Anglo-Chinese School (Primary)

A Methodist Institution
(Founded 1886)

SEMESTRAL ASSESSMENT TWO 2020
SCIENCE
PRIMARY FOUR
BOOKLET A

Name: _____ ( ) **Class: Primary 4** ____

Date: 28 October 2020 **Total Time for Booklets A and B: 1 h 45 min**

Additional Materials: Optical Answer Sheet (OAS)

INSTRUCTIONS TO CANDIDATES

1. Write your name, index number and class in the spaces provided.
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 answer on the Optical Answer Sheet (OAS) provided.

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

(56 marks)

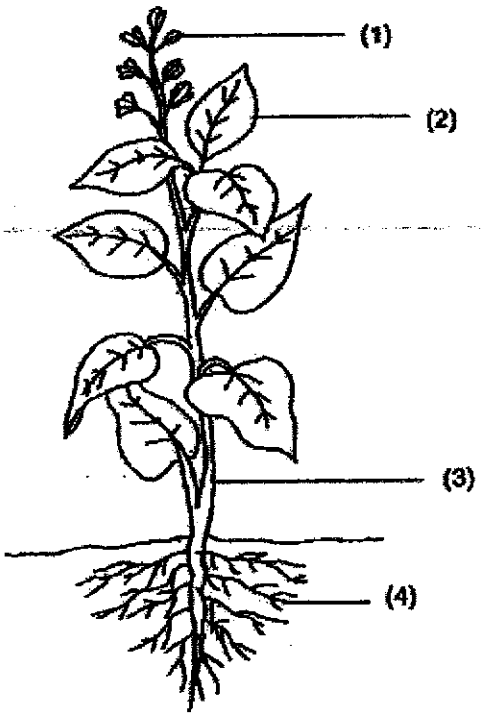
1 A snail hides itself in its shell when touched.



This shows that the snail is a living thing because it _____.

(1) breathes
(2) needs food
(3) can respond
(4) can reproduce

2 Which part, (1), (2), (3) or (4), holds the plant upright?



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3 The arrows (—►) in the diagram show the direction of movement of a substance in plants.

roots —► stem —► leaves

What is this substance?

(1) water

(2) food

(3) soil

(4) air

4 Which animal has a pupa as a stage in its life cycle?

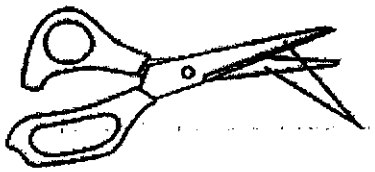
(1) frog

(2) beetle

(3) chicken

(4) grasshopper

5 The diagram shows a pair of scissors.



Metal is used to make the blades of the scissors because metal _____.

(1) is shiny

(2) can block light

(3) does not break easily

(4) can bend without breaking

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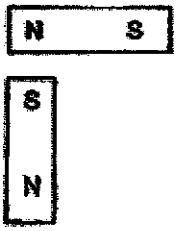
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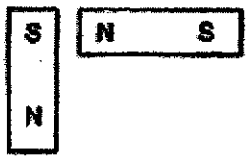
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6 Which of the following substances has a fixed shape?

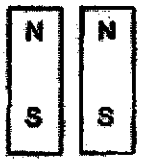
(1) air
(2) milk
(3) oil
(4) rock

7 In which of the following will the two magnets push each other away?

(1) 

(2) 

(3) 

(4) 

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8 Which of the following is a source of light?

(1)



the moon

(2)



burning log

(3)



a leaf

(4)



a mirror

9 Which of the following is NOT a source of heat?

(1) The Sun

(2) A lighted bulb

(3) A candle flame

(4) A woollen sweater

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10 Which one of the following is the best conductor of heat?

(1) A metal plate

(2) A paper plate

(3) A plastic plate

(4) A wooden plate

11 Jane made the following statements on the young of animal P.

Young of animal P:
- breathes using gills
- does not look like the adult

Based on the observations, animal P is most likely to be a _____.

(1) frog
(2) whale
(3) beetle
(4) butterfly

12 Al Mei recorded some information about the life cycle of a butterfly and a chicken.

		Butterfly	Chicken
A	Lays eggs in water	No	No
B	Has 4 stages in its life cycle	Yes	Yes
C	The young resembles the adult	No	Yes

Which of the following options shows the correct information about the two life cycles?

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

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13 Richard noticed that the number of caterpillars in his garden decreased after two weeks. He wrote down some reasons for this observation.

A The caterpillars have died.

B The caterpillars have laid eggs.

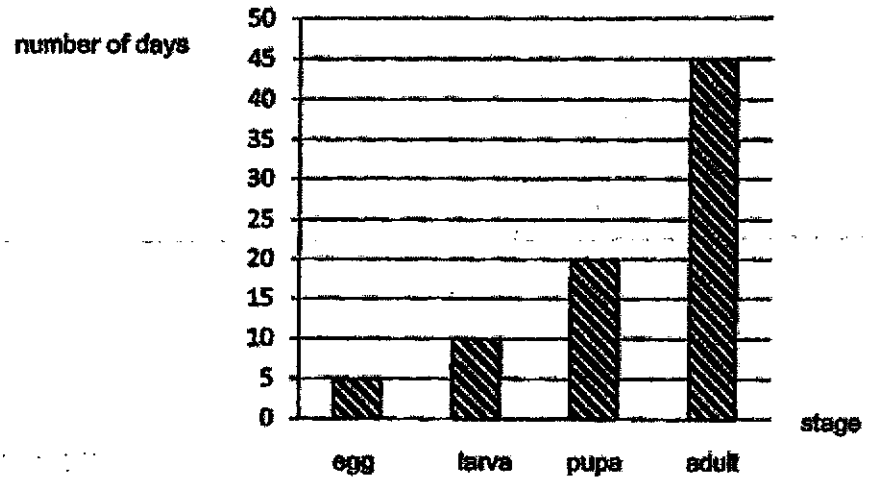
C The caterpillars have turned into pupae.

D The caterpillars have been eaten by other animals.

Which of the following are possible reasons to explain why the number of caterpillars decreased?

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

14 The bar graph shows the stages and the number of days that animal Z remains at each stage of its life cycle.



How many days does it take for animal Z to become an adult after hatching from its egg?

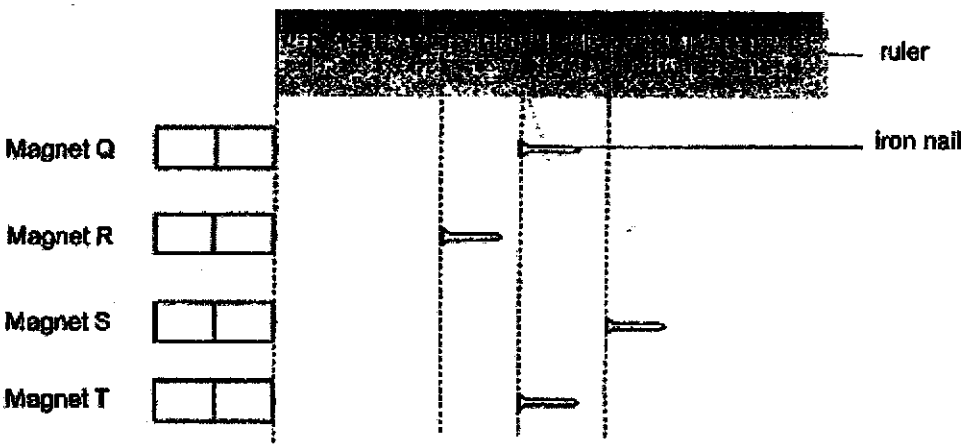
(1) 10
(2) 30
(3) 35
(4) 75

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15 John wanted to find out the magnetic strength of four different magnets Q, R, S and T. He moved an iron nail slowly towards magnet Q and measured the distance when the nail was just attracted by the magnet. He repeated this experiment with magnets R, S and T. The results are shown in the diagram.



Based on the above results, the magnetic strength of _____.

(1) Magnet S is the greatest.

(2) Magnets Q and R is the same.

(3) Magnet Q is lesser than Magnet R.

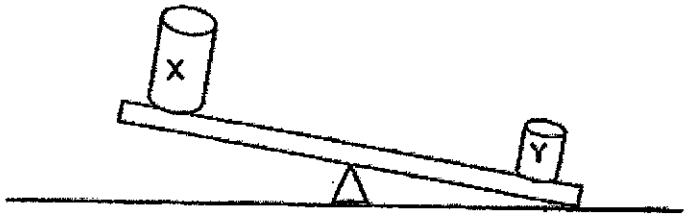
(4) Magnet T is greater than Magnet S.

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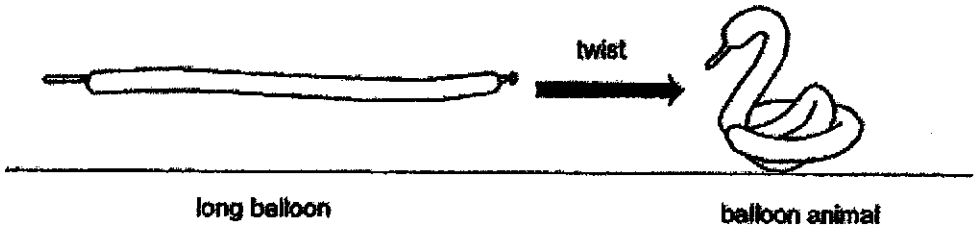
16 Two objects X and Y are placed on a balance as shown.



Based on the diagram, which of the following statements is correct?

(1) Object Y has less mass than object X.
(2) Object Y has more mass than object X.
(3) Object Y has a bigger volume than object X.
(4) Objects X and Y are made of the same material.

17 George fills up a long balloon with air and twists it to form a 'balloon animal' as shown.



Which of the following statements best explains why he is able to twist the long balloon into a 'balloon animal'?

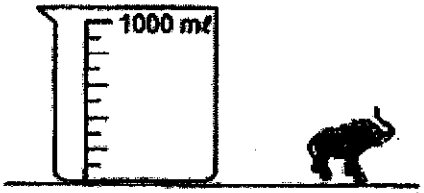
(1) Air has mass.
(2) Air occupies space.
(3) Air does not have a definite shape.
(4) Air does not have a definite volume.

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18 Leela wanted to find the volume of her toy animal using the beaker shown.



The following are the steps that she took to find the volume of the toy animal.

A Read the new volume of water.

B Fill the beaker with 500 mℓ of water.

C Lower the toy animal gently into the beaker.

D Calculate the difference between the old and new volume.

Which of the following shows the correct sequence of steps she took to find out the volume of the toy animal?

(1) A, B, C and D

(2) B, A, C and D

(3) B, C, A and D

(4) C, B, A and D

19 Ali recorded the properties of P, Q and R as shown.

	Does it have mass and volume?	Does it have a definite shape?	Does it have a definite volume?	Can it be compressed?
P	No	No	No	No
Q	Yes	Yes	Yes	No
R	Yes	No	No	Yes

Based on the table above, which of the following correctly identifies P, Q and R?

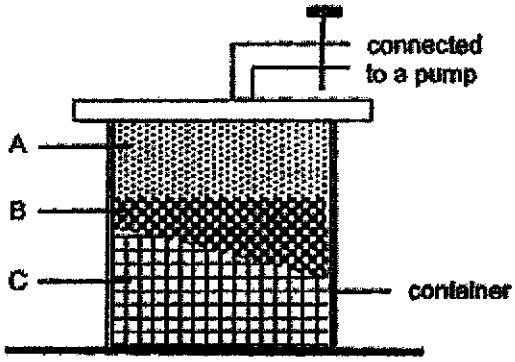
	P	Q	R
(1)	Balloon	Pen	Sponge
(2)	Light	Pen	Air
(3)	Air	Milk	Pen
(4)	Heat	Pen	Milk

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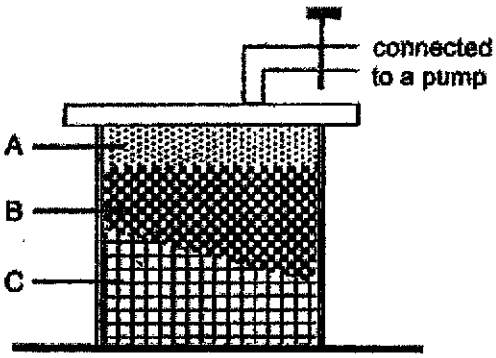
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20 At the start of her experiment, Jane had a container that contains three substances A, B and C as shown. Then, she added more of substance B into the container using the one-way pump. The final levels of substances A, B and C at the end of the experiment are shown in the diagrams.



Start of experiment



End of experiment
(after more of substance B was added)

Based on the diagrams above, which of the following correctly identifies the state of substances A, B and C?

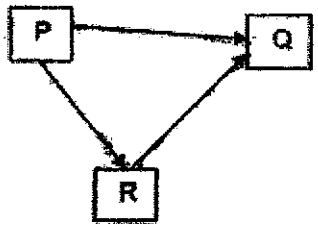
	A	B	C
(1)	Gas	Liquid	Solid
(2)	Liquid	Solid	Gas
(3)	Liquid	Gas	Solid
(4)	Gas	Solid	Liquid

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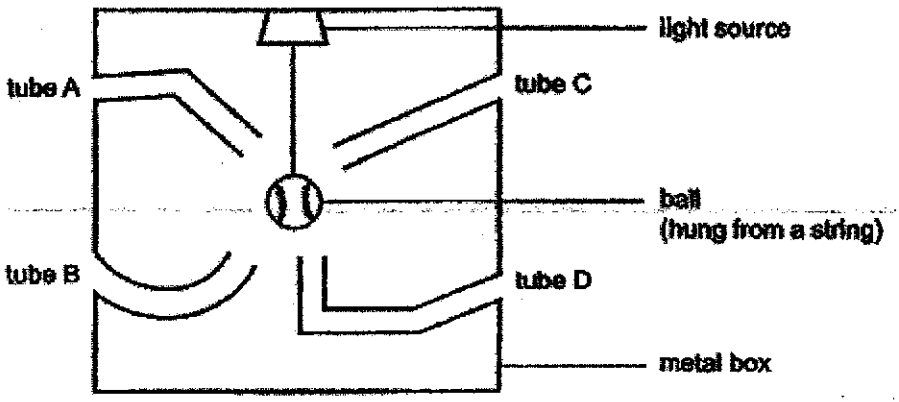
21 James is able to see an object in a brightly-lit room. The arrows (→) in the diagram show the paths of light.



Which of the following identifies P, Q and R correctly?

	P	Q	R
(1)	light source	James' eyes	object
(2)	James' eyes	light source	object
(3)	light source	object	James' eyes
(4)	object	James' eyes	light source

22 Edison placed a ball in the middle of a metal box with four hollow tubes and a light source as shown in the diagram.



Based on the diagram above, through which tube can he see the ball?

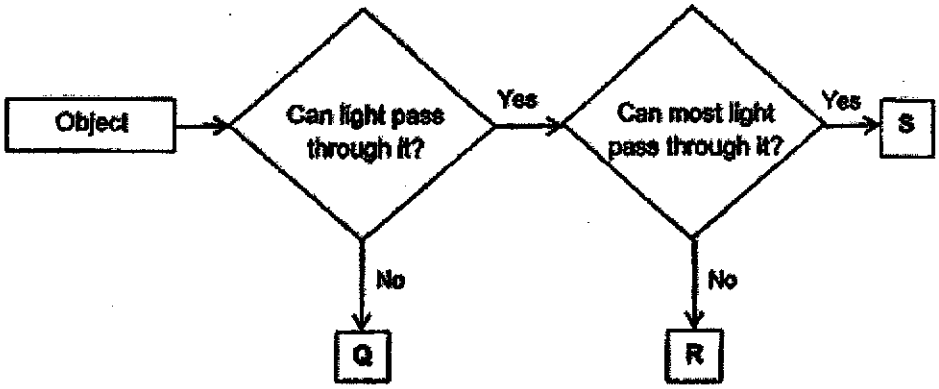
(1) A
(2) B
(3) C
(4) D

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23 Study the flow chart carefully.



Based on the flow chart above, which of the following best represents objects Q, R and S?

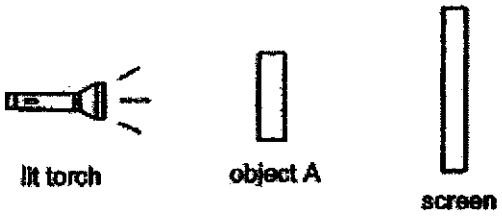
	Q	R	S
(1)	frosted glass	thick cardboard	clear plastic sheet
(2)	thick cardboard	frosted glass	clear plastic sheet
(3)	thick cardboard	clear plastic sheet	frosted glass
(4)	clear plastic sheet	frosted glass	thick cardboard

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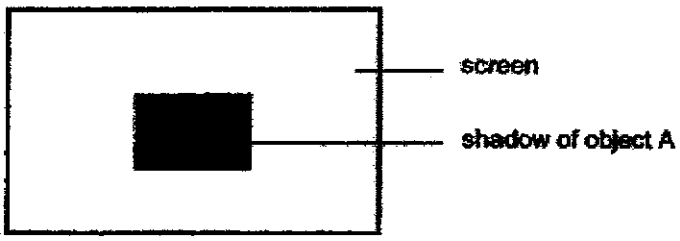
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24 Colin carried out an experiment in a dark room using the set-up as shown.



When he switched on the torch, he saw the shadow of object A on the screen as shown in the diagram below.



Based only on the observation above, which of the following statements is true?

(1) Object A did not allow light to pass through.

(2) Object A allowed most light to pass through.

(3) The shadow changed shape when the screen was moved nearer to object A.

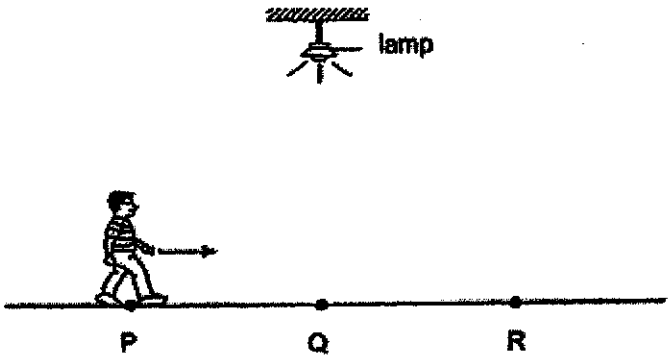
(4) The shadow changed shape when the screen was moved further from object A.

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25 *Edmund walked in a straight line from P to R as shown in the diagram. At Q, he was directly under the lamp. The distance between P and Q is the same as the distance between Q and R.*



Based on the diagram above, which of the following statements is correct about the length of Edmund's shadow?

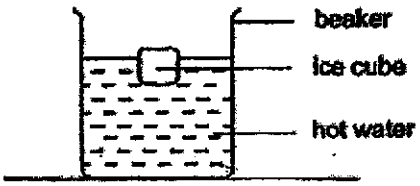
(1) His shadow was the longest when he was at Q.

(2) His shadow was the shortest when he was at Q.

(3) As he walked from P to Q, his shadow became longer.

(4) As he walked from Q to R, his shadow became shorter.

26 Andrew placed an ice cube into a beaker filled with hot water.



Which of the following statements is correct?

(1) The ice cube lost heat to the water.

(2) The water lost heat to the ice cube.

(3) The ice cube did not gain or lose heat.

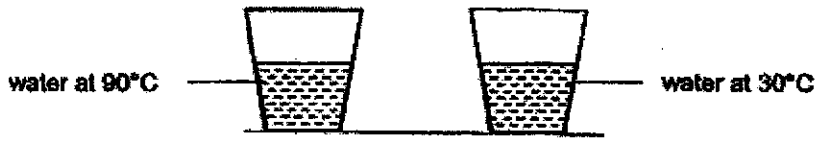
(4) The water gained heat from the beaker.

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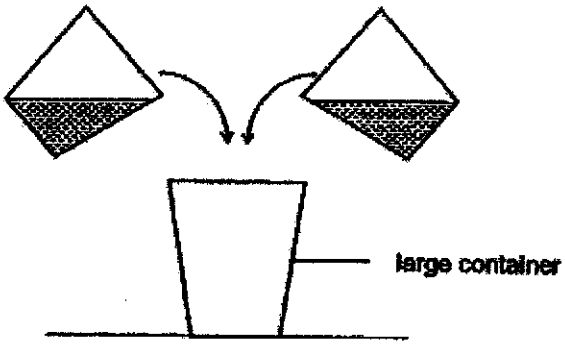
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27 Bala filled up two glasses with the same amount of water. The temperatures of water at the start of the experiment are as shown.



Bala then mixed all the water from both glasses into a large container. He immediately measured the temperature of water in the large container.



Based on the information given above, the temperature of water in the large container that was immediately measured by Bala was _____.

(1) 60°C

(2) higher than 90°C

(3) between 0°C to 30°C

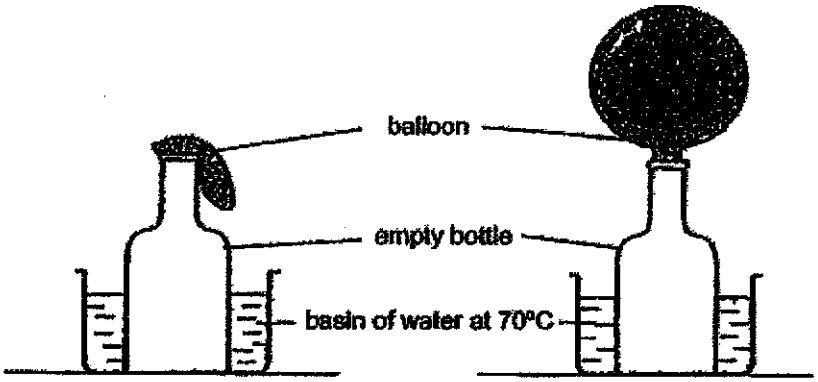
(4) between 30°C to 90°C

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28 Danny attached a balloon to an empty bottle. He then immersed the bottle in a basin of water at 70°C as shown.



At the start of the experiment

5 minutes into the experiment

After a while, the balloon was observed to have changed its shape.

Which of the following statements best explains this observation?

(1) The balloon gained heat and expanded.

(2) The empty bottle gained heat and expanded.

(3) The air in the bottle gained heat and expanded.

(4) The air in the balloon contracted and took up less space.

(Go on to Booklet B)

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Anglo-Chinese School (Primary)

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SEMESTRAL ASSESSMENT TWO 2020
SCIENCE
PRIMARY FOUR
BOOKLET B

Name: _____ ( ) Class: Primary 4 ____

Date: 28 October 2020 Total Time for Booklets A and B: 1 h 45 min

_____
Parent's/ Guardian's signature

INSTRUCTIONS TO CANDIDATES

1. Write your name, index number and class in the spaces provided.
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 your answers in this booklet.

BOOKLET	MAX MARKS	MARKS OBTAINED
A	56	
B	44	
Total	100	

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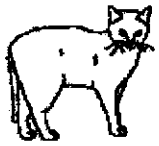
For questions 29 to 41, write your answers in this booklet.

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

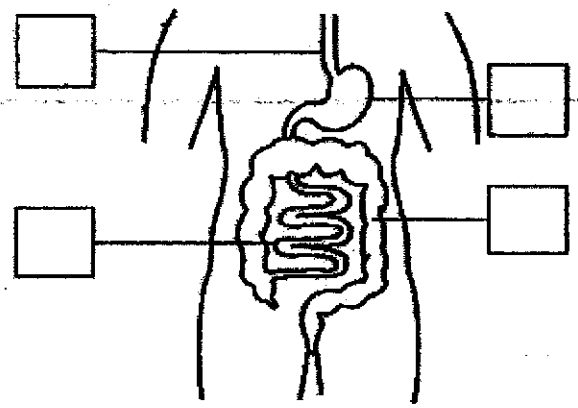
(44 marks)

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29 Draw lines to match the following animals to the correct groups. [3]

Animals	Groups
	• bird
	• fish
	• mammal
	• amphibian

30 (a) The diagram shows part of the human digestive system.
Tick one box to show where the gullet is. [1]



(b) Fill in the blank using the following helping words. [1]

large intestine	stomach	small intestine	mouth

Food from the gullet is next passed on to the _____.

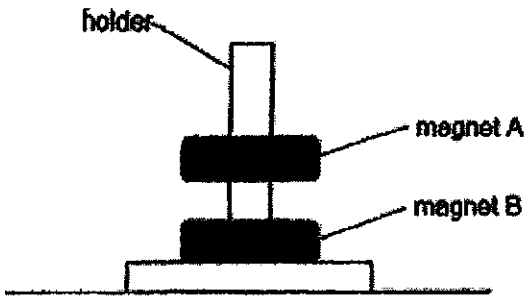
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31 Andy placed two ring magnets, A and B, through a holder as shown below.



(a) The holder was made of plastic and did not attract the magnets.

Plastic is a _____ material. [1]

(b) Why was magnet A floating above magnet B?

Magnet B was _____ magnet A. [1]

32 Classify the following into matter and non-matter. [3]

honey	shadow	marble

matter	non-matter

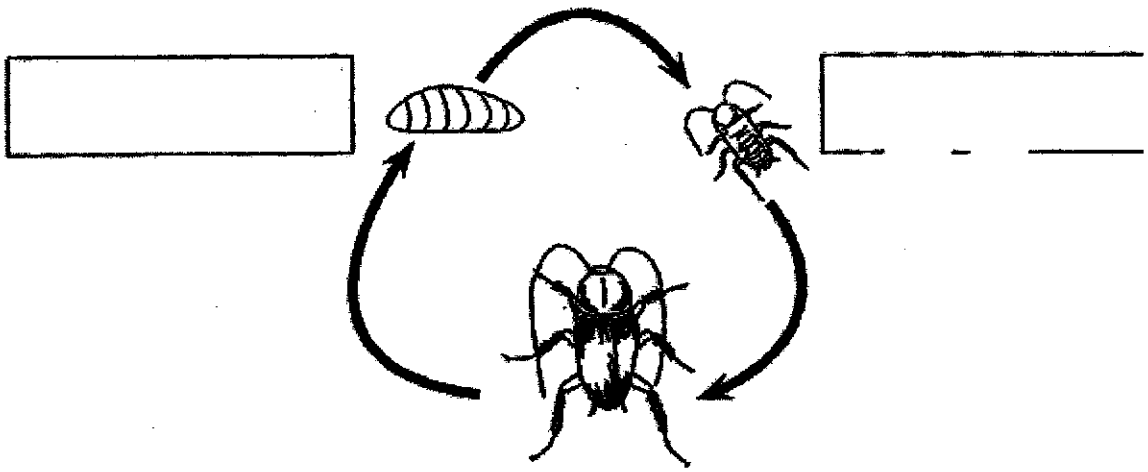
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33 The diagram shows the life cycle of a cockroach.



adult

(a) Label the two missing stages in the boxes provided above. [1]

The table describes the life cycles of four animals, P, Q, R and S.

Description	P	Q	R	S
Young resembles the adult	×	✓	✓	✓
Has three stages in its life cycle	×	✓	×	✓
Young goes through moulting	✓	✓	×	×

(b) Based on the table above, which animal, P, Q, R or S, best represents a cockroach? [1]

_____

(c) Based on the table above, state two similarities in the life cycles of animals R and S. [2]

_____

_____

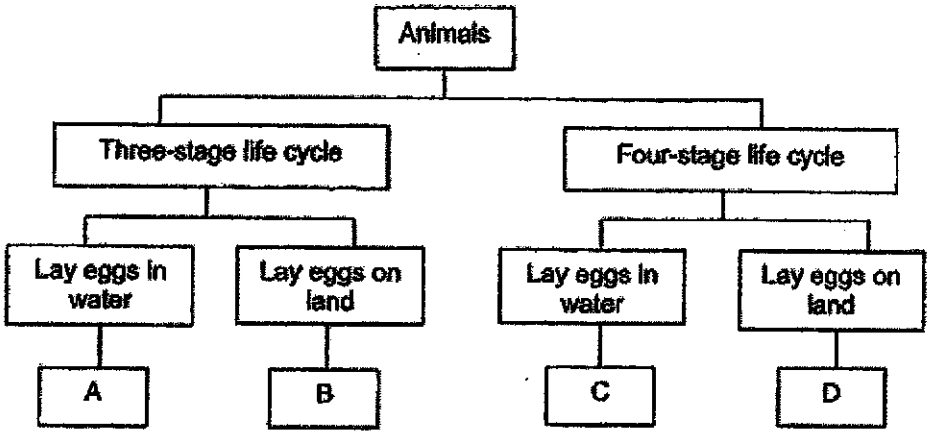
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Score	/4

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34 Study the classification chart carefully.

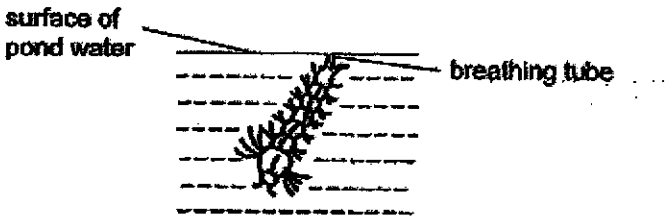


(a) Based on the classification chart above, describe animal A. [1]

(b) State one difference between animals B and C. [1]

(c) (i) Based on the classification chart above, which animal, A, B, C or D, best represents a mosquito? [1]

(ii) A mosquito is considered a pest as it spreads diseases such as dengue fever. The picture shows a stage in the life cycle of a mosquito.



Based on the picture, explain how applying a layer of oil on the surface of the pond water can help to control the number of adult mosquito. [1]

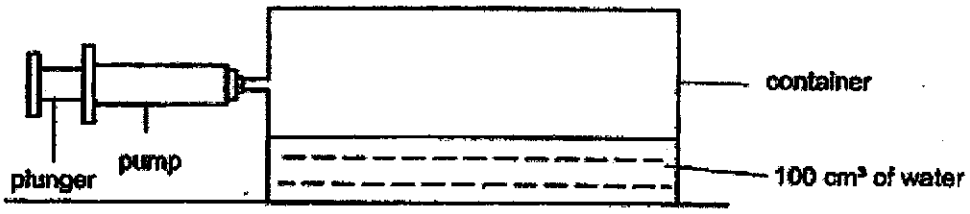
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Score /4

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35 Peter has a container with a capacity of 250 cm³. It has 100 cm³ of water inside. He connected a pump to the container and pushed the plunger of the pump once. Each push pumps 50 cm³ of air into the container.



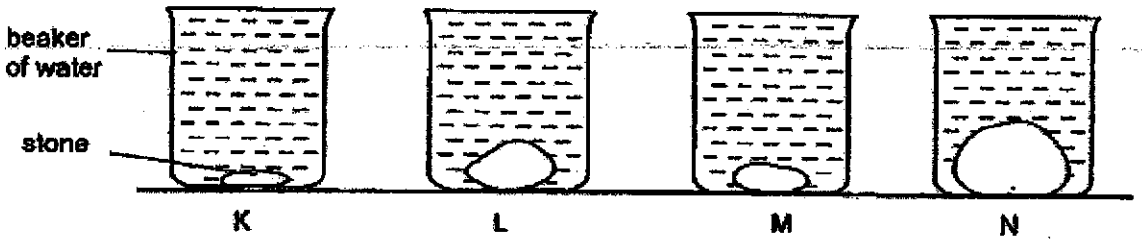
(a) In the table below, write down the volume of air in the container before and after air was pumped into the container. [2]

Volume of air in container before air was pumped (cm³)	Volume of air in container after air was pumped (cm³)

(b) What property of air is shown in this experiment? [1]

_____

Next, Peter took four identical beakers, K, L, M and N. He placed four stones of a different volume into each beaker. Then, he filled each beaker to the brim with water as shown in the diagram.



(c) Which of the beakers, K, L, M or N is filled with the greatest amount of water? [1]

_____

_____

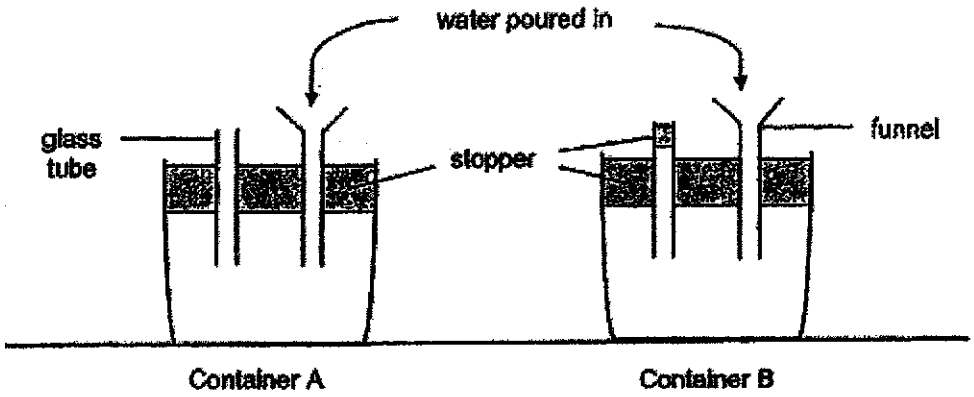
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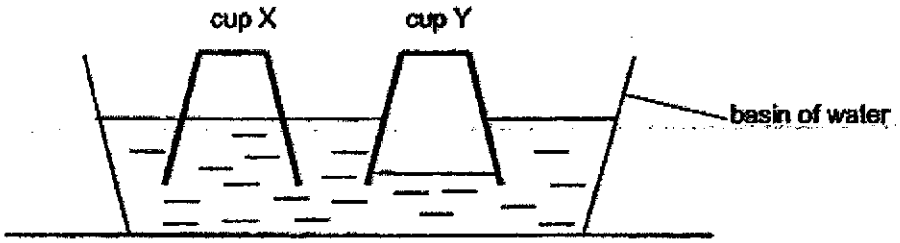
36 Jason conducted an experiment using two similar containers A and B, each fitted with a glass tube and a funnel. He put a stopper in the glass tube that was fitted into container B. Next, he poured water into each funnel.



(a) In which container, A or B, can water flow in faster? [1]

_____

Jason conducted another experiment with two identical plastic cups X and Y. He inverted both cups into a basin of water. One of the cups had a hole at the bottom while the other cup did not have any holes. The result of the experiment is as shown.



(b) Based on the diagram above, which cup, X or Y, had a hole at the bottom? [1]

_____

(c) Explain your answer in part (b). [2]

_____

_____

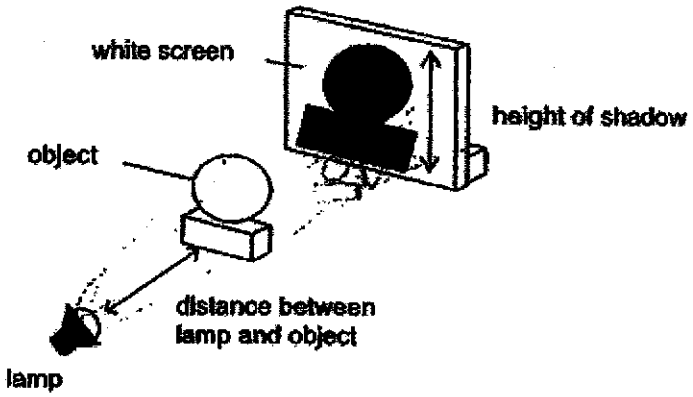
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37 Terry wanted to find out how the distance between the lamp and the object affects the height of the shadow formed on the screen. He set up an experiment as shown.



He recorded his results in the table below.

Distance between lamp and object (cm)	Height of shadow formed on the white screen (cm)
20	7
15	9
10	11
5	13

(a) Predict the height of the shadow formed on the white screen if the distance between the lamp and the object is 8 cm.

Ans: _____ cm [1]

(b) Where should the object be placed so that the height of the shadow is the same as the height of the object? [1]

_____

(c) Based on the results in the table above, what could Terry conclude? [1]

_____

_____

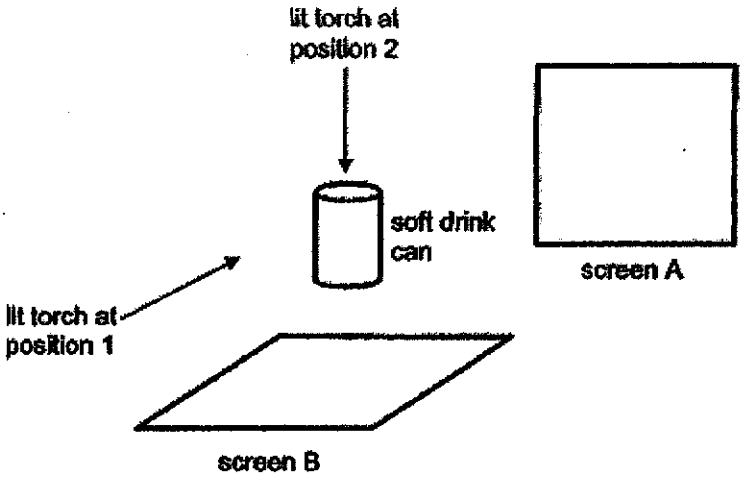
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38 Devi shines a lit torch on a soft drink can from positions 1 and 2. As a result, shadows are formed on screens A and B.



(a) Name the shape of the shadow that Devi will see on screens A and B.

Fill in the blank using the following helping words.

circle	triangle	rectangle	square

Screen A: _____ [1]

Screen B: _____ [1]

(b) Based on your answer in part (a), what does this experiment show about the effect of the position of light source on shadows formed? [1]

_____

_____

(c) Describe how the size of the shadow will change when the screen is moved closer to the object. [1]

_____

(d) Explain your answer to part (c). [1]

_____

_____

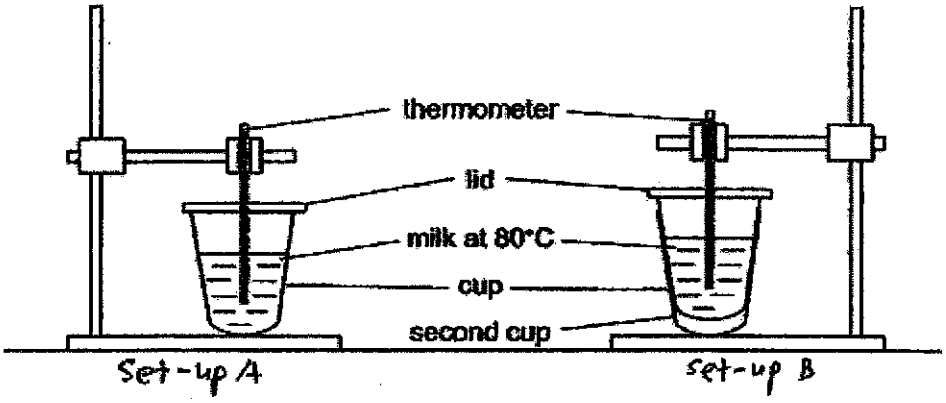
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39 Jimmy prepared the following set-ups as shown in the diagram.



The temperature of the milk in each set-up is recorded at ten-minute intervals as shown in the table below.

	Time (minute)					
	0	10	20	30	40	50
Temperature (°C) of milk in set-up A	80	60	40	25	25	25
Temperature (°C) of milk in set-up B	80	70	60	40	25	25

(a) Which set-up, A or B, kept the milk warmer for a longer period of time? [1]

Set-up _____

(b) Explain how the set-up stated in part (a) helped keep the milk warmer? [1]

_____

_____

(c) Explain why there was no difference in the temperature of milk between both set-ups from the 40th minute onwards. [1]

_____

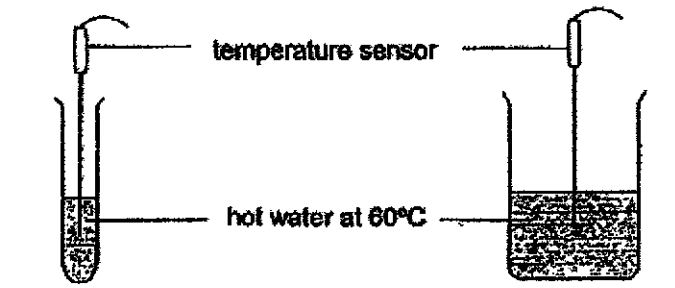
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40 Kieran carried out an experiment to investigate how fast heat is lost from a test tube and a beaker as shown. The test tube and beaker each contained a different amount of hot water at 60°C.



The temperature of water in the test tube and beaker was taken using a temperature sensor over a period of time. The table below shows the results.

	Temperature of water (°C)					
set-up X (test tube)	60	45	33	29	28	28
set-up Y (beaker)	60	52	45	39	35	32

(a) What is the changed variable in Kieran's experiment? [1]

_____

(b) Based on the results above, what can you conclude about how fast heat is lost from the hot water in set-up X compared to the hot water in set-up Y? Explain your answer. [2]

_____

_____

_____

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41 Kelvin had two glasses that were tightly stuck as shown in diagram 1. He managed to separate them by dipping glass B into a basin of hot water as shown in diagram 2.

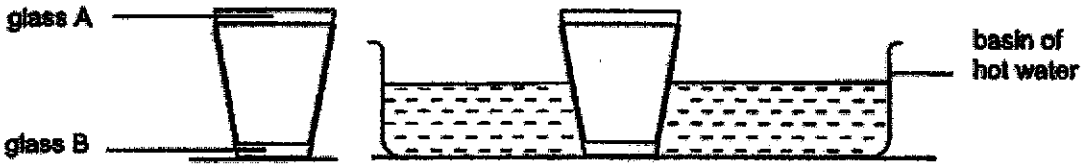


diagram 1 diagram 2

(a) Explain how placing glass B into a basin of hot water enabled Kelvin to separate the two glasses. [1]

(b) State another method to separate the two glasses. [1]

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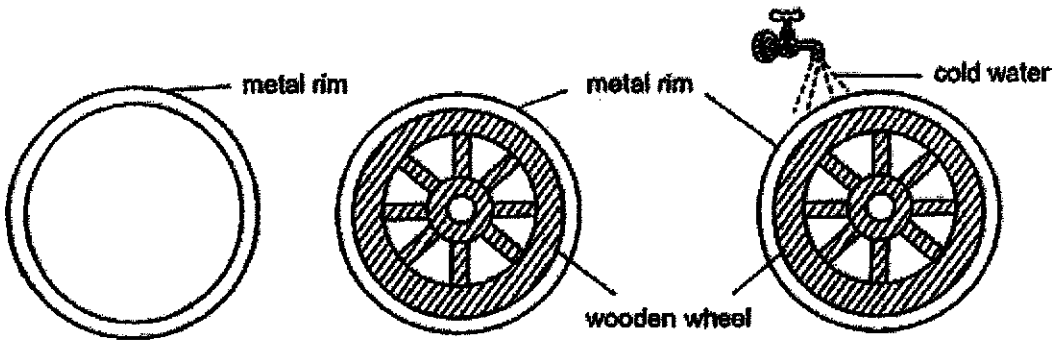
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A metal rim can be fitted tightly around a wooden wheel using the following steps as shown in the diagrams below.

Step 1: The metal rim is heated.	Step 2: The heated metal rim is fitted around the wooden wheel.	Step 3: The metal rim is poured over by cold water.



(c) Based on Kelvin's experiment, explain how each of the following steps helped fit the metal rim tightly around the wooden wheel. [2]

Step	Explanation
1. The metal rim is heated.	
3. The metal rim is poured over by cold water.	

End of Paper

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SCHOOL : ANGLO - CHINESE SCHOOL

LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2020 SA2

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	3	1	2	3	4	4	2	4	1

Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	2	4	2	1	2	3	3	2	1

Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
1	3	2	1	2	2	4	3

SECTION B

Q29)	Cat – mammal Bird – bird Fish – fish
Q30)	(a) First box (b) Stomach
Q31)	(a) Non – magnetic (b) Repelling
Q32)	Matter - Honey - Marble Non – matter - Shadow

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Q33)	(a) First box: Egg Second box: Nymph (b) Animal Q (c) Both animal's young, resembles its adult and does not go through moulting.
Q34)	(a) Animal A has three – stage life cycle and it lays eggs in water (b) Animal B have a three – stage life cycle while Animal C have a four – stage life cycle (c) (i) Animal C (ii) Applying a layer of oil on the surface helps to block the breathing tubes of the adult mosquito, making it difficult to survive, hence fewer young will develop into adult mosquito.
Q35)	(a) 150, 150 (b) Air has no definite volume and it can help compressed. (c) Beaker K
Q36)	(a) Container A (b) Cup X (c) The water level in Cup X is the same as outside, showing that water flowed into the cup. Hence, there should be a hole at the bottom to of Cup X so that the air in the cup could escape, allowing the water that occupied space to displace it.
Q37)	(a) 12 (b) The object should be placed just before the screen. (c) As the distance between the lamp and object increases, the height of shadow formed on the screen decreases.
Q38)	(a) Rectangle, circle (b) The different positions of light source affect the shape of the object formed on the screen. (c) The size of the shadow would be smaller. (d) The object is blocking a smaller area of light.
Q39)	(a) B (b) Air is a bad of conductor of heat, the air space between first cup and second cup of B will cause heat to conducted out slower.

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	(c) The temperature of the milk at 40th minute is 25°C and it is the room temperature. Therefore, it would not lose of gain heat from the surroundings.
Q40)	(a) The amount of water. (b) The hot water in X lost heat faster than the water in Y. As the volume of water in X is lesser than Y, the heat lost of X will be faster.
Q41)	(a) The air in glass B gained heat from the basin of hot water, expanded, and become bigger. Hence, the gap between the two cups increased, causing it to be able to separate easily. (b) Put ice cubes in glass A. (c) (i) the metal rim gained heat from the heat source, expanded, and become bigger causing it to be able to fit around the wooden wheel (ii) the metal rim lost heat to the cold water, contracted, and become smaller. Hence, the gap between it and the wooden wheel become smaller, causing them to be fitted tightly.

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