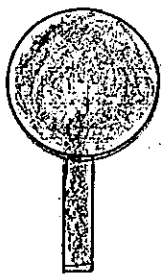
40)a)52

b)She needed to record the amount of light produced by the torch before adding the paper so that she could tell if there was a change.

c)The more sheets of paper used, the less light detected by the light sensor.

d)When 5 sheets of paper were used, they completely blocked the light from the torch.

41)a)



b)Opaque 2)Transparent

42)a)A bread toaster is a man-made source of heat, and a volcano is a natural source of heat.

b)i)Sun. ii)Light bulb.

c)The fan is used to remove unwanted heat.

43)a)The air gained heat and expanded more than the water, causing it to push the oil droplet higher.

b)Yes, he had. He had used an equal amount of water and air, and the oil droplets were at the same height at first, and he had placed the set-up in water of the same temperature.