



PEI HWA PRESBYTERIAN PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT

PRIMARY 4  
SCIENCE  
(BOOKLET A)

26<sup>th</sup> OCT 2023

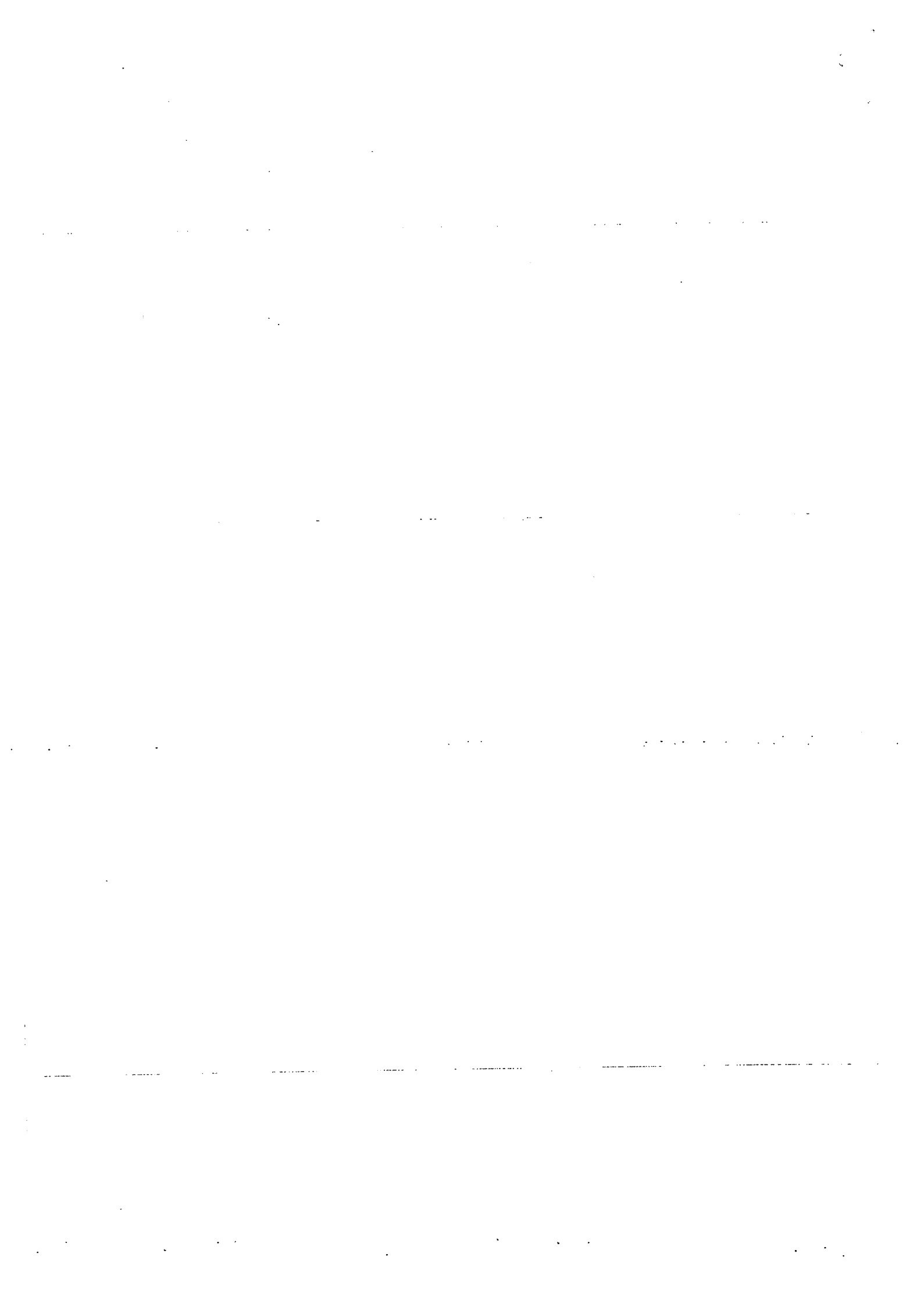
Name: \_\_\_\_\_ ( )

Class: Teamwork \_\_\_\_\_

**INSTRUCTIONS TO CANDIDATES**

1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

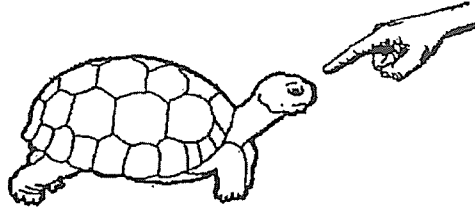
This booklet consists of 19 printed pages, excluding the cover page.



For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice and shade the oval (1, 2, 3 or 4) on the Optical Answer Sheet provided. (56 marks)

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- 1 A turtle hides itself in its shell when touched.



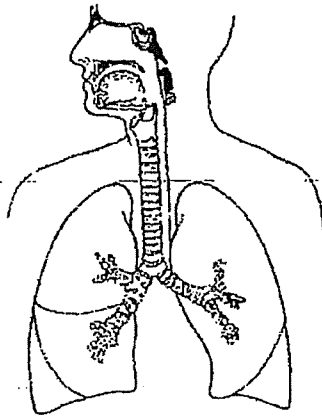
This shows that the turtle is a living thing because it can \_\_\_\_\_.

- (1) grow
  - (2) breathe
  - (3) respond
  - (4) reproduce
- 2 Jason made the following statements about a living thing.
- It reproduces by spores.
  - It does not make its own food.
  - It is used to bake bread and cakes.

Which group of living thing is Jason referring to?

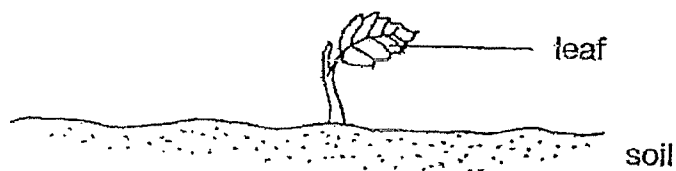
- (1) fungi
- (2) plants
- (3) bacteria
- (4) animals

3 Which organ system is shown in the diagram?



- (1) skeletal system
- (2) muscular system
- (3) circulatory system
- (4) respiratory system

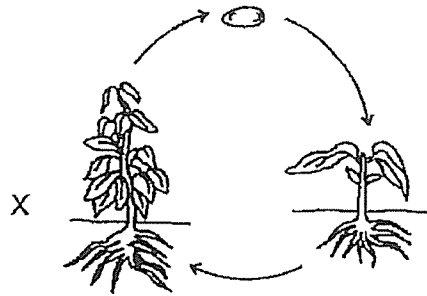
4 The diagram below shows a young plant.



The leaf helps the plant to \_\_\_\_\_.

- (1) make food
- (2) grow upright
- (3) absorb water
- (4) absorb nutrients

- 5 The diagram shows the life cycle of a plant.



What is the stage marked X?

- (1) egg
  - (2) seed
  - (3) adult plant
  - (4) young plant
- 6 Which of the following is a source of light?

(1)



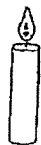
the moon

(2)



a flower

(3)



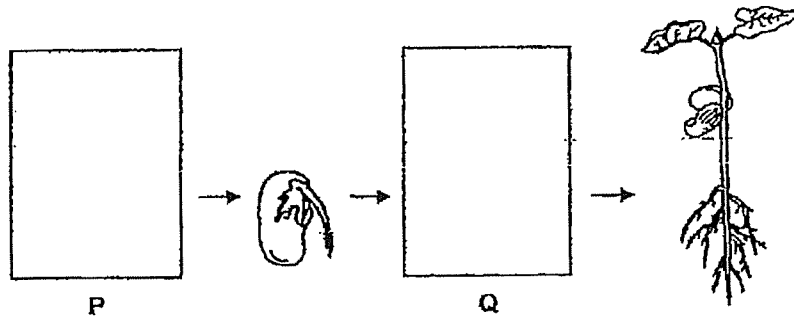
a candle flame

(4)



an apple

7 The diagram below shows the growth of a young plant with two missing stages P and Q.



Which one of the following shows the correct stages for P and Q?

	P	Q
(1)		
(2)		
(3)		
(4)		

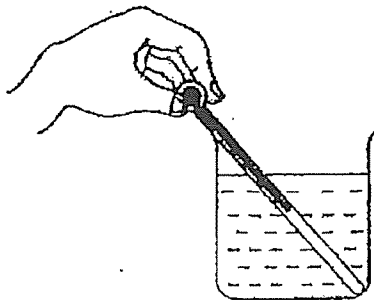
8 Which of the following can be attracted by a magnet?

- (1) steel ball
- (2) plastic ball
- (3) rubber ball
- (4) wooden ball

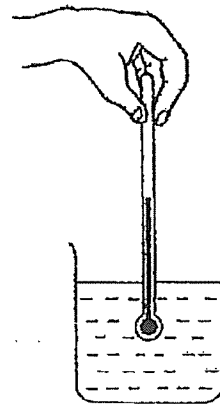
9 Nelly wants to measure the temperature of hot water in a beaker.

Which one of the following diagrams shows the correct position of the thermometer when taking the temperature reading?

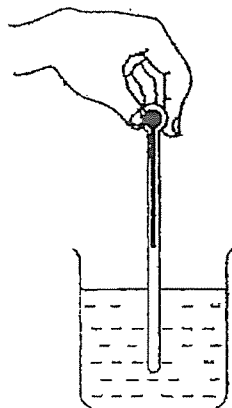
(1)



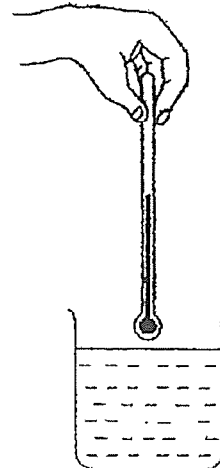
(2)



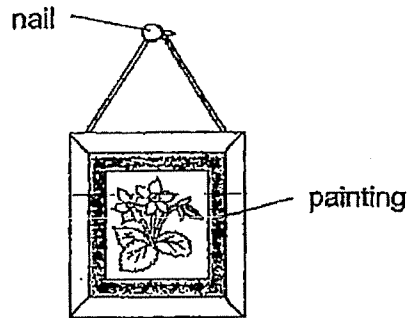
(3)



(4)



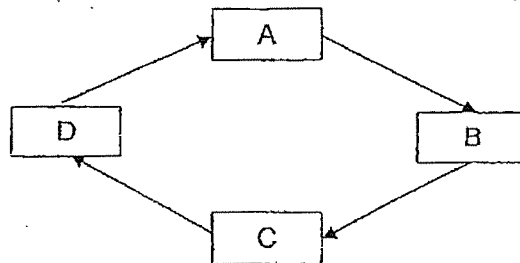
- 10 The diagram shows a painting hanging on a wall.



Iron is used to make the nail because iron \_\_\_\_\_.

- (1) is shiny
- (2) is strong
- (3) sinks in water
- (4) conducts heat well

- 11 The diagram below represents the stages A, B, C and D of the life cycle of a living thing.



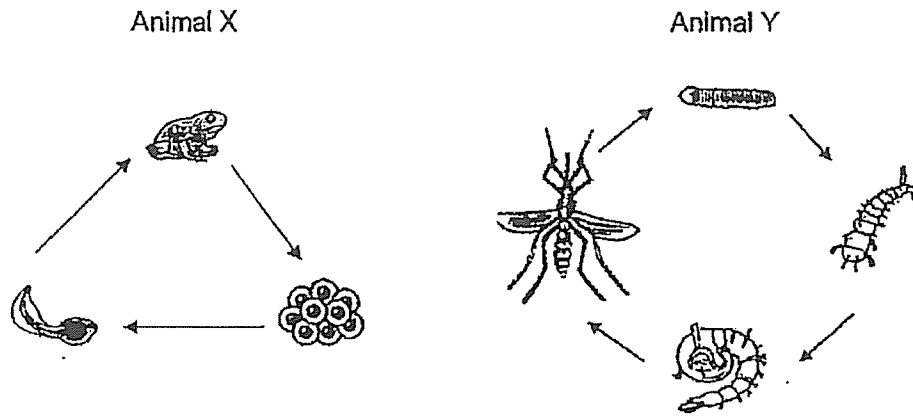
Stage B represents the stage where the living thing is able to reproduce.

At which stage would it eat a lot and moult?

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



- 12 The diagrams below show the life cycles of two animals, X and Y.



Which of the following statements correctly describes the similarities between the life cycles of Animals X and Y?

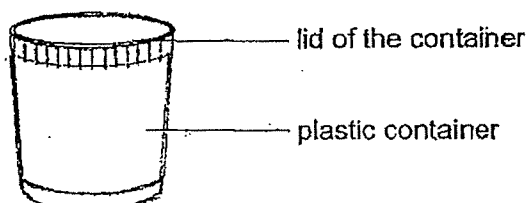
- A Both animals have an egg stage.
  - B The young of both animals live in water.
  - C Both animals have the same number of life stages.
  - D The young of both animals do not look like their adult.
- (1) A and D only  
 (2) B and C only  
 (3) A, B and D only  
 (4) A, B, C and D

- 13 Marion prepared four set-ups, P, Q, R and S, as shown in the table below.

Set-up	P	Q	R	S
Variables				
Number of green bean seeds	5	5	10	5
Amount of water added to the seeds every day (ml)	120	120	120	0
Location where the set-up is placed	Field	Freezer	Field	Field

Which two set-ups should be used to find out if water is needed for the seeds to grow?

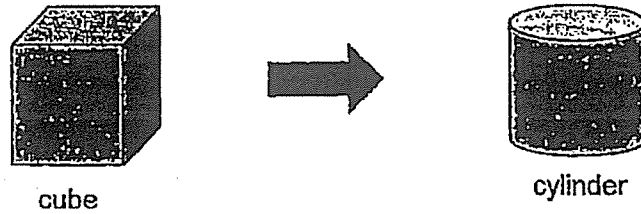
- (1) P and Q
  - (2) Q and R
  - (3) P and S
  - (4) R and S
- 14 Jen has a  $600 \text{ cm}^3$  plastic container with a lid as shown in the diagram below.



Which of the following matter can be totally placed into the plastic container and still allow Jen to close the container with the lid?

- A Pour  $500 \text{ cm}^3$  of milk.
  - B Pump in  $700 \text{ cm}^3$  of air.
  - C Put in 6 glass marbles each with a volume of  $100 \text{ cm}^3$ .
- (1) A and B only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

- 15 Jonathan used some clay to make a cube. Then he moulded the same piece of clay into a cylinder as shown below.



In what way(s) is/are the cube and the cylinder similar?

Both have the same \_\_\_\_\_.

- A mass
- B shape
- C volume

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

- 16 All carried out an experiment as shown in the diagram below. The volume of the ball is  $300 \text{ cm}^3$ . He pumped an additional  $50 \text{ cm}^3$  of air into the ball using a hand pump. The size of the ball remained the same.



Which of the following correctly describes the mass and volume of the ball after Ali did the above?

	Mass of the ball	Volume of the ball
(1)	increase	remained the same
(2)	decrease	decrease
(3)	increase	decrease
(4)	remained the same	increase

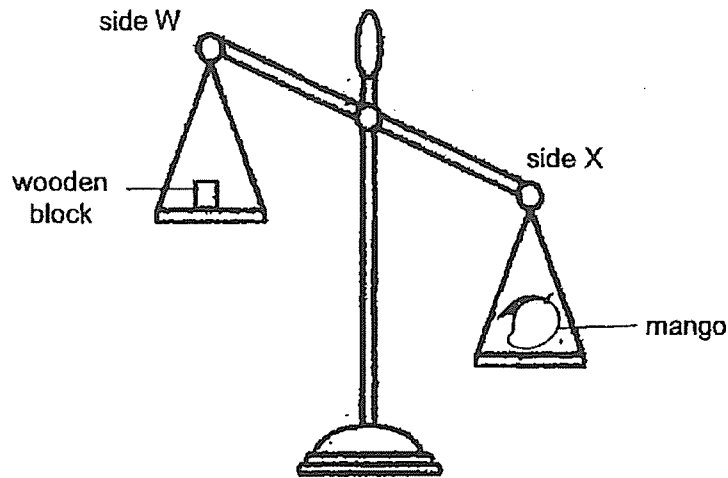
- 17 The table below shows the properties of substances Q, R and S.

Substance	Properties		
	Does it have a definite volume?	Does it have a definite shape?	Can it be compressed?
Q	√	x	x
R	x	x	√
S	√	√	x

Which of the following best represent substances Q, R and S?

	Substance Q	Substance R	Substance S
(1)	milk	air	pebble
(2)	air	milk	pebble
(3)	pebble	air	milk
(4)	milk	pebble	air

- 18 Alexia wanted to find out the mass of a mango using the set-up shown below. She placed a mango and a wooden block on a balance. She repeated the experiment by replacing the wooden block with other wooden blocks of different masses.



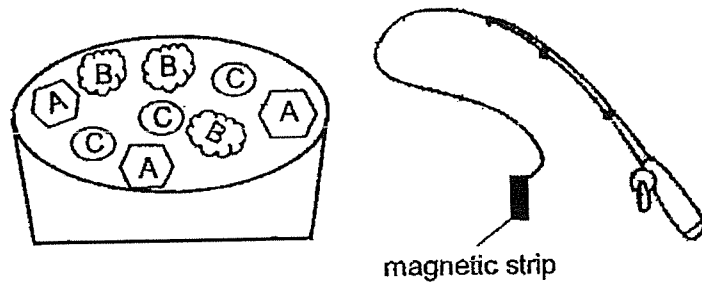
She then recorded her observations in the table below.

Mass of wooden block (g)	Side that tilted downwards
400	X
500	X
600	W
700	W

Based on the results above, which one of the following is most likely the mass of the mango?

- (1) equals to 400 g
- (2) less than 400 g
- (3) more than 500 g
- (4) equals to 600 g

- 19 Ben created a fishing toy using different materials. The fishing rod contains a magnetic strip that interacts with objects A, B and C as shown below.



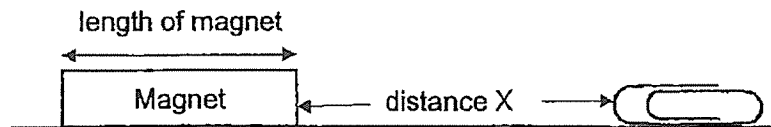
The table shows what happens to the toys when the fishing rod is brought closer to them.

Objects	Observation when the fishing rod was brought near
A	attracted
B	attracted
C	no interaction

Based on the results above, which one of the following shows the material that the objects were made of?

	A	B	C
(1)	plastic	iron	aluminium
(2)	iron	ceramic	aluminium
(3)	iron	steel	ceramic
(4)	aluminium	steel	glass

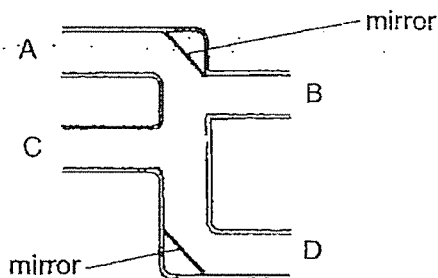
- 20 Hakim wanted to find out the magnetic strength of 4 magnets A, B, C and D with different length. He placed a steel clip near each magnet and measured the distance X at which the steel clip got attracted. He recorded the results in the table below.



Magnet	length of magnet (cm)	distance X (cm)
A	2	3
B	8	3
C	5	3
D	9	3

What can Hakim conclude from the results above?

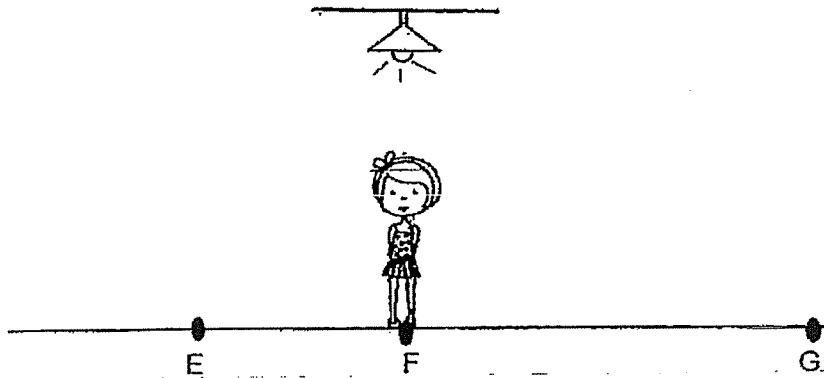
- (1) Magnetic strength is strongest at its pole.
  - (2) Magnetic strength depends on distance X.
  - (3) Magnet A is stronger than Magnet C but weaker than Magnet B.
  - (4) Magnetic strength does not depend on the length of the magnet.
- 21 The diagram below shows 2 mirrors that were placed inside a connection pipe.



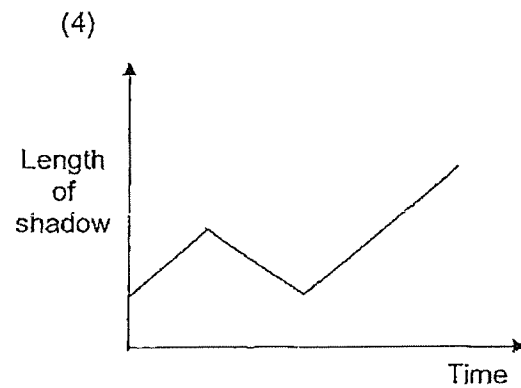
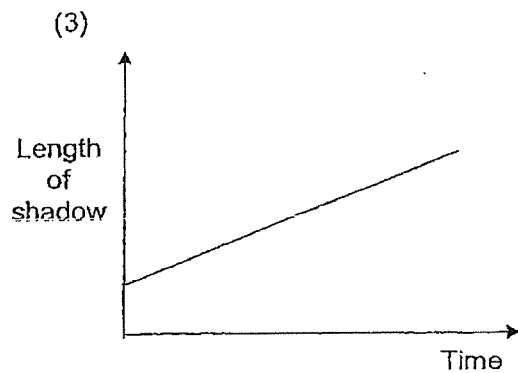
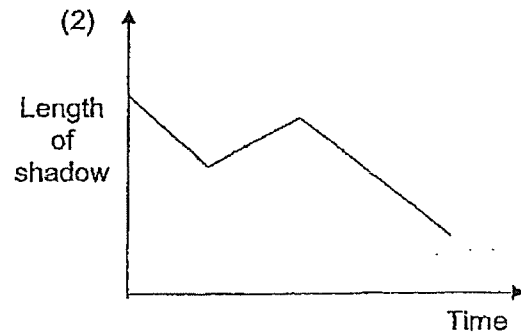
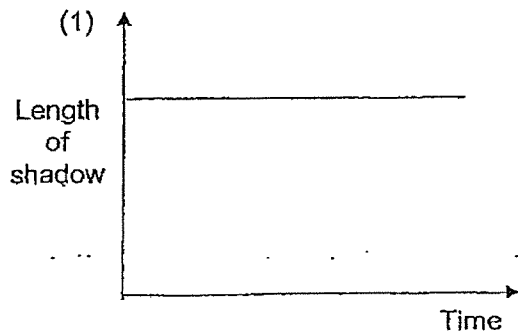
Which of following pair shows the correct position of an object which could be seen by the eye at the various positions?

	Position of object	Position of the eye
(1)	A	B
(2)	B	C
(3)	D	A
(4)	C	D

22 Xiaojun stood under a lamp as shown below.

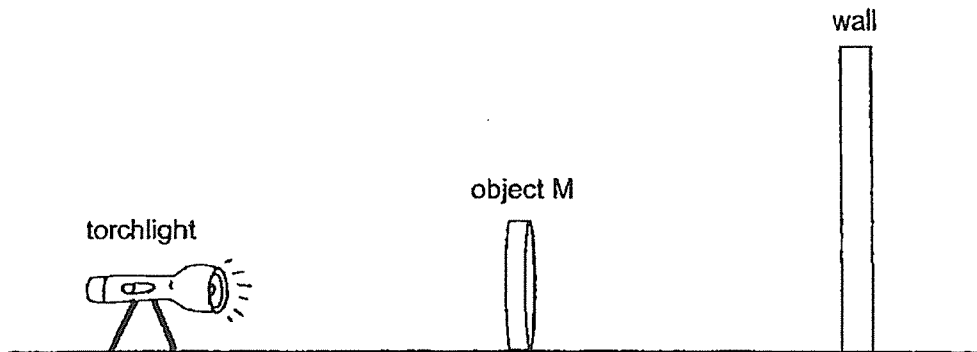


She walked from position F to E, and then to position G in a straight line. Which graph shows how the length of her shadow changed over this time?





- 23 Roger carried out an experiment to find out how the distance between object M and the torch affects the height of the shadow formed on the wall.



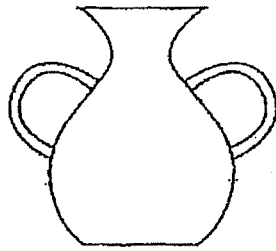
He recorded the results of his experiment in the table below.

Distance between object M and torch (cm)	Distance between wall and torch (cm)	Height of shadow on the wall (cm)
3	15	16
6	15	12
10	15	9
14	15	6

Which of the following conclusions can Roger make based on his results?

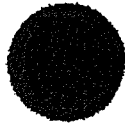
- (1) The nearer object M is to the wall, the taller the shadow.
- (2) The nearer object M is to the torch, the taller the shadow.
- (3) The further object M is to the torch, the taller the shadow.
- (4) The distance between object M and the torch does not affect the height of the shadow.

24 Study the object below carefully.

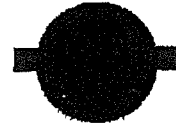


Which of the shadows shown below can be cast by the object?

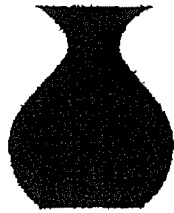
A



B



C

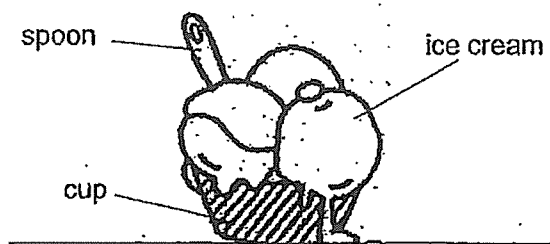


D



- (1) A and C only
- (2) B and D only
- (3) B, C and D only
- (4) All of the above

- 25 A spoon was placed in a cup of ice cream.



The metal spoon became colder after a while because the \_\_\_\_\_.

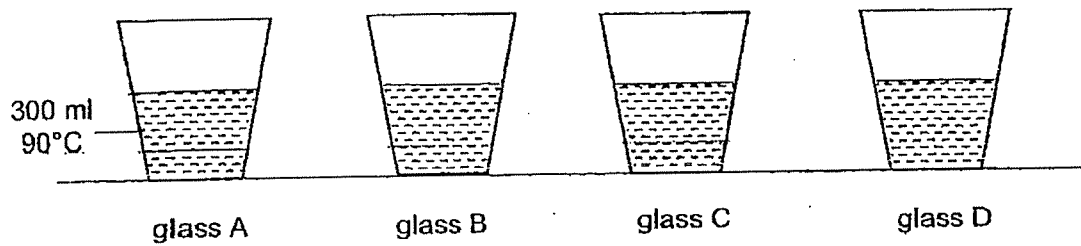
- (1) cup lost heat to the ice cream.
  - (2) spoon-lost heat-to the ice cream.
  - (3) ice cream lost heat to the spoon.
  - (4) spoon gained heat from the ice cream.
- 26 Jen was unable to separate two bowls that were stuck to each other.



Which of the following actions should Jen take to separate the two bowls?

- A Pour hot water into bowl A.
  - B Add some ice cubes into bowl A.
  - C Wrap a towel that was soaked in ice water around bowl B.
  - D Wrap a towel that was soaked in hot water around bowl B.
- (1) A and C only
  - (2) A and D only
  - (3) B and C only
  - (4) B and D only

- 27 300 ml of water at 90°C was added into 4 glasses made of different materials as shown below.



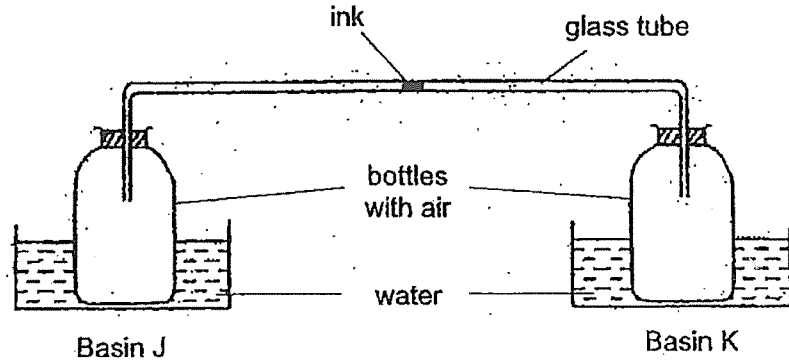
The table below shows the temperature of water in the glasses after 15 minutes.

Glass	Temperature after 15 minutes (°C)
A	85
B	70
C	45
D	30

Based on the information in the table above, which material would be most suitable to make a container to store ice cream?

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

- 28 Fred connected two identical bottles using a glass tube which contained a drop of ink. He placed one bottle in basin J and the other bottle in basin K as shown in the diagram below. Basins J and K contain equal amounts of water at different temperatures.



Which of the following shows the most likely result?

	Temperature of water (°C)		Direction of movement of ink
	Basin J	Basin K	
(1)	20	90	←
(2)	90	20	←
(3)	40	90	→
(4)	20	90	→

End of Booklet A



PEI HWA PRESBYTERIAN PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT

PRIMARY 4  
SCIENCE  
(BOOKLET B)

26<sup>th</sup> OCT 2023

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

Class: Teamwork \_\_\_\_\_

Parent's Signature

Total time for Booklets A and B: 1 h 45 min

**INSTRUCTIONS TO CANDIDATES**

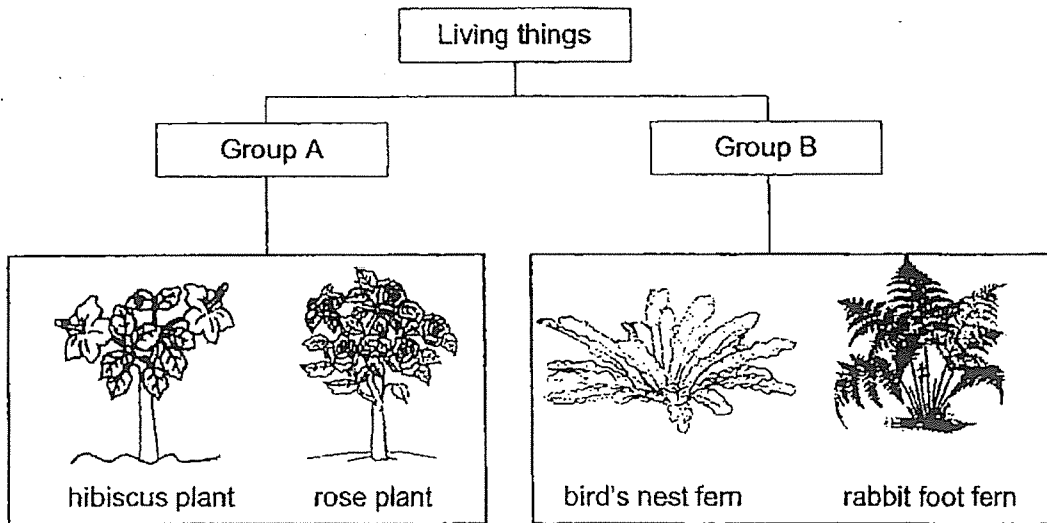
1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write all your answers in this booklet.

Marks (Booklet A) :	<b>56</b>
Marks (Booklet B) :	<b>44</b>
Total Marks (Booklets A & B) :	<b>100</b>

This booklet consists of 15 printed pages, excluding the cover page.

Write your answers to the questions 29 to 42 in the spaces provided.  
 The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

29 Study the classification chart below.



a) Choose the correct words from the box below to give suitable headings for Groups A and B. [2]

flowering plant      non-flowering plant      fungi      bacteria

Group A: \_\_\_\_\_

Group B: \_\_\_\_\_

(b) The diagram below shows living thing C.



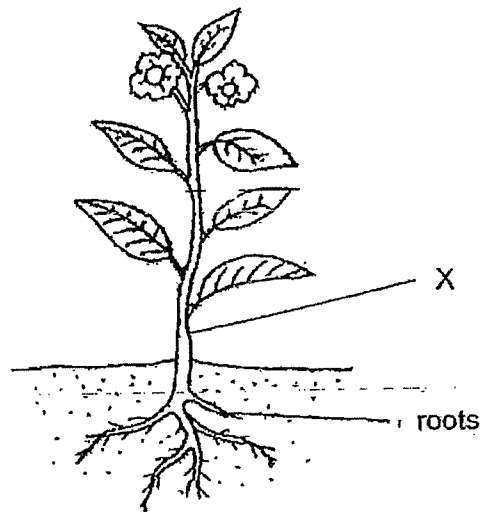
Based on the classification chart, in which group A or B should living thing C be placed in?

\_\_\_\_\_

[1]

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30 The diagram shows a plant.



(a) Based on the diagram above, how does the plant reproduce? [1]

\_\_\_\_\_

(b) Part X allows the plant to stand upright. Give a reason why it is necessary for them to stand upright. [1]

\_\_\_\_\_

(c) One substance that the roots of plant take in from the soil is [1]

\_\_\_\_\_

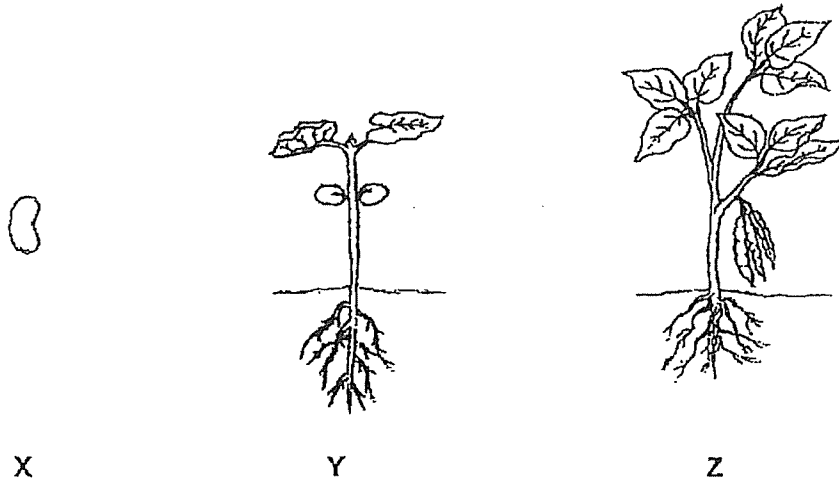
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31 The diagram below shows the stages in the life cycle of a plant.



(a) Choose the correct words from the box below to answer the question below.

egg	seed	young plant	adult plant
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Name stages X and Y in the life cycle of the plant.

[2]

X: \_\_\_\_\_

Y: \_\_\_\_\_

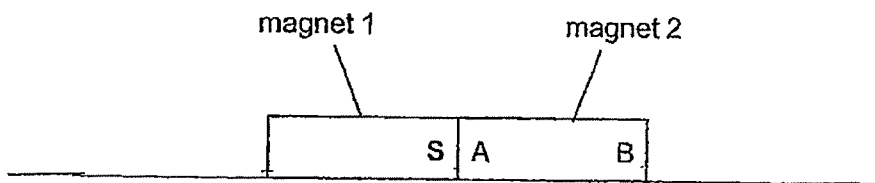
(b) Which part of a plant will emerge first?

[1]

\_\_\_\_\_

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- 32 Two magnets are placed together as shown below.



The South-pole of magnet 1 is labelled S.

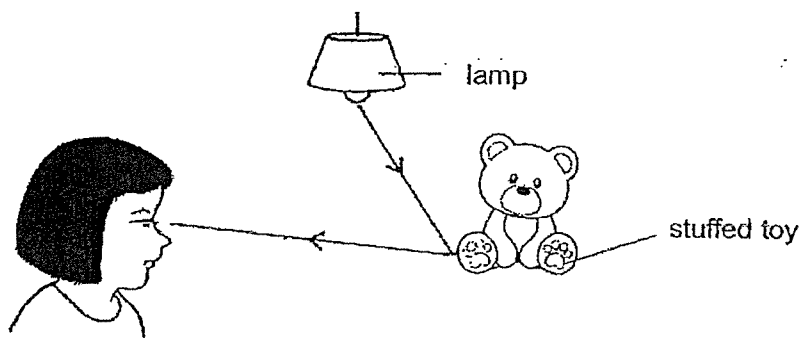
Name the poles labelled A and B on magnet 2.

[2]

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

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

- 33 The diagram below shows how Fatimah sees the stuffed toy.



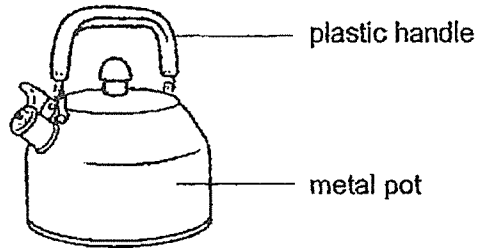
Fill in the blanks to complete the sentence below.

The \_\_\_\_\_ from the lamp is \_\_\_\_\_ by the stuffed toy and enters Fatimah's eye.

[2]

PLEASE DO NOT WRITE IN THIS MARGIN (Go on to next page)

34 The diagram below shows a kettle.



- (a) The handle is made of plastic because it is a \_\_\_\_\_ conductor of heat. [1]
- (b) The pot is made of metal because it is a \_\_\_\_\_ conductor of heat. [1]
- (c) Give a reason why the metal pot must be strong. [1]

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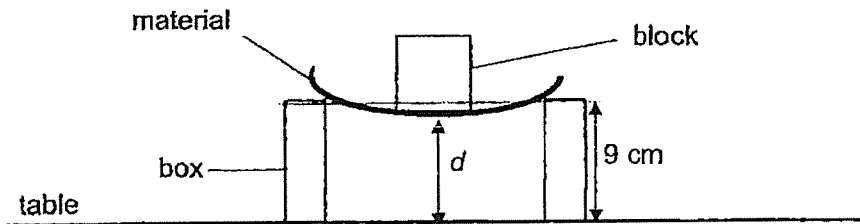
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- 35 Julian conducted an experiment using three different materials, S, T and U. He placed a block on the material, one at a time, and measured the distance ( $d$ ) between the table and the material as shown below. The height of the box is 9 cm.



He recorded the results in the table below.

Material	Distance ( $d$ ) cm
S	9
T	2
U	8

- (a) Which property of materials was Julian testing for? [1]

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- (b) Julian needed to choose a material to make part K of a belt.



Based on the results above, which material, S, T or U, is most suitable to make part K? Explain your answer. [2]

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- 36 The adult mosquito spreads dengue fever to human.

The table below shows how temperature affects the duration of the different stages in the life cycle of a mosquito.

Temperature (°C)	Duration (days)			Total number of days
	Egg stage	Larva stage	Pupa stage	
24	2	10	2	14
26	2	8	2	12
28	2	6	2	10
30	2	5	2	9

- (a) Where do adult mosquitoes lay their eggs? [1]

---

- (b) Which stage of the mosquito life cycle is affected by the change in temperature? [1]

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- (c) Based on the results above, what is the relationship between temperature and the duration of the mosquito to complete its life cycle? [1]

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- (d) State one way to prevent mosquito breeding at home. [1]

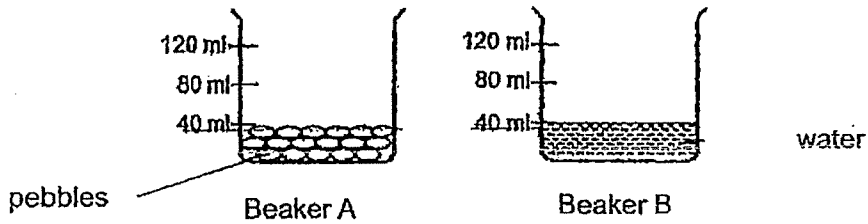
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37 Ravi filled beaker A with pebbles and beaker B with water as shown in the diagram below.

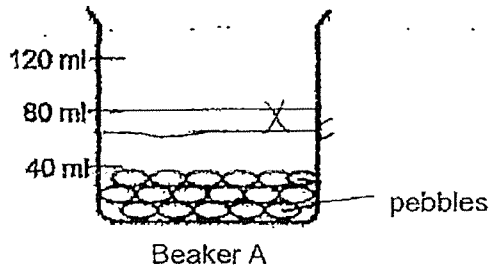


(a) From the diagram above, which property of pebbles shows that they are matter? [1]

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(b) Ravi poured all the water in beaker B into beaker A. Draw the water level in the diagram below. [1]



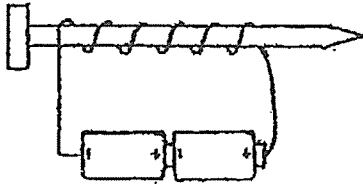
(c) Explain your answer in part (b). [1]

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- 38 Hui Li made an electromagnet using an iron nail as shown below. She placed some iron clips near the electromagnet and recorded her observations in the table below.



Number of coils of wire	Number of iron clips attracted
7	3
12	8
16	10
20	13

- (a) Based on the above results, what could Hui Li conclude about the magnetic strength of the electromagnet? [1]

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- (b) Suggest two changes to the experiment to find out if the number of batteries would affect the magnetic strength of the electromagnet? [2]

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

\_\_\_\_\_

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

\_\_\_\_\_

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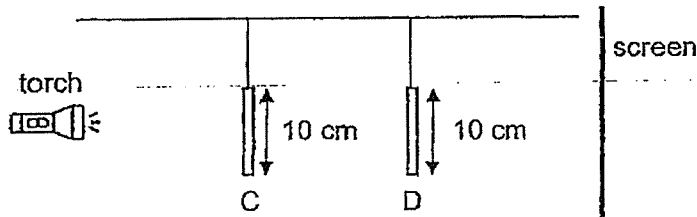
39 (a) How are shadows formed? [1]

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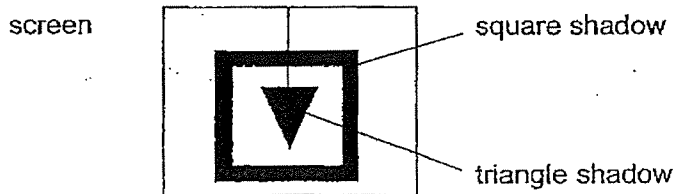


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The set-up below shows light from a torch shining on two objects, C and D, made from thick cardboard. The shapes are placed at different distances from the torch.



The diagram below shows the shadow that was formed on the screen.



(b) Which shape, C or D, is a triangle? [1]

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(c) Suggest one way to increase the size of the triangular shadow without changing the size of the square shadow or the materials in the experiment. [1]

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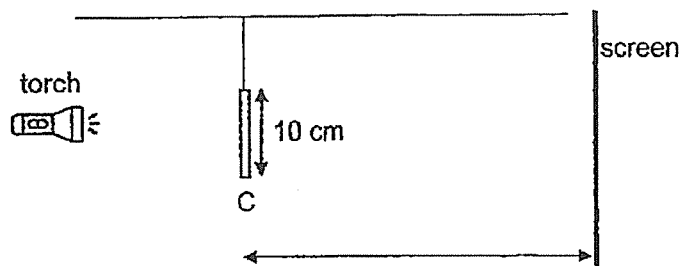


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Object D was removed and the distance between the torch and the screen was changed.



The height of the shadow formed on the screen was recorded in the table below.

Distance between Object C and the screen (cm)	Height of shadow (cm)
50	33
20	X

- (d) Based on the table above, what is a likely value for X?

[1]

---

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- 40 Ruth heated three different solids, E, F and G, with the same amount of heat and recorded the results as shown in the table.

Solid	Length of solid (cm)	
	Before heating	After heating
E	10	14
F	10	12
G	10	17

- (a) Based on the results, what effect does heat have on solids E, F and G? [1]

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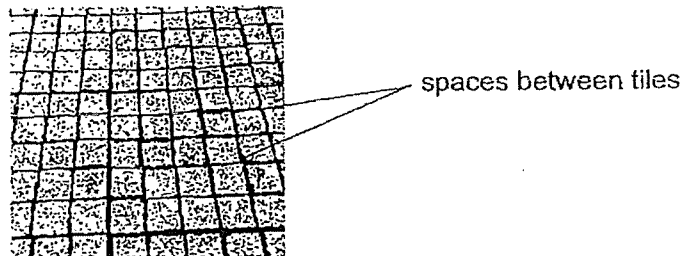
- (b) Ruth then stopped heating the solids and left them at the same location for 5 hours. She observed that their lengths returned to 10 cm. Give a reason to her observation. [1]

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- (c) Outdoor pavements often have spaces in between the tiles as shown below.



- Suggest a reason why there are spaces between the tiles. [1]

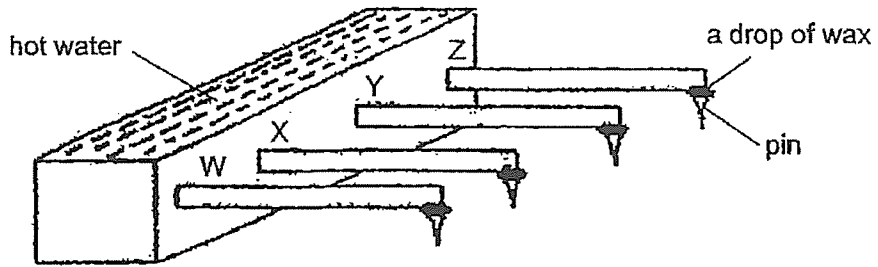
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- 41 Marcus wanted to find out which rods, W, X, Y or Z, is the best material to make a cooking pot. He set-up the experiment as shown below. A pin was stuck at the end of each rod with a drop of wax before hot water was poured in the container.



- (a) Beside keeping the length of the rods the same, state 2 other variables that he should keep the same. [2]

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- (b) Circle the correct answers. [1]

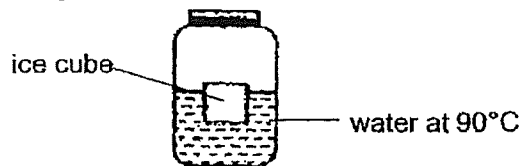
The material that should be used to make the base of a cooking pot is the one whose pin dropped the ( first / last ). It is the ( best / poorest conductor of heat.

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42 Chelsea filled a jar with some water at a temperature of 90°C. She placed an ice cube into it as shown in the diagram below.



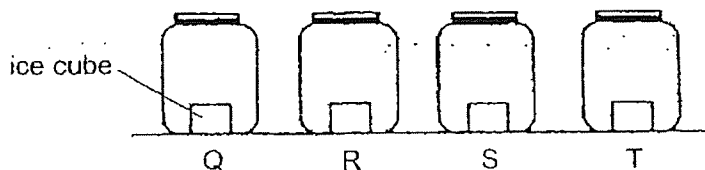
(a) After 5 minutes, would the temperature of water in the jar be higher than, same as or lower than 90°C? [1]

\_\_\_\_\_

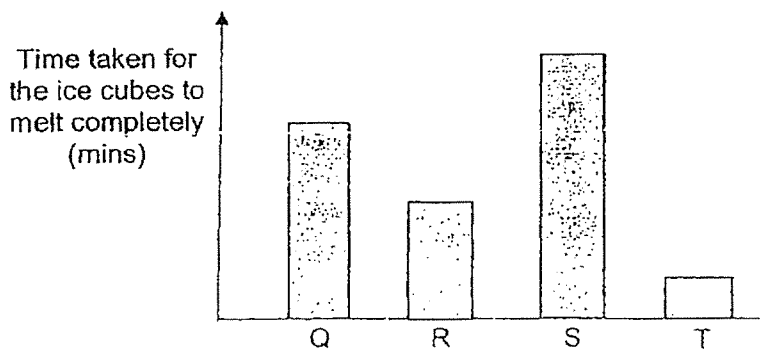
(b) Give a reason to your answer in part (a). [1]

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

Chelsea placed four similar ice cubes in four jars, Q, R, S and T, made of different materials. She left the jars in the living room.



She recorded the time taken for the ice cubes to melt completely and plotted the readings in the graph below.



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(c) Which jar, Q, R, S or T, is most suitable to make a food container so that hot food will be kept warm the longest? [1]

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(d) Explain your choice in part (c). [2]

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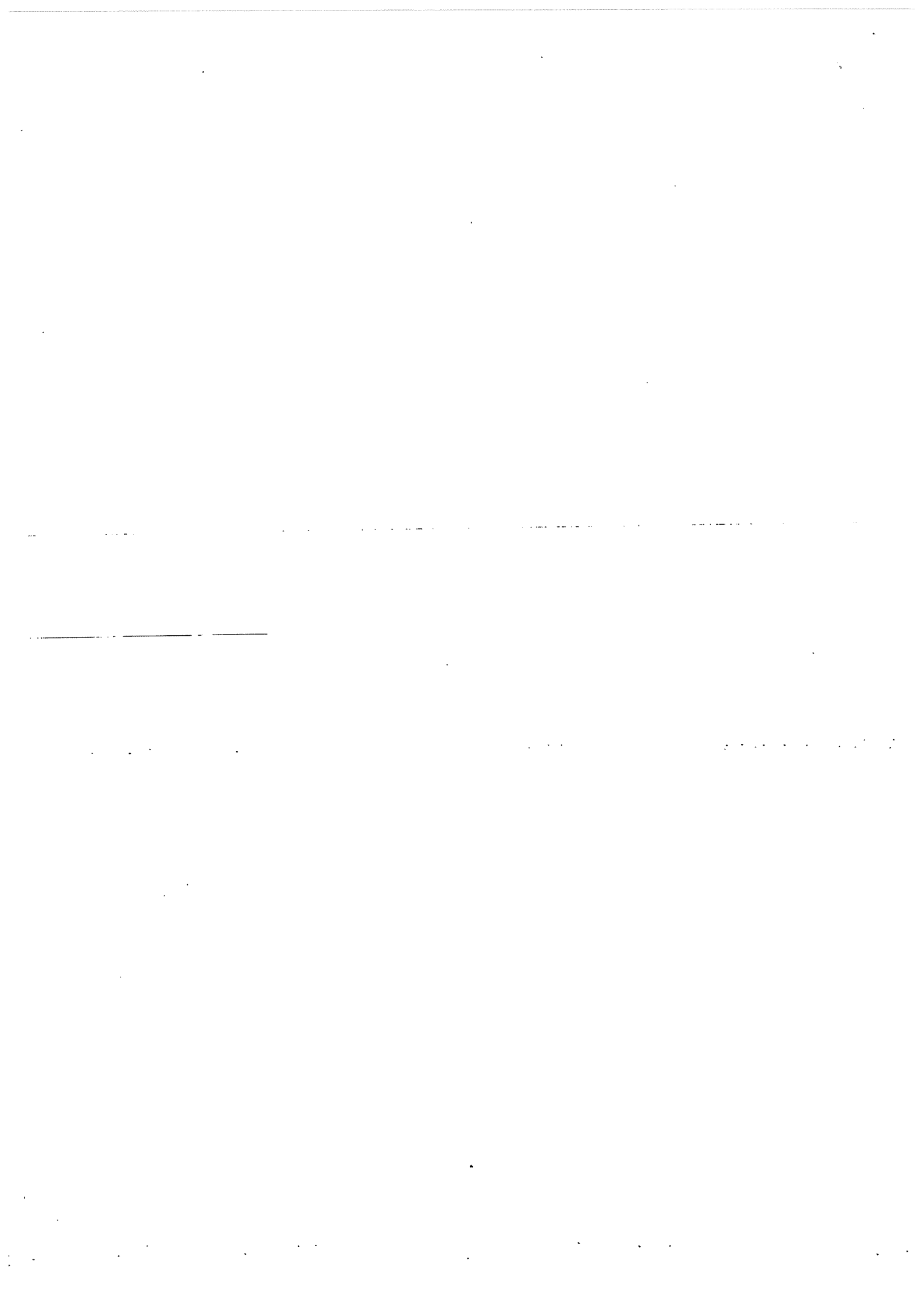
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End of Booklet B

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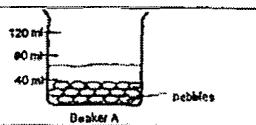
**SCHOOL : PEI HWA PRIMARY SCHOOL**  
**LEVEL : PRIMARY 4**  
**SUBJECT : SCIENCE**  
**TERM : 2023 SEMESTRAL ASSESSMENT**

**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	1	4	1	3	3	4	1	2	2
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	3	3	1	2	1	1	3	3	4
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
3	4	2	3	2	4	1	1		

**SECTION B**

Q29)	a) group A: Flowering plants group B: non-flowering plants b) Group A
Q30)	a) The plant reproduces by seeds b) It allows the plant to trap sunlight to make food c) Water
Q31)	a) X: Seed Y: Young plants b) The roots
Q32)	A: North B: South
Q33)	The light from the lamp is reflected by the stuffed toy and enters Fatimah's eye
Q34)	a) Poor b) Good c) The metal pot must be strong to carry water without breaking
Q35)	a) The flexibility of materials b) It is the most flexible so it can go around a person's waist

Q36)	<ul style="list-style-type: none"> <li>a) They lay eggs in stagnant water</li> <li>b) The larva stage</li> <li>c) As the temperature increases, the duration the mosquito takes to complete its cycle decreases</li> <li>d) Covering the bamboo pole holders</li> </ul>
Q37)	<ul style="list-style-type: none"> <li>a) Solids have a definite volume.</li> </ul>  <ul style="list-style-type: none"> <li>b)</li> <li>c) Same water filled the spaces between the pebbles</li> </ul>
Q38)	<ul style="list-style-type: none"> <li>a) The magnetic strength of the magnet increases with more number of coils of wire around the nail.</li> <li>b) (i) add more batteries to the electromagnet (ii) Keep the number of coils of wire around the iron nail the same</li> </ul>
Q39)	<ul style="list-style-type: none"> <li>a) They are formed when light is blocked by an object</li> <li>b) Shape D</li> <li>c) Move D closer C</li> <li>d) 20cm</li> </ul>
Q40)	<ul style="list-style-type: none"> <li>a) Solids E, F and G gained heat and expanded</li> <li>b) The solids loss heat to the surroundings and contracted to its original size</li> <li>c) It is to provide space for the tiles to expand to prevent cracking</li> </ul>
Q41)	<ul style="list-style-type: none"> <li>a) The thickness of the rods and the size of the pin</li> <li>b) Circle "first" "Best"</li> </ul>
Q42)	<ul style="list-style-type: none"> <li>a) Lower than 90 degrees</li> <li>b) The water lost heat to the ice cube and the surroundings</li> <li>c) Jar S</li> <li>d) Ice cube in S took longest to melt so S is the poorest conductor of heat.</li> </ul>