Nan Hua Primary School
Primary 4 Science
Term 1 Weighted Assessment 2022

Marks	
Section A:	/10
Section B:	/10
Total:	**/20**

Name: _____ ( )

Class: Primary 4S _____

Date: _____

Duration: 30 minutes

_____

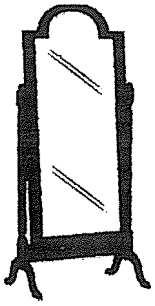
Parent's Signature:

Answer all questions.

Section A: (5 x 2 marks = 10 marks)
For each question from 1 to 5, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write your answer in the bracket provided.

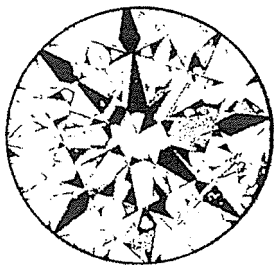
1 Which of the following is a light source?

(1)



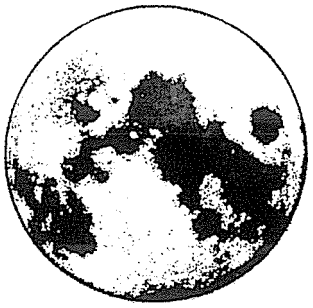
A mirror

(2)



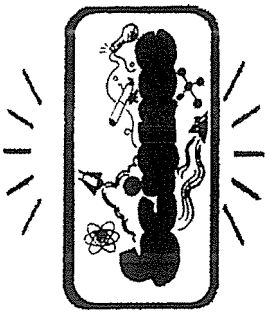
A diamond

(3)



The Moon

(4)

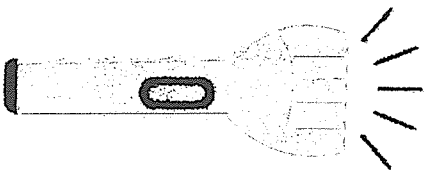


A phone (switched on)

( )

[Turn over]

2 A torch is used to shine on a cup from different directions.

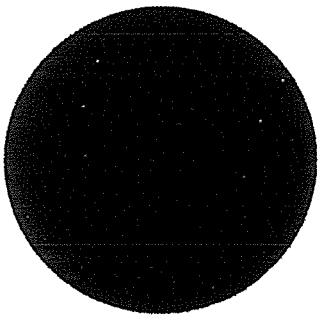


torch

cup

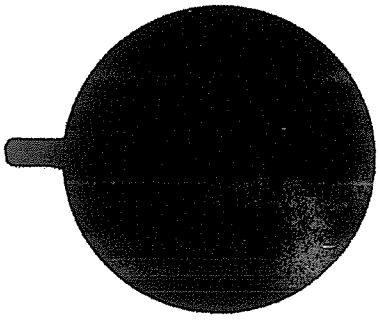
Which of the shadows shown below is **not** a possible shadow cast by the cup?

(1)

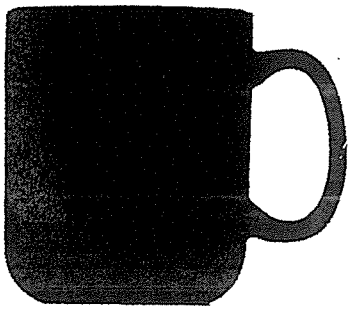


(2)

(3)

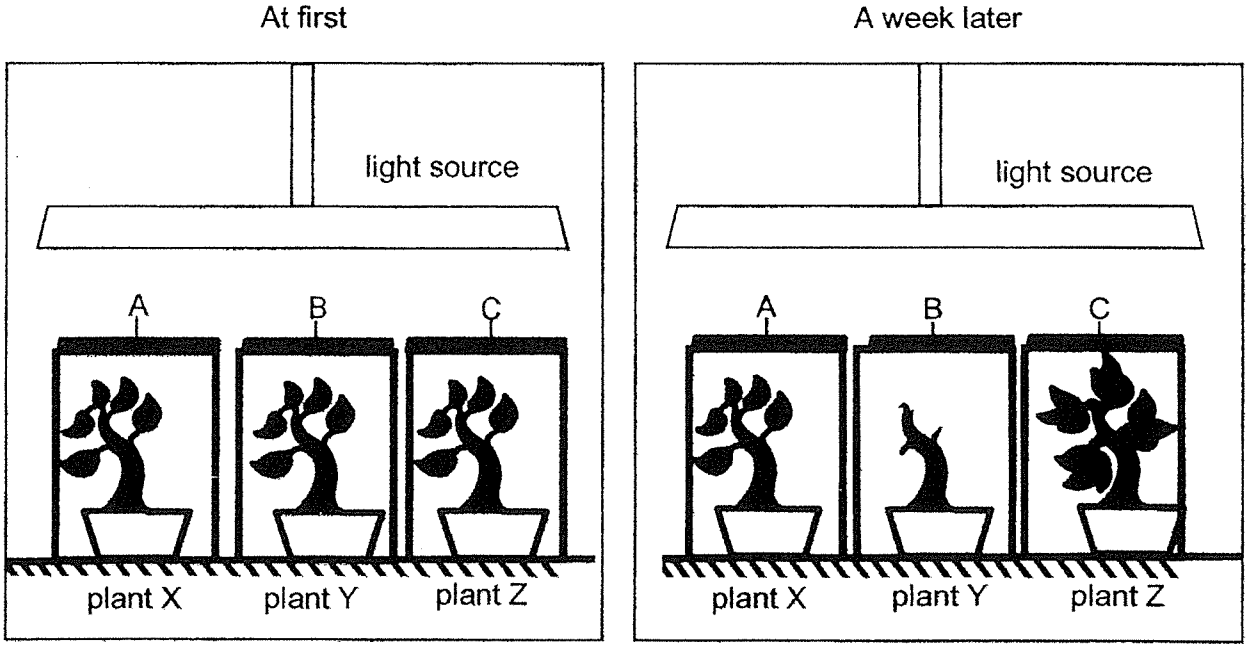


(4)



( )

3 The diagrams below show what happened to three identical plants after the light source was blocked by three different materials, A, B and C. The plants were given the same amount of water for a week.



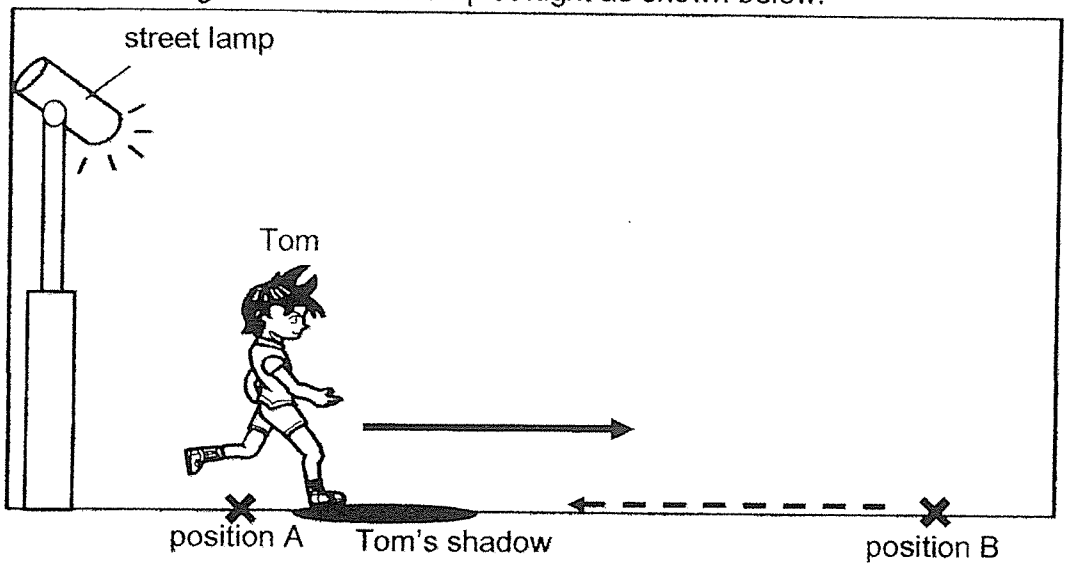
Which of the following best describes the property of materials A, B and C?

	Property of the material		
	Allows most light to pass through	**Allows some light to pass through**	**Does not allow light to pass through**
(1)	A	B	C
(2)	A	C	B
(3)	C	A	B
(4)	C	B	A

( ).

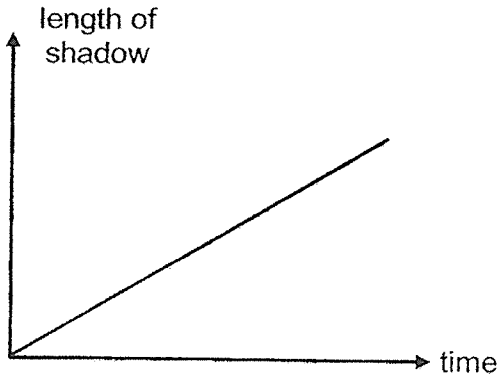
[Turn over]

4 Tom is walking under a street lamp at night as shown below.

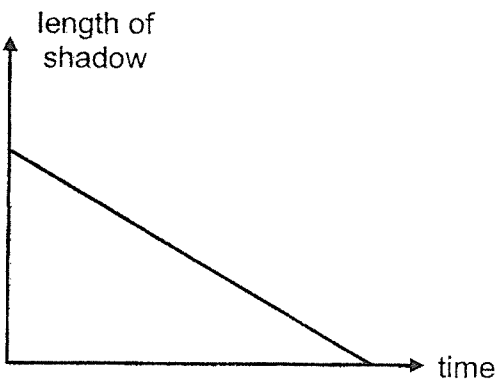


He walks from position A to position B and then back to position A in a straight line.
Which graph shows how the length of his shadow changes during this time?

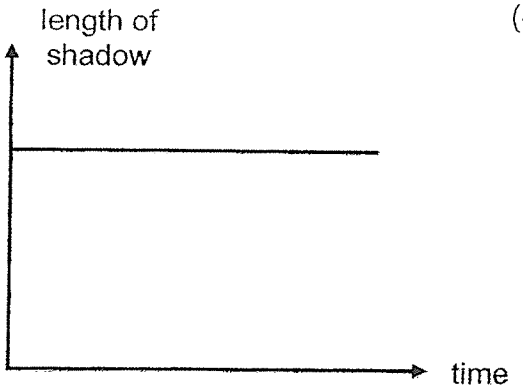
(1)



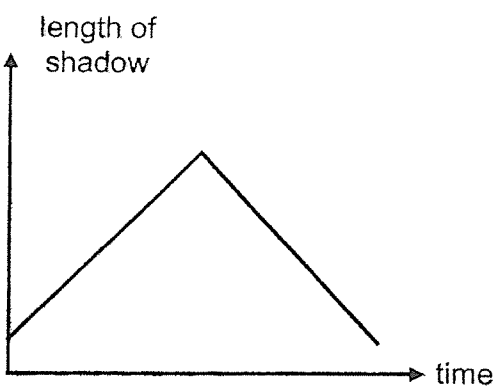
(2)



(3)

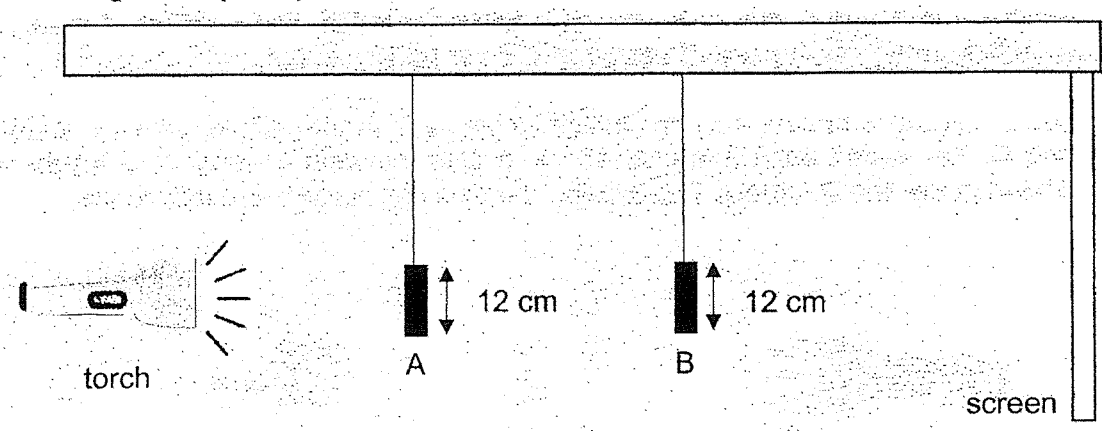


(4)

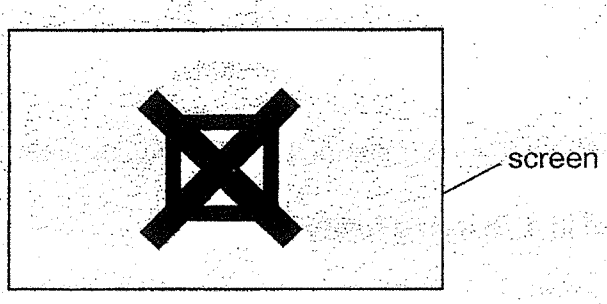


( )

5 The set-up below shows light shining on two wooden objects, A and B, which are of the same height. They are placed at different distances from the torch as shown below.

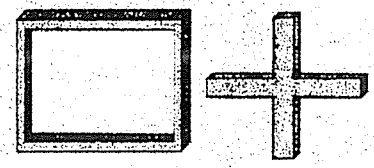


The diagram below shows the shadow of the objects on the screen.

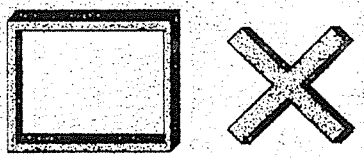


Which are objects A and B?

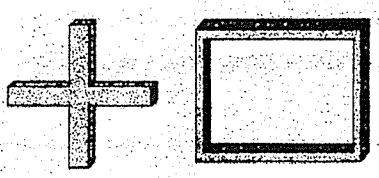
(1) A B



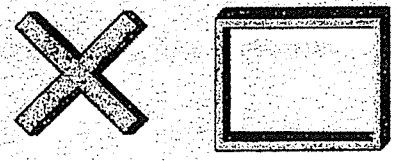
(2) A B



(3) A B



(4) A B



( )

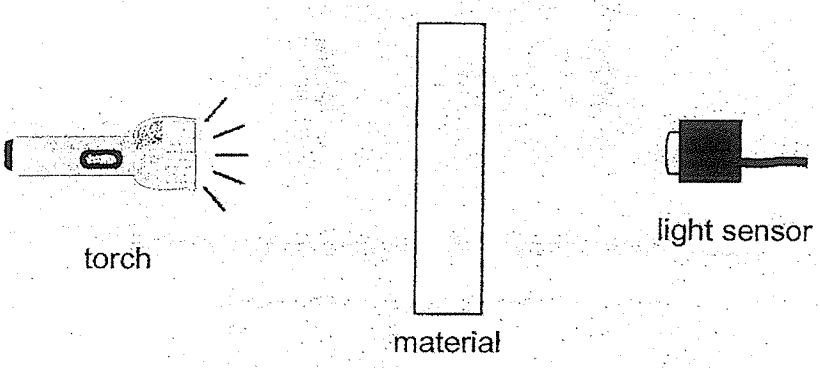
Total score for section A	10

[Turn over]

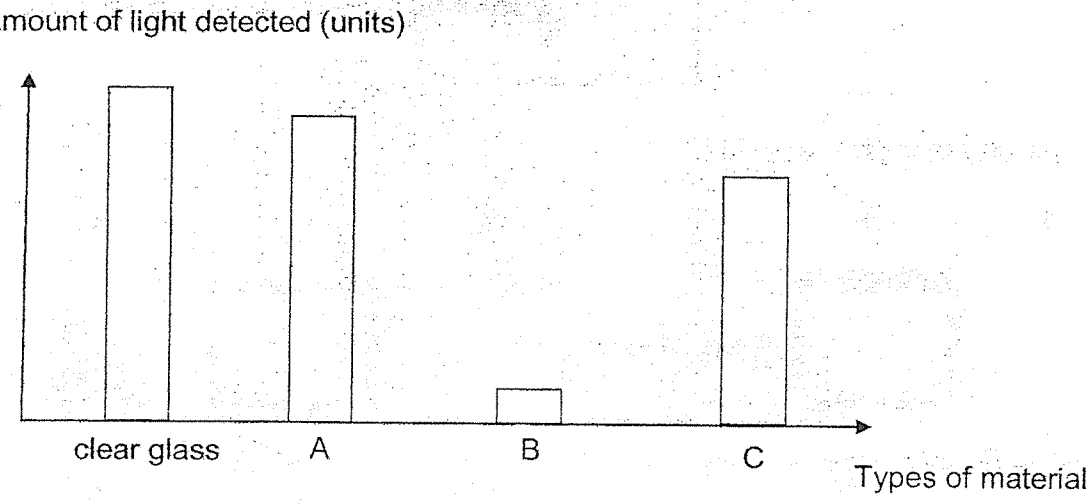
Section B: Structured questions (10m)

For questions 6 to 8, write your answers in the space provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

6 David wanted to find out how much light could pass through three different materials, A, B and C. He placed each material, one at a time, between a torch and a light sensor as shown in the set-up below. The experiment was conducted in a dark room.



The amount of light that passed through each material was recorded in the graph below.



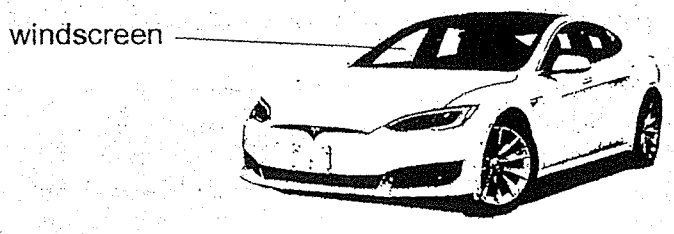
(a) Identify the changed (independent) variable in this experiment. [1]

_____

Score	1

[Turn over]

(b) The diagram below shows a car. [2]



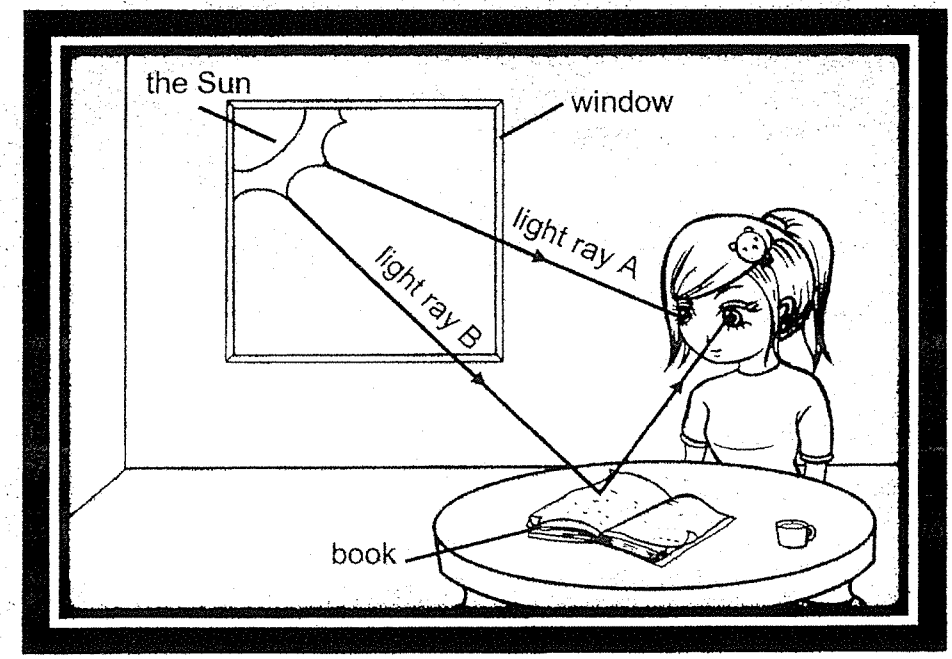
Which material, A, B or C, **cannot** be used to make the windscreen of a car? Explain your answer.

_____

_____

_____

7 The diagram below shows a girl reading a book. Two light rays, A and B, are drawn.



(a) Circle the light ray below that allows the girl to see the words in the book. [1]

light ray A / light ray B

Score	3

[Turn over]

(b) Mr Ang installed a glass door at the staffroom as shown in diagram A. He realised that several teachers had almost accidentally walked into the glass door. He then placed a strip of sticker across the glass door as shown in diagram B.

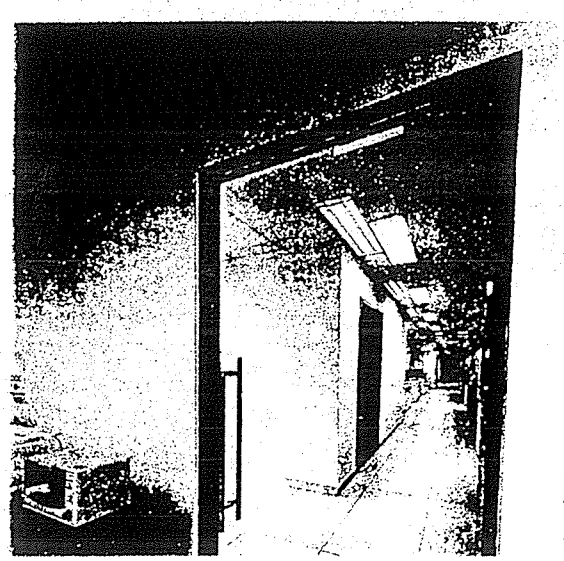


Diagram A

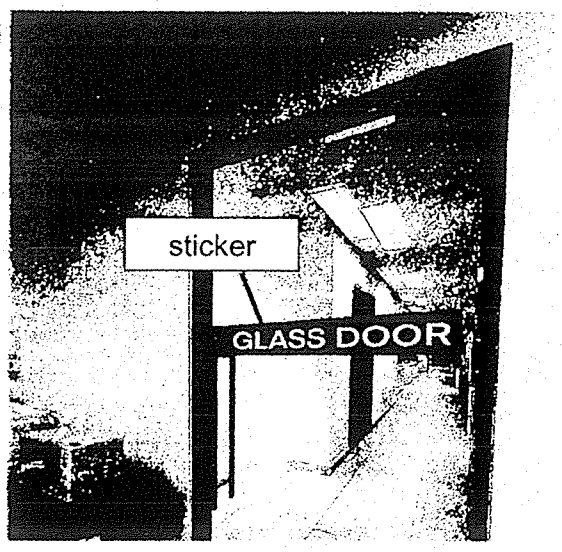


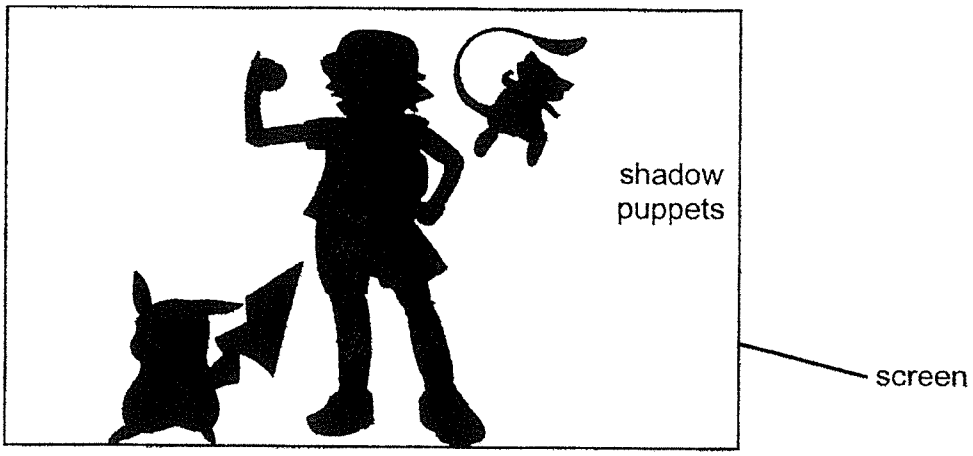
Diagram B

How did placing the strip of sticker across the glass door helped prevent teachers from walking into it? [2]

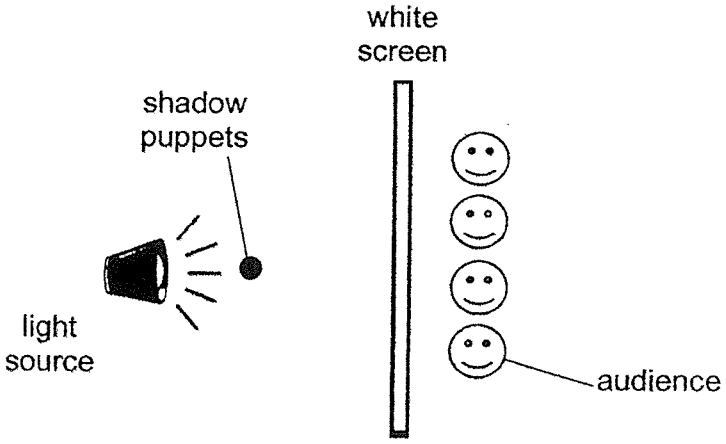
Score	
	2

[Turn over]

8 William puts up a shadow puppet show in the hall during the Mid-Autumn Festival.



The diagram below shows where the shadow puppets were placed during the show.



(a) Describe the property of the material used to make the screen in order for the audience to see the shadows on it. [1]

_____

(b) Without moving the light source and the screen, what must William do if he wants to create a bigger shadow on the screen? [1]

_____

_____

Score	2

[Turn over]

(c) While keeping the position of the puppet to be the same, William replaced the bulb of his light source with a brighter bulb.

The size of his puppet's shadow would _____.

Circle the correct answer to complete the statement above. [1]

increase / decrease / remain the same

(d) William wanted to find out how the length of the shadow formed by a puppet changed when he shifted the position of the light source.

He measured the length of the shadow cast on the screen without changing the puppet's position as shown in the table below.

Distance of light source from the screen (m)	**Length of shadow (cm)**
1.0	30
1.3	26
1.6	21
1.9	15

What is the relationship between the distance of the light source from the screen and the length of the shadow? [1]

_____

_____

Score	2

~End of Paper~

Nan Hua Primary School
Primary 4 Science
Weighted Assessment Practice 2022

Marks	
Section A:	/10
Section B:	/10
Total:	**/20**

Name: _____( )

Class: Primary 4/_____

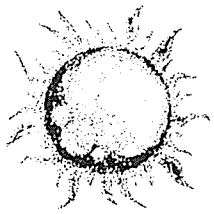
Date: _____

Answer all questions.

Section A: (5 x 2 marks = 10 marks)
For each question from 1 to 5, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write your answer in the brackets provided.

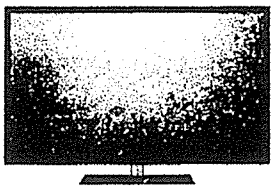
1 Which of the following is **not** a source of heat energy?

(1)



sun

(2)



television (switched on)

(3)

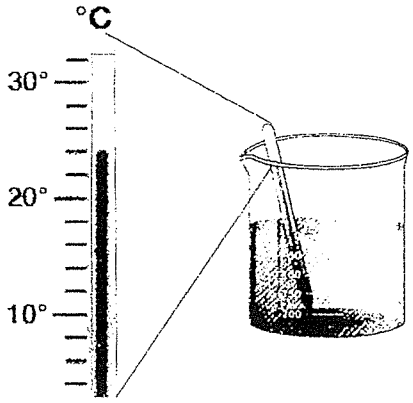
blanket

(4)

fire

( )

2 What is the temperature of the liquid below?

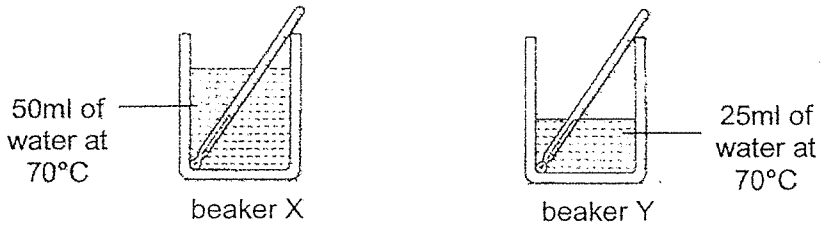


(1) 0°C
(2) 24°C
(3) 30°C
(4) 34°C ( )

3 Which of the following statements about heat and temperature is true?

(1) Temperature is a measure of how hot something is.
(2) We can measure the temperature of an object by touching it.
(3) When an object gains heat, the temperature of the object falls.
(4) A thermometer is used to measure the amount of light and amount of heat. ( )

4 Meixing filled beaker X with 50ml of water and beaker Y with 25ml of water. She warmed up the water in both the beakers to 70°C.



Which of the following statement(s) is/are correct?

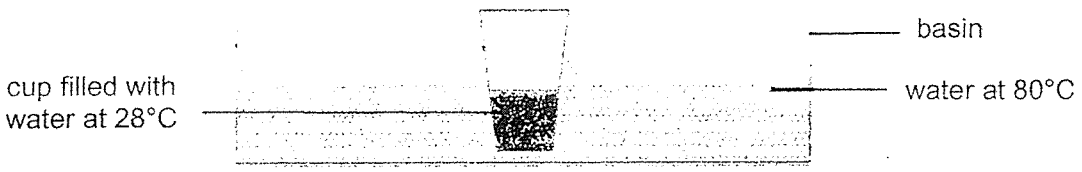
A: More heat is needed to warm up the water in beaker X than the water in beaker Y to 70°C.

B: Beaker Y has more heat than beaker X.

C: Beaker X and beaker Y have the same amount of heat.

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

5 A cup filled with water at 28°C was placed in a basin with water at 80°C as shown below.



What would the temperature of the water in the cup likely be after 15 minutes?

(1) 25°C
(2) 28°C
(3) 55°C
(4) 80°C ( )

Section B: Structured questions (10m)

For questions 6 to 8, write your answers in the space provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

6 Sasha left a cup of hot milk in her room. She recorded the temperature of the milk every 10 minutes as shown in the table below.

Time (min)	Temperature (°C)
0	85
10	70
20	55
30	40
40	?
50	25
60	25

(a) She missed out the temperature recording at the 40th minute. What could the temperature have been? [1]

_____ °C

(b) Based on the table above, what was likely the temperature of the room? [1]

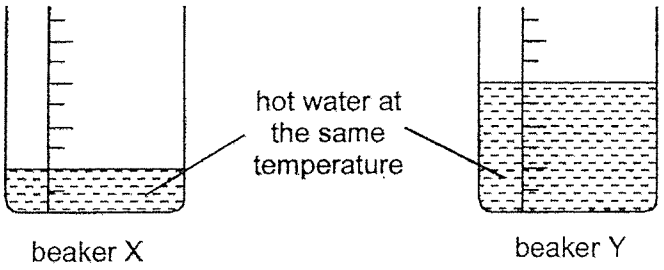
_____ °C

(c) Tick only <u>one</u> of the methods below that she could have used to cool the milk down to 25°C. [1]

Method	Tick (✓)
Add ice cubes to the milk	
Place the cup of milk under the hot sun	
Put the cup of milk in a beaker containing 85°C water	

Score	
	3

7 Mrs Chan prepared two beakers, X and Y, each containing a different amount of hot water at the same temperature.



She placed an egg of the same size into each beaker at the same time. After 10 minutes, she observed that one egg was more cooked in one beaker than the other.

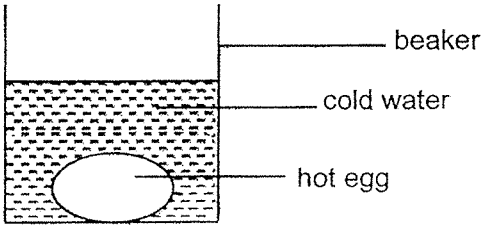
(a) In which beaker, X or Y, was the egg more cooked? Explain your answer. [2]

_____

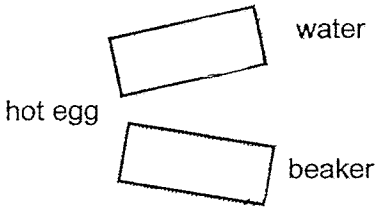
_____

_____

(b) Mrs Chan then placed another hot boiled egg in a beaker of cold water as shown in the diagram below.

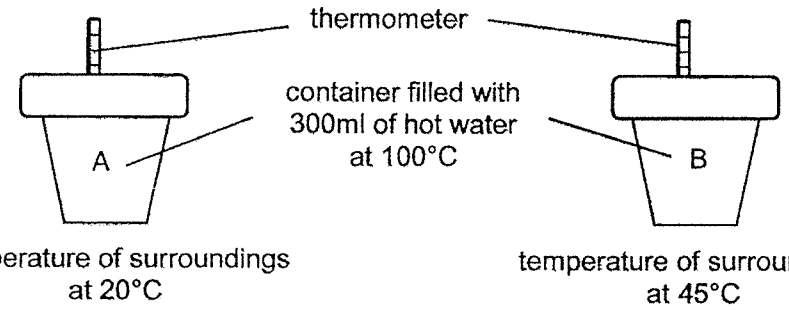


Draw 2 arrows in the boxes below to show the direction of heat flow in the beaker. [1]



Score	
	3

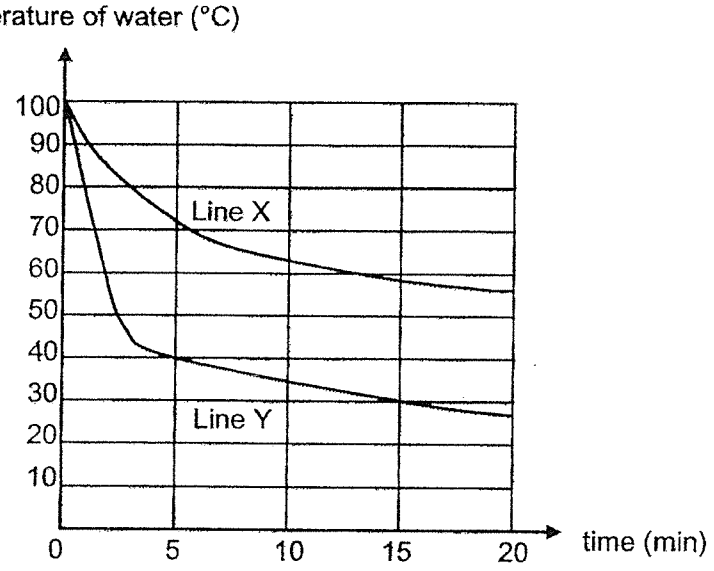
8 James wanted to find out whether the temperature of the surroundings affects how fast heat is lost from the water in the container to the surroundings. He prepared two containers, A and B, with the same amount of water and placed them at two places as shown below.



Tick (✓) the variable(s) that James must keep the same to ensure a fair test. [2]

Variable	Put a tick (✓)
the size of the container	
the material of the container	
the temperature of the surroundings	

James then recorded the results of his experiment in the graph shown below.



(b) Which line, X or Y, represents the temperature of water in container B? Give a reason for your answer. [2]

Score	
	4

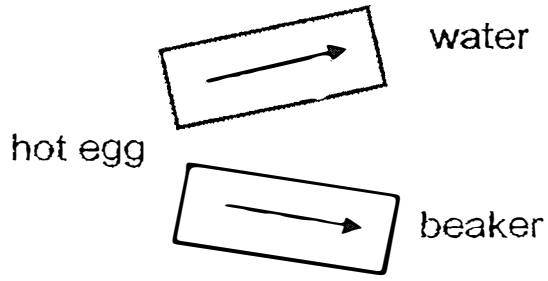
YEAR : 2022
LEVEL : PRIMARY 4
SCHOOL : NAN HUA PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : TERM 1 WEIGHTED ASSESSMENT

Q1	4	Q2	1	Q3	3	Q4	4	Q5	4

Q6	a)	Types of material
	b)	The amount of light detected is least. Material B allows the least amount of light to pass through so the driver will not be able to see the road clearly.
Q7	a)	light ray B
	b)	The strip on the glass door is opaque and does not allow light to pass through when the light shines on the strip and is reflected back to the teachers, so they will see the sticker on the glass door.
Q8	a)	translucent
	b)	William must put the shadow puppet nearer to the light source.
	c)	remain the same
	d)	When the distance of light source from the screen increases, the length of the shadow decreases.

YEAR : 2022
LEVEL : PRIMARY 4
SCHOOL : NAN HUA PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : WEIGHTED ASSESSMENT PRACTICE

Q1	3	Q2	2	Q3	1	Q4	1	Q5	3

Q6	a)	30°C
	b)	25 °C
	c)	Add ice cubes to the milk
Q7	a)	Beaker Y has more hot water than beaker than beaker X. More hot water means there is more heat to cook the eggs quickly.
	b)	
Q8	a)	the size of the container the material of the container
	b)	The temperature of the end of the experiment is higher than Y. Water in Container B loses heat more slowly than Container A.

END