2023 PRIMARY 4 END-OF-YEAR EXAMINATION

Name : _____( )

Class : Primary 4 ( )

Date: 26 October 2023

Time: 8.00 a.m. - 9.30 a.m.

Duration: 1 hour 30 minutes

SCIENCE

BOOKLET A

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
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.

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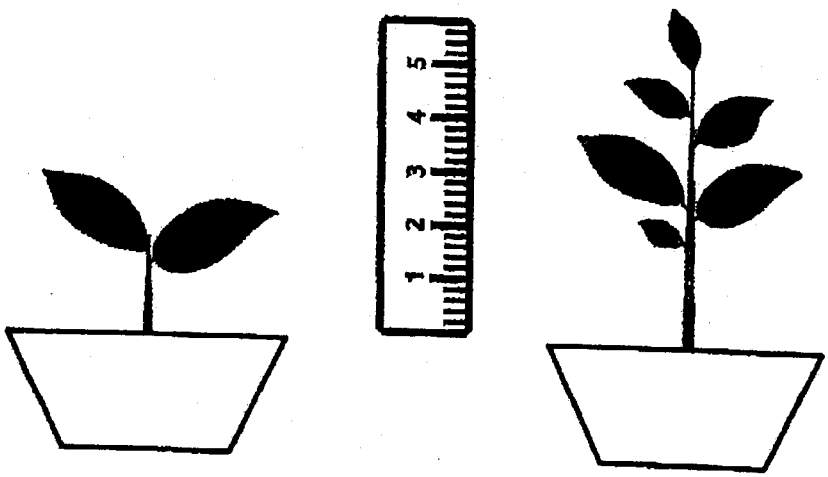
Booklet A (22 x 2 marks)

For each question from 1 to 22, 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.

(44 marks)

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1. Sarah found a plant in the garden and measured its height. After two weeks, she measured its height again.



From her observation, Sarah concluded that the plant is a living thing because it can_____.

(1) grow

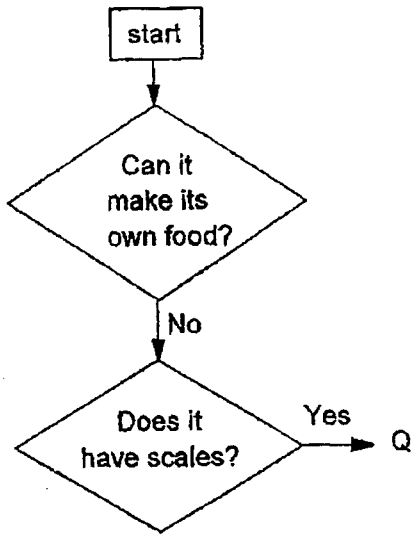
(2) respond

(3) breathe

(4) reproduce

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2. Study the diagram below.



What could Q be?

(1) plant

(2) reptile

(3) insect

(4) mammal

3. John made the following observations on the life cycle of an animal.

- There are three stages in the life cycle.
- The young looks like the adult.

Which animal was John observing?

(1) frog

(2) beetle

(3) butterfly

(4) cockroach

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

(1)



(2).



(3)

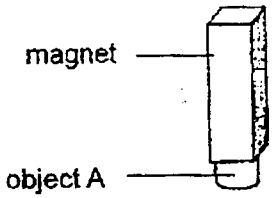


(4)



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5. An object A was attracted to a magnet, as shown in the figure below.



Object A is made of _____.

(1) iron

(2) plastic

(3) rubber

(4) wood

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

(1) They take up space.

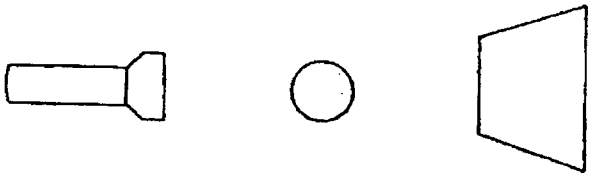
(2) They have fixed shapes.

(3) They have fixed volumes.

(4) They can be compressed.

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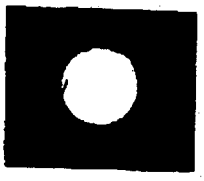
7. The set-up below shows light shining on a tennis ball.



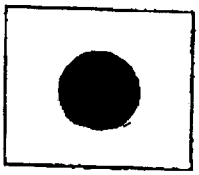
torch tennis ball screen

Which one of the following would likely be seen on the screen?

(1) 

(2) 

(3) 

(4) 

8. Which one 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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9. Study the table below.

Characteristics of living thing	W	X	Y	Z
Reproduce by spores		√	√	
Make their own food	√	√		
Can only be seen under a microscope				√

Which one of the following is a mushroom?

(1) W

(2) X

(3) Y

(4) Z

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10. Sarah wanted to find out if the number of leaves would affect the height of a plant. She used two similar pots of plant for her experiment.

The table below shows the details of her experiment.

	Pot X	Pot Y
Height of the plant at the start of the experiment	12 cm	12 cm
Amount of water given daily	160 cm^3	190 cm^3
Number of leaves on the plant	5	15
Height of plant at the end of the experiment	16 cm	21 cm

Which of the following was the reason why her experiment was not a fair one?

(1) The amount of water given daily was different.

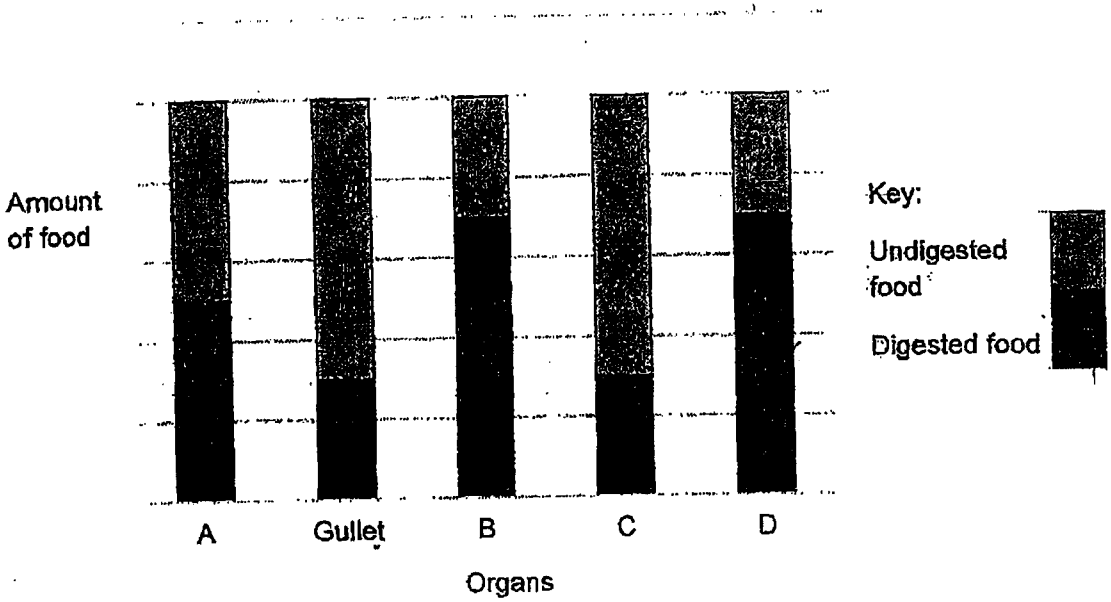
(2) The number of leaves on each plant was different.

(3) The height of the plant at the end of the experiment was different.

(4) The height of the plant at the start of the experiment was the same.

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11. The bar graph below shows the amount of digested and undigested food just before it leaves each organ of the digestive system.



Which one of the following letters represents the mouth?

(1) A

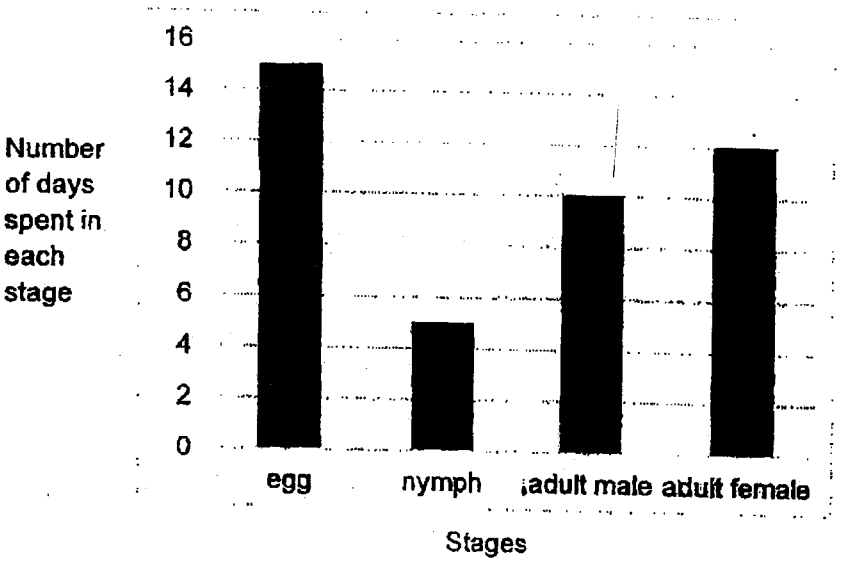
(2) B

(3) C

(4) D

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12. The graph below shows the number of days for each stage of the life cycle of insect A.



Based on the graph, which of the following statements is true about insect A?

(1) It has a 4-stage life cycle.

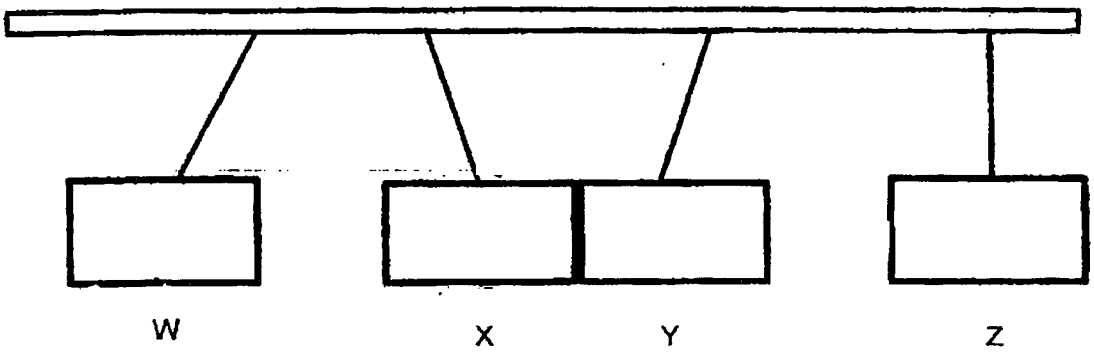
(2) It hatches from the egg after the 15th day.

(3) It takes 5 days to develop from an egg into a nymph.

(4) After hatching, it takes about 12 days to become an adult female.

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13. Four metal bars W, X, Y and Z were hung from a rod. The metal bars moved in different directions as shown.



If only two of the metal bars are magnets, which metal bars, W, X, Y or Z are most likely to be magnets?

(1) W and X

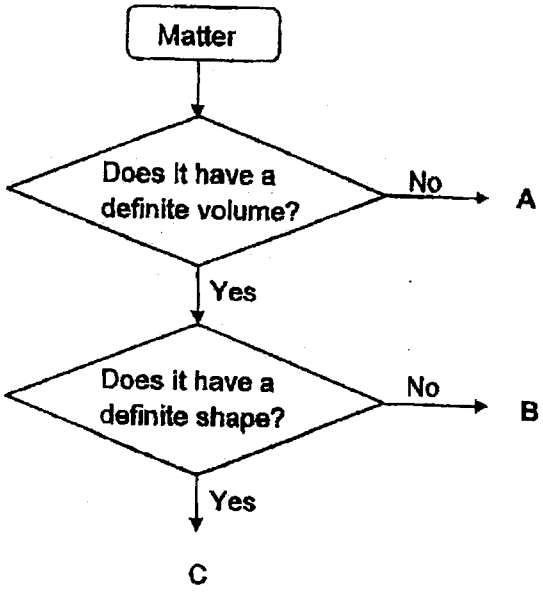
(2) X and Y

(3) Y and Z

(4) W and Y

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14. Study the flow chart below.

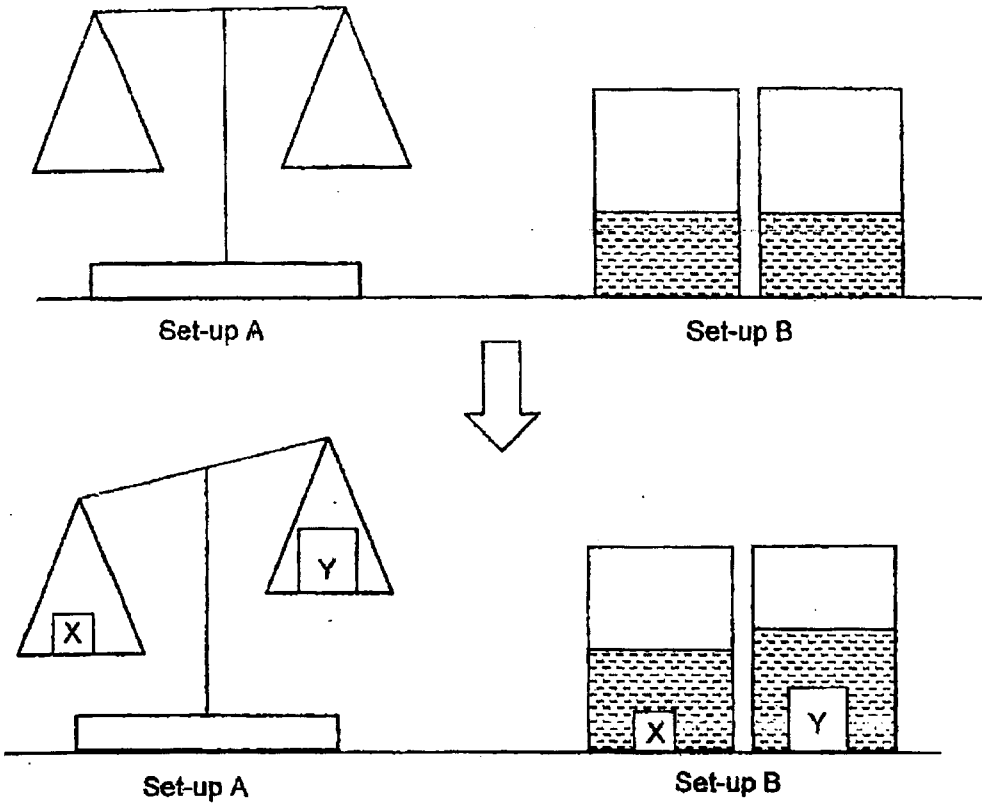


What could A, B and C be?

	A	B	C
(1)	air	pencil	water
(2)	air	water	pencil
(3)	pencil	air	water
(4)	water	pencil	air

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15. Adam set up an experiment as shown below. Then he added solids X and Y to Set-up A and Set-up B.



Based on Adam's observation in the set-ups above, what conclusion could he make about solids X and Y?

A: Solid X has a greater mass than solid Y.

B: Solid Y occupied more space than solid X.

C: The amount of space a matter occupied depends on its mass.

(1) A only

(2) C only

(3) A and B only

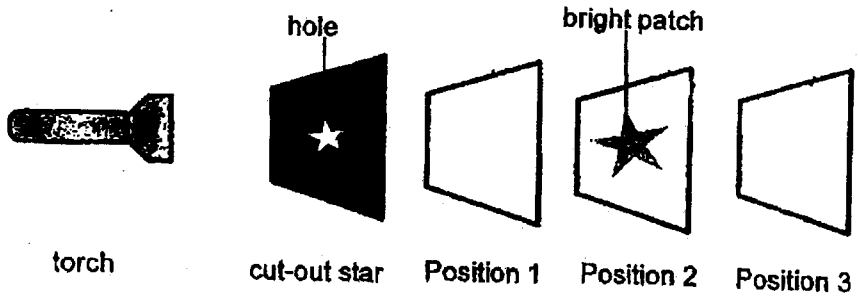
(4) A, B and C only

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16. An experiment was set up in a dark room using a torch, a cardboard with a cut-out star and 3 different materials A, B and C.

The table below shows the property of each material.

Property of Material	Material
Does not allow light to pass through	A
Allow some light to pass through	B
Allows all light to pass through	C



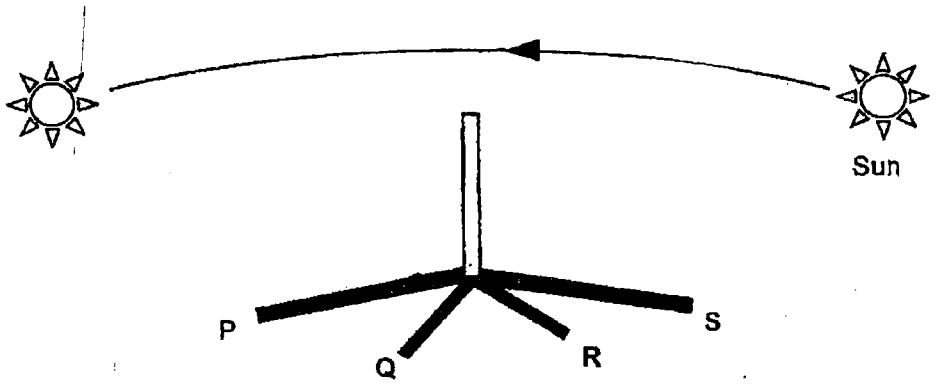
How should the materials be arranged such that the patch of light was seen clearly at Position 2?

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

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17. The diagram below shows the shadow of a stick formed at different times, 8 a.m., 10 a.m., 2 p.m. and 5 p.m. of the day.

The Sun appears to be moving in the direction as shown by the arrow below from morning to evening.



Which of the following is likely to be the shadow formed at 10 a.m. in the morning?

(1) Position P

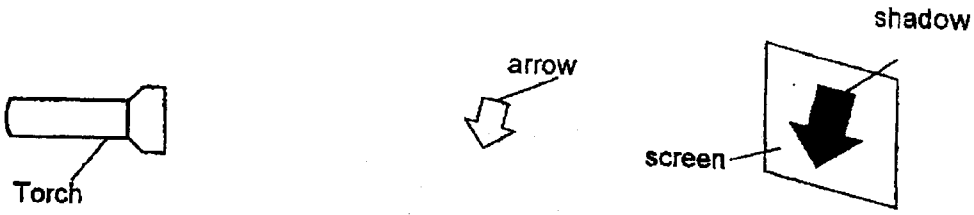
(2) Position Q

(3) Position R

(4) Position S

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18. Maxi conducted an experiment in a dark room using the set-up below. He saw a shadow of the arrow on the screen.



What should he do if he wants to increase the size of the shadow?

(1) Move the arrow nearer to the screen.

(2) Move the arrow nearer to the torch.

(3) Move the screen nearer to the torch.

(4) Move the torch further away from the arrow.

19. Sam added ice cubes into his glass of warm water. The ice cubes melted after a while. How does adding ice cubes make the water cooler?

(1) The ice cubes lose heat to the water as it melts.

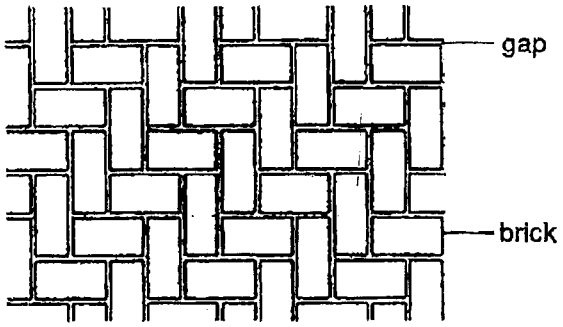
(2) The ice cubes gain heat from the water as it melts.

(3) The ice cubes transfer heat to the water as it melts.

(4) The ice cubes transfer coldness to the water as it melts.

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20. Peter observed that there are gaps between the bricks on a footpath as shown.



Which of the following explains the purpose of having these gaps?

(1) To allow space for the bricks to expand on a hot day.

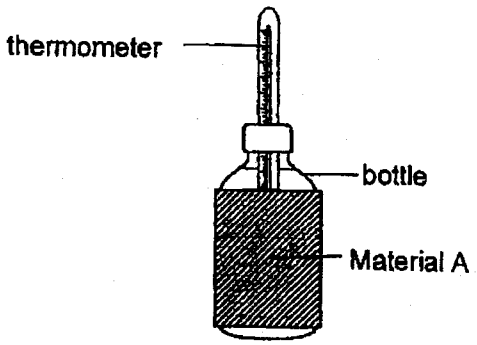
(2) To allow space for the bricks to contract on a cool day.

(3) To allow dirt to be removed easily from the footpath.

(4) To allow plants to grow in the gaps between the footpath.

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21. Siti conducted an experiment to find out how different materials affect heat gain. She wrapped 3 identical bottles with 3 different materials A, B and C. She then poured in equal amounts of water at 4°C into each bottle.



After 10 minutes, she measured the temperature of the water in each bottle and recorded it in the table below.

Material	Temperature of water after 10 minutes (°C)
A	12
B	7
C	18

Which of the following arranges the materials from the most effective at reducing heat gain to the least effective?

(1) B, A,C

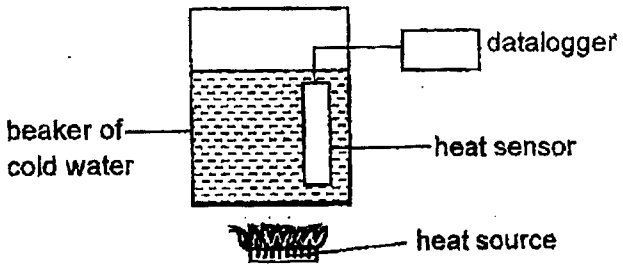
(2) B, C, A

(3) C, A, B

(4) C, B, A

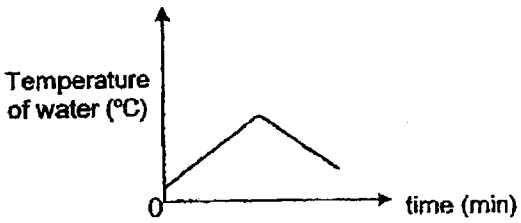
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22. Alan placed a heat sensor attached to a datalogger in a beaker of cold water. Then, he placed a heat source under the beaker.

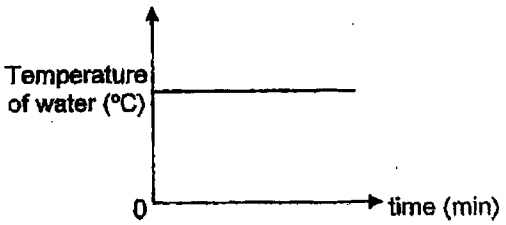


Which of the following graphs shows the likely change in temperature of water over time?

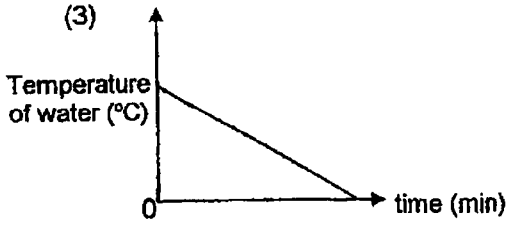
(1)



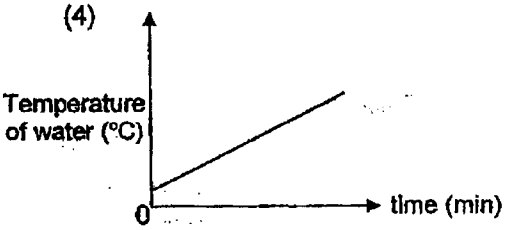
(2)



(3)



(4)



End of Booklet A

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2023 PRIMARY 4 END-OF-YEAR EXAMINATION

Name : _____ ( )

Class : Primary 4 (

Parent's Signature : _____

Date: 26 October 2023

Time: 8.00 a.m. – 9.30 a.m.

Duration: 1 hour 30 minutes

SCIENCE

BOOKLET B

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
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 the booklet.

Booklet A	44
Booklet B	36
Total	80

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Booklet B (36 marks)

For questions 23 to 34, write your answers clearly in this booklet.

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

(36 marks)

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23. Jasmine observed and grouped some things as shown in the table.

F	G
tiger	stone
ant	cloth
mushroom	pen

What are the suitable headings for F and G? [2]

Group F: _____

Group G: _____

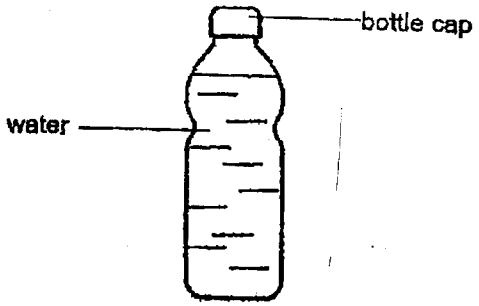
24. Fill in the correct parts of a plant in the table below. [2]

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

Score	/4

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25. The diagram below shows a bottle of water.



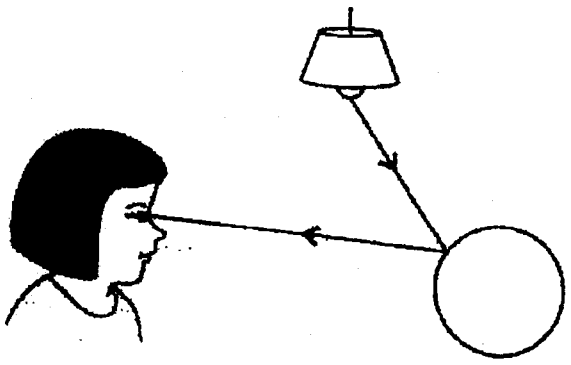
Fill in the blanks using the correct word in the box. [2]

Solid	Liquid	Gaseous

(a) Bottle cap: _____ state

(b) Water : _____ state

26. The diagram below shows how Jane sees the ball.

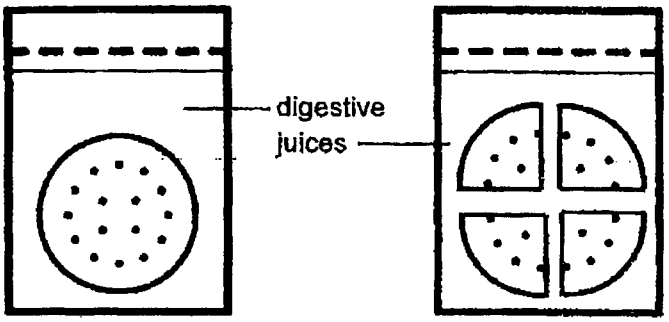


The _____ from the lamp is _____ by the ball and enters Jane's eye. [2]

Score	4

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27. Lucas wanted to find out if the size of the biscuit would affect how fast it was digested. He put some biscuits into two bags of digestive juices and recorded the time taken for the biscuits to break down into simple substances.



(a) Indicate with a tick (√) in the table below, the variables that Lucas should keep the same or change. [2]

Variables	Keep the same	Change
size of biscuits		
type of biscuits		
total mass of biscuits		
amount of digestive juices		

(b) Lucas concluded that the smaller the size of the biscuit, the shorter the time taken for it to be digested. Explain why this is so. [1]

_____

_____

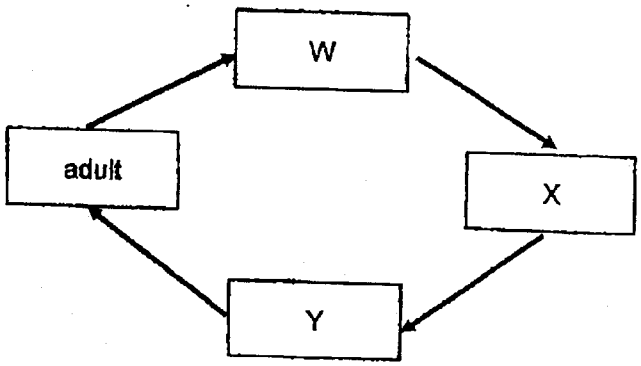
(c) Which part of the body helps to break food down into smaller pieces? [1]

_____

Score	/ 4

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28. The diagram below shows the stages in the life cycle of a butterfly.



(a) Name the two stages W and Y. [1]

W: _____

Y: _____

(b) State one other animal that has a similar life cycle as the butterfly. [1]

_____

Score 2

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29. A group of scientists studied mosquitoes kept at different surrounding temperatures and recorded the duration for 2 stages of their life cycle.
The table below shows the results obtained.

	Duration of each stage at different surrounding temperatures (days)			
	24°C	**27°C**	**30°C**	**33°C**
Egg	3	3	3	3
Larva	10	9	8	7

(a) Based on the table above, how did the increase in temperature affect the duration of the mosquito at the egg and larva stage? [2]

_____

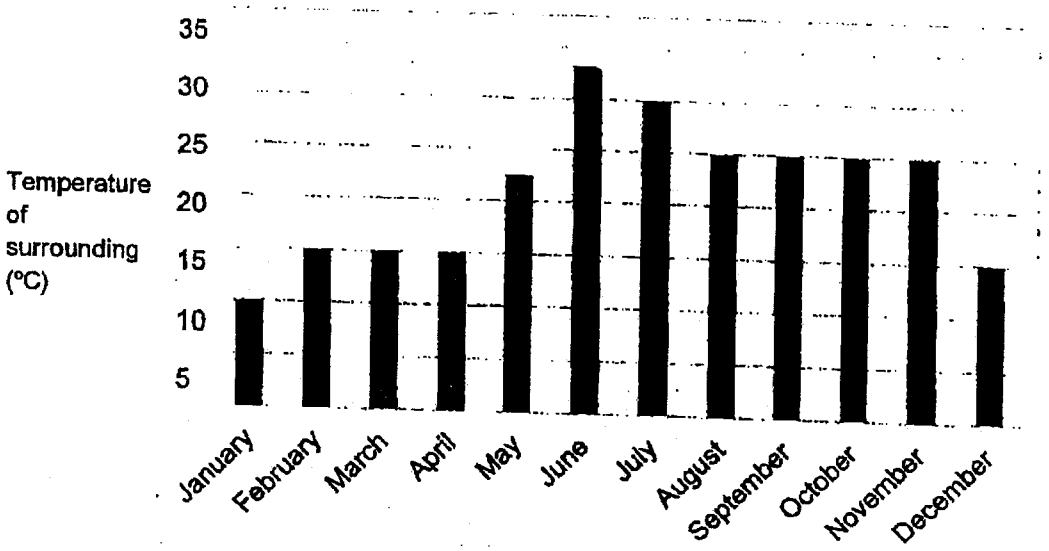
_____

_____

Score	/ 2

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The graph below shows the temperature of the surroundings from January to December.



(b) Based on the scientists' study, during which month will mosquitoes breed the fastest? Explain why.

[1]

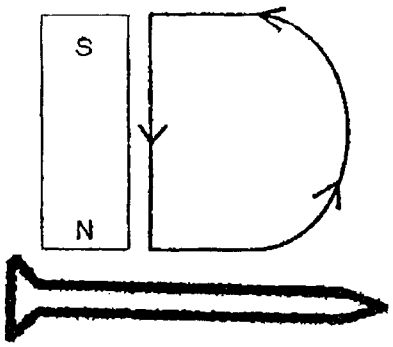
(c) One way to stop mosquitoes from breeding is to get rid of stagnant water. Explain why.

[1]

Score 2

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30. Mary wanted to use a bar magnet to magnetise an iron nail as shown below.

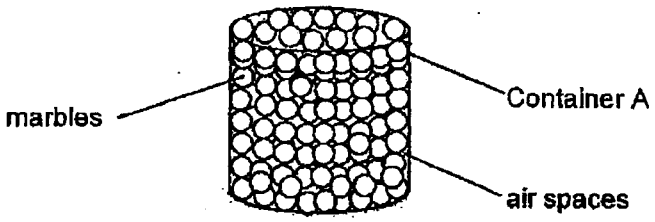


Describe how Mary should stroke the iron nail to magnetise it. [2]

_____

_____

31. Ali filled container A to the brim with marbles as shown in the diagram below. Container A has a volume of 300 cm^3.



(a) Ali found that he could pour some water into the container even though the container was filled with marbles. Explain why. [2]

_____

_____

Score 4

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Thomas saw a crow putting stones into a bottle of water at the garden. His mother shared that the crow's action helped it to be able to drink water from the bottle after some time.



(b) Explain how putting stones in the bottle can help the crow to drink water from the bottle.

[2]

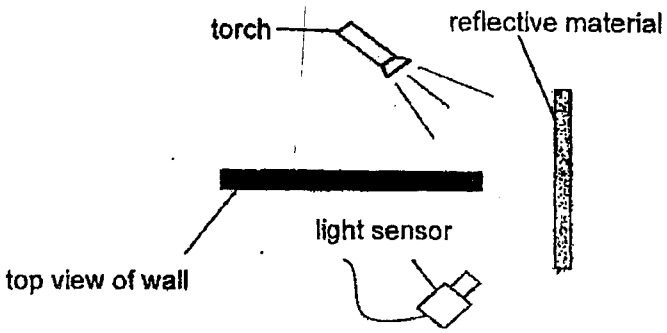
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_____

Score	/2

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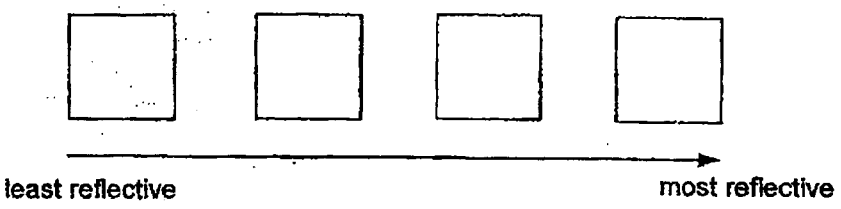
32. David wants to investigate how much light a material can reflect. He sets up the experiment as shown below using a torch, 4 different types of reflective materials and a light sensor.



The results of his experiment are shown below.

Reflective material	Amount of reflected light recorded (unit)
W	335
X	63
Y	252
Z	379

(a) Arrange the materials W, X, Y and Z, in the order of their ability to reflect light. [1]

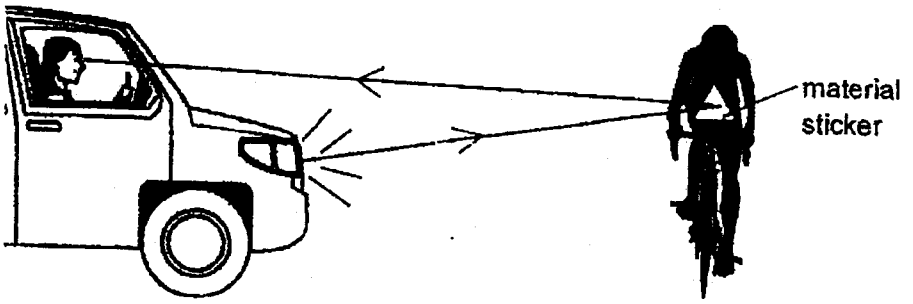


Score 1

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(b) How does conducting the experiment in a dark room ensure that it is a fair test.

[1]



(c) David's mother suggested that he choose one of the materials to paste on the back of his bicycle seat. Which material, W, X, Y or Z should David use to paste at the back of his bicycle seat so that drivers can see him cycling along a dimly lit road at night?

Score 3

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33. Jocelyn heated three different objects, P, Q and R and recorded the results shown below.

Object	Length before heating (cm)	Length after heating (cm)
P	8	10
Q	8	9
R	8	11

(a) Based on the results, what happened to the length of the 3 objects after they were heated? [1]

_____

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

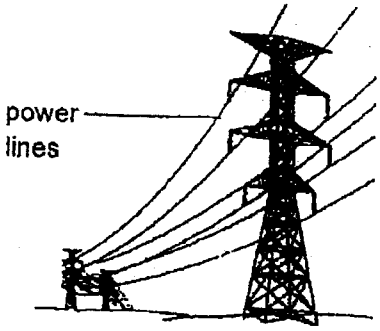
_____

_____

Score	/ 2

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Jocelyn noticed that the power lines hung loosely across the poles during the day.



(c) What will happen to the power lines on a cold night if the lines are not loosely hung?

[1]

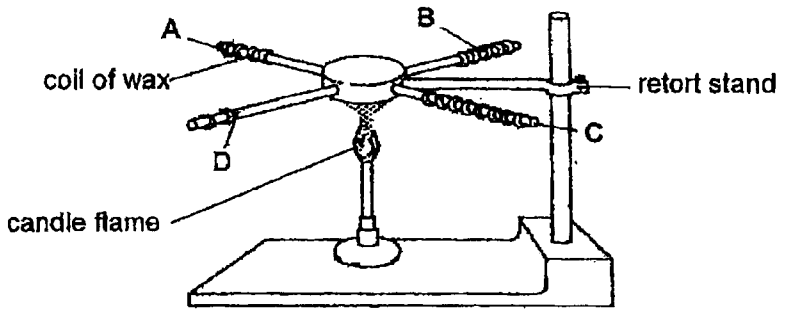
(d) Explain your answer in part (c).

[1]

Score 2

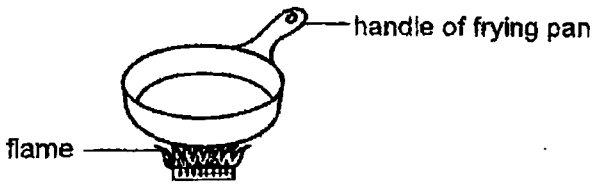
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34. Jasmine wants to find out which material, A, B, C or D is the best conductor of heat. She uses the different materials to make 4 rods of similar size and length. Each rod has 10 coils of wax at the beginning. The diagram below shows her observation after the rods have been heated for 10 minutes.



(a) Based on her observation, explain how she could conclude which rod is the best conductor of heat? [2]

Jasmine wants to select a material to make the handle of a frying pan as shown below.



(b) Which material, A, B, C or D, should she use to make the handle of the frying pan? Explain why. [2]

End of Booklet B

Score 4

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SCHOOL : TAO NAN SCHOOL
LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2023 END OF YEAR EXAMINATION

CONTACT :

SECTION A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	2	4	3	1	1	4	4	3	1
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	2	1	2	3	4	2	2	2	1
Q21	Q22								
1	4								

SECTION B

Q23) Group F: living things
Group G: Non-living things

Q24) Holds the plant upright: Stem
Obtains water for the plant: Root

Q25)
a) Bottle cap: Solid state
b) Water: Liquid state

Q26) The light from the lamp is reflected by the ball and enters Jane's eyes.

Q27) a)

Variables	Keep the same	Change
Size of biscuit		✔
Type of biscuit	✔	
Total mass of biscuit	✔	
Amount of digestive juices	✔	

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	b) The smaller the size of the biscuit, the more exposed surface area of the biscuit to the digestive juices. c) Teeth/Mouth
Q28)	a) W: Egg Y: Pupa b) Mosquito/beetle/moth
Q29)	a) As the temperature of the surroundings increases, the duration of the egg stage remains the same while the duration of the larva stage decreases b) June. Temperature of the surrounding is the highest in June, hence the duration of the larva stage is the shortest c) Mosquitos lay eggs in water
Q30)	Stroke the iron nail with same pole of the magnet in the same direction many times
Q31)	a) There are air spaces between the marbles.The water enters and takes up the space originally occupied by the air b) Stones occupy space in the bottle. Hence the water level rises
Q32)	a) X, Y, W, Z b) It ensures that the torch is the only light source c) Z. Z reflects the most light, hence sticker made of Z will reflect the most light from the car's headlight into the driver's eyes
Q33)	a) Their length increased b) When the objects gained heat, they expanded c) The power lines will snap d) The power lines lost heat to the surroundings and contracted
Q34)	a) The rod will have the least coils of wax left on it as the rod would have conducted heat from the flame to the wax the fastest b) C. C is the poorest conductor of heat. Her hand will not burn if the handle of the frying pan is made of material C.

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