NAN HUA PRIMARY SCHOOL
MID-YEAR EXAMINATION 2022
PRIMARY 4

SCIENCE

BOOKLET A

28 Multiple Choice Questions (56 marks)

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name, index number and class in the spaces provided below.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Use a 2B pencil to shade your answers on the Optical Answer Sheet (OAS).

Marks Obtained

Booklet A		**/ 56**
Booklet B		**/ 44**
Total		**/ 100**

Name: _____ ( ) **Class: P 4S**_____

Date: 11th May 2022 **Parent's Signature:** _____

This booklet consists of 18 printed pages.

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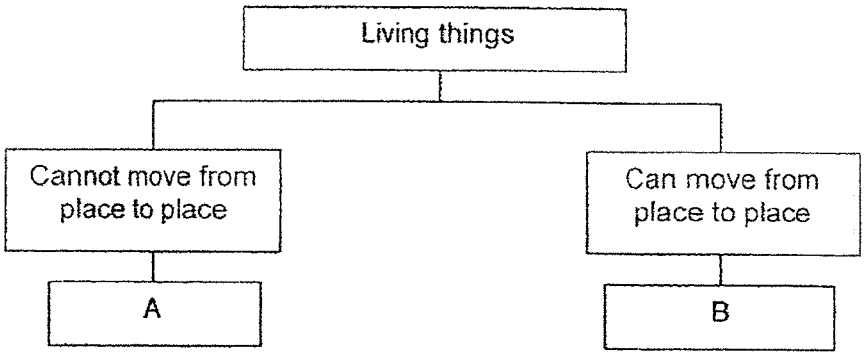
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Section A: (28 x 2 marks = 56 marks)
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

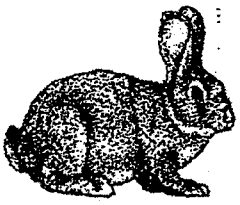
1 Study the classification diagram below.



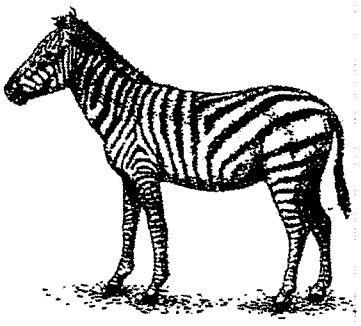
Which of the following statements is true about A and B?

(1) A reproduces but B does not.
(2) A is an animal and B is a plant.
(3) A needs air, food and water but B does not.
(4) A is a plant but B depends on other living things for food.

2 The pictures below show a rabbit and a zebra.



rabbit



zebra

The rabbit and zebra are similar because they _____.

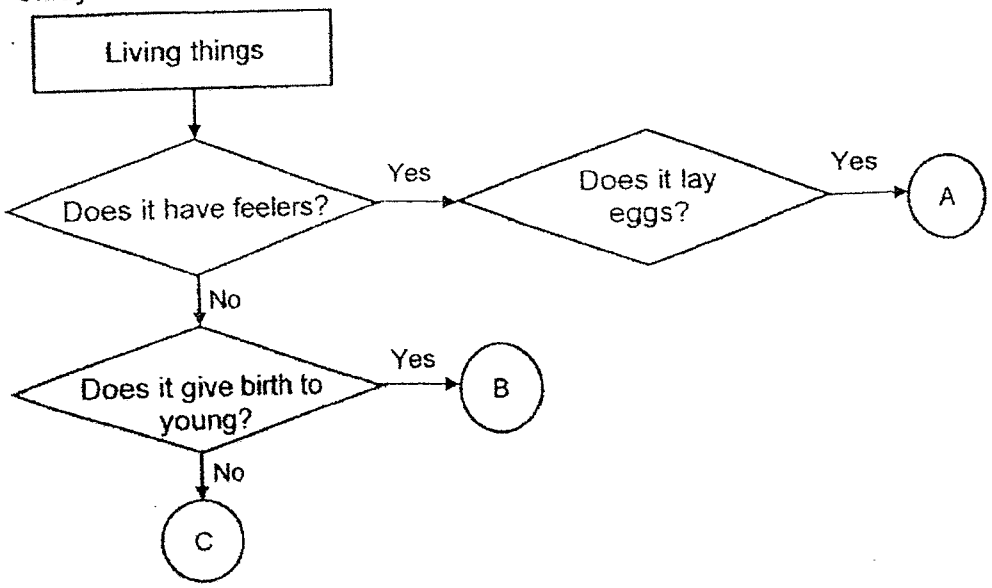
(1) have no tail
(2) have two legs
(3) have hair as outer body covering
(4) have scales as outer body covering

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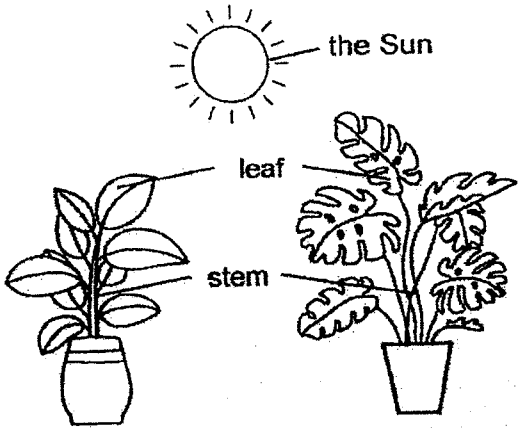
3 Study the flow chart below.



What could A, B and C be?

	A	B	C
(1)	bird	insect	mammal
(2)	bird	mammal	insect
(3)	insect	mammal	bird
(4)	insect	bird	mammal

4 The diagram below shows two plants.



The stems of the plants are holding up the leaves to _____.

(1) expose the leaves to sunlight
(2) help the leaves to absorb water
(3) transport food from the leaves to the roots
(4) transport water from the roots to the leaves

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5 Which of the following statements about the roots of plants is not true?

(1) Roots anchor the plant to the ground.
(2) Roots support and keep a plant upright.
(3) Roots help to absorb water and minerals.
(4) Roots can absorb more water than the stem.

6 Meng wants to find out if water affects the growth of plants. He prepares four set-ups A, B, C and D, as shown in the table below. A tick (✓) shows that the condition is provided to the set-up.

set-up	sunlight	air	water
A	✓	✓	
B		✓	✓
C	✓	✓	✓
D		✓	

He ensures that the same type of plants is used for the experiment.
Which two set-ups should Meng use to conduct a fair test?

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

7 The following statements describe what happens when food enters our body.

A Undigested food goes into the large intestine and excess water is removed from it.
B The tongue helps to mix the food with saliva.
C After a few hours, the food in the stomach becomes almost liquid and goes into the small intestine.
D The food travels down the gullet into the stomach.

Which of the following shows the correct order of the statements to describe what happens when food enters the digestive system?

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

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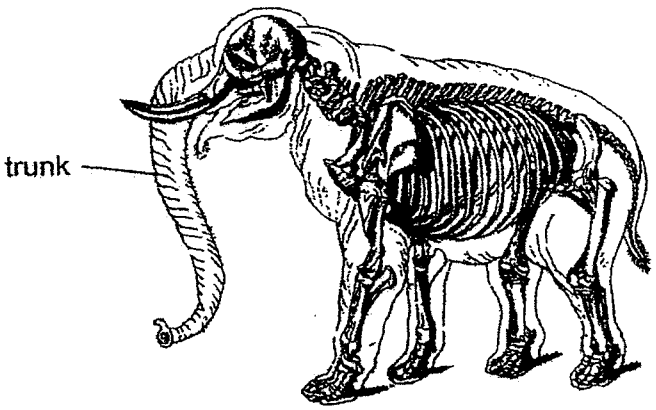
8 Siti wrote some statements about the small and large intestine as shown below.

statement	small intestine	large intestine
A	shorter and thicker	longer and narrower
B	digestion takes place here	no digestion takes place here
C	digested food is absorbed	water is absorbed
D	does not have digestive juices	has digestive juices

Which of the following are true about the small and large intestines?

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

9 The diagram below shows the body of an elephant with one of its systems shown.



Which of the following body system(s) helps the elephant to bend and curl its trunk?

(1) skeletal system
(2) muscular system
(3) respiratory system
(4) skeletal and muscular system

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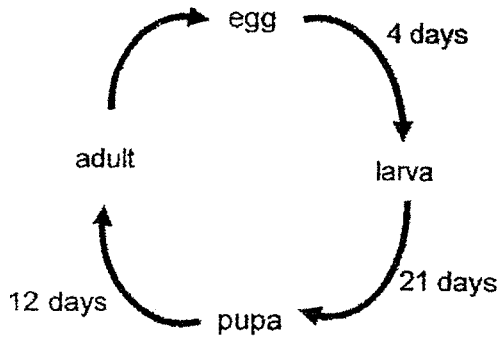
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10 The eggs of animals S and T are laid in water. Animal S has a three-stage life cycle while animal T has a four-stage life cycle.

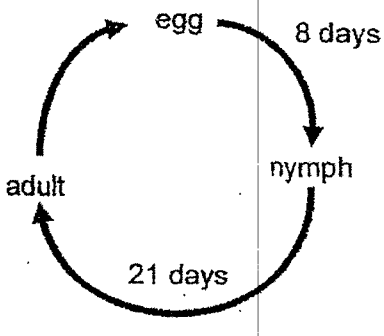
Which of the following correctly identifies animals S and T?

	S	T
(1)	frog	mosquito
(2)	chicken	beetle
(3)	frog	butterfly
(4)	cockroach	mosquito

11 The diagrams below show the life cycles of 2 animals, P and Q, and the number of days the animals spend in the different stages.



life cycle of animal P



life cycle of animal Q

Based on the diagrams above, which of the statements below is true?

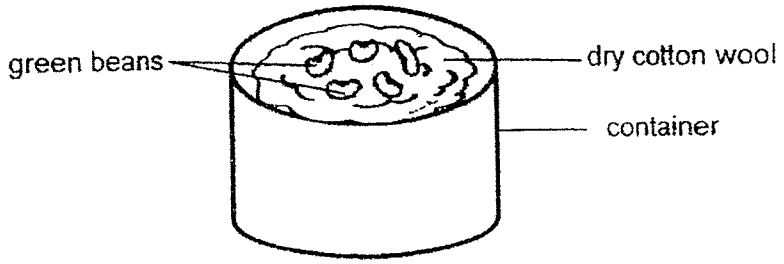
(1) Animal P has a longer life span than animal Q.
(2) The young of animals P and Q resemble their parents.
(3) Animal Q's eggs take a longer time to hatch than animal P's.
(4) The young of animal P and Q take the same number of days to reach the adult stage.

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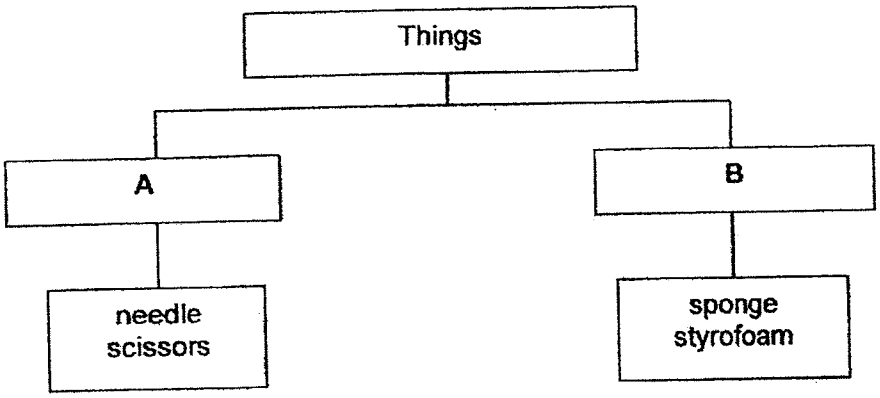
12 Su Lin placed some green beans on some dry cotton wool in a container as shown below. She placed the container on a shelf next to a window.



What would Su Lin observe after six days?

(1) Roots would have grown from the beans.
(2) The green beans would have shrunk in size.
(3) The green beans would have turned mouldy.
(4) There would be no change in the green beans.

13 Study the classification chart below.



Which of the following would be a suitable heading for groups A and B?

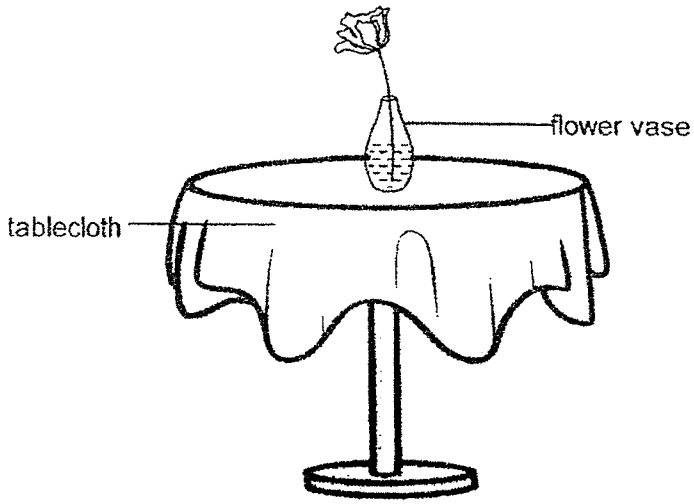
	A	B
(1)	small	big
(2)	flexible	stiff
(3)	floats on water	sinks in water
(4)	strong	weak

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14 A flower vase is placed on a table which is covered with a tablecloth as shown below.



Which of the following shows the correct properties of the materials used to make the tablecloth and flower vase?

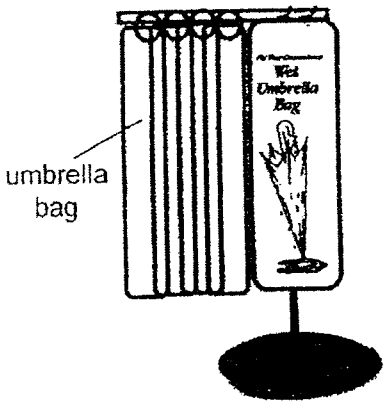
	tablecloth	flower vase
(1)	flexible	waterproof
(2)	floats on water	allows most light to pass through
(3)	does not allow light to pass through	strong
(4)	waterproof	flexible

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15 On rainy days, people entering a building can keep their wet umbrellas in the bag as shown in the diagram below.



Which of the following are important properties that the bags must have to avoid making the floor of the building wet?

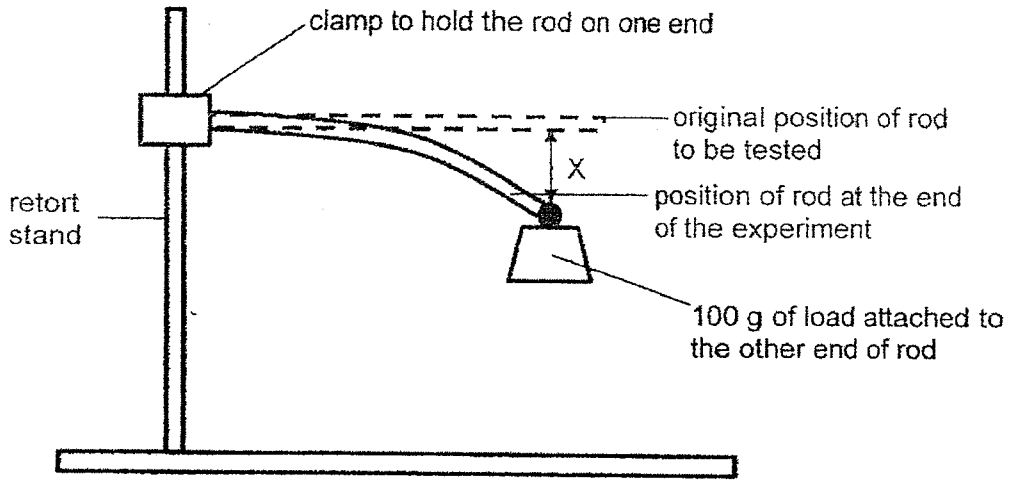
(1) light and transparent
(2) flexible and waterproof
(3) transparent and flexible
(4) waterproof and transparent

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16 Bala carried out an experiment to compare the flexibility of five rods, A, B, C, D and E, made of different materials as shown in the set-up below. All the rods used are of the same thickness.



Bala recorded the results of his experiment in a table as shown below.

	material				
	A	B	C	D	E
length of the rods (cm)	15	10	10	10	15
X (cm)	4	5	3	5	6

From the results above, Bala concluded that material _____.

(1) A is more flexible than B
(2) B is more flexible than C
(3) C is more flexible than D
(4) E is more flexible than D

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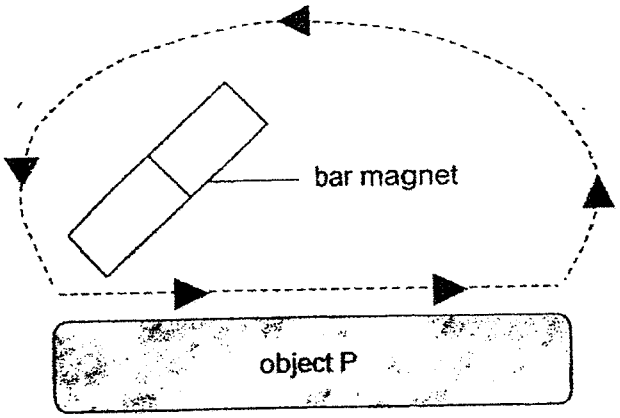
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17 Which of the following statements about magnets is correct?

(1) Like poles of two magnets attract when facing each other.
(2) The magnetic strength of a magnet is weakest at its poles.
(3) A temporary magnet can be made by the electrical method.
(4) A freely suspended bar magnet will come to rest in the South-West direction.

18 Study the diagram below.



During an experiment, Carol used the same side of a bar magnet to stroke Object P repeatedly for 50 times. After that, Object P was able to attract some steel clips. Based on the above experiment, which of the following statements is correct?

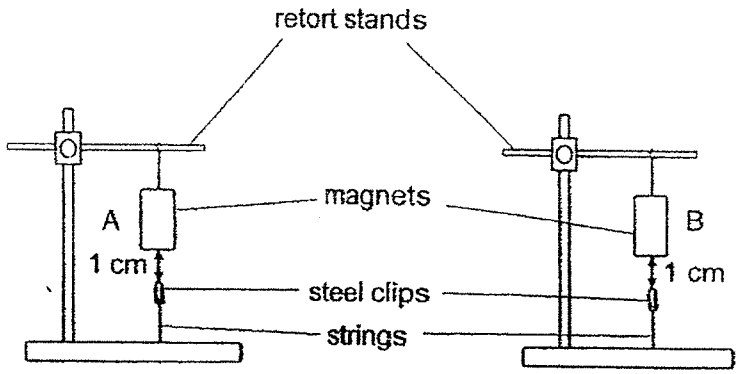
(1) Object P is a magnetic metal.
(2) Object P is a non-magnetic metal.
(3) The bigger the bar magnet, the stronger the magnetism.
(4) The bar magnet lost all its magnetism after it was used to stroke Object P.

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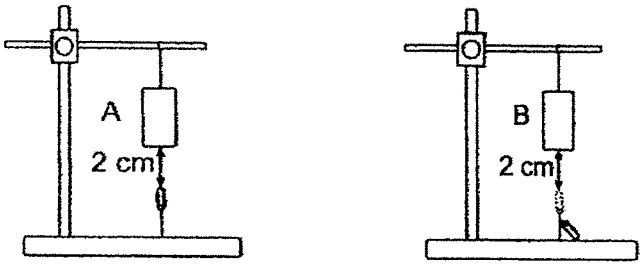
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19 There are two bar magnets, A and B, of the same size. Both magnets can attract a steel clip held by a string even though they are 1 cm above the steel clip as shown in the diagrams below.



The magnets are then moved further away from the steel clip. The observations when the bar magnets are 2 cm above the steel clips are shown below.



What can you infer from the observations above?

A Magnets can act at a distance.
B Like poles of the magnets repel.
C The strength of the magnet is dependent on its size.
D The strength of the magnet is not dependent on its size.

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

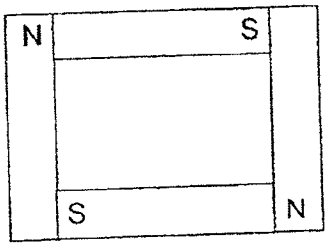
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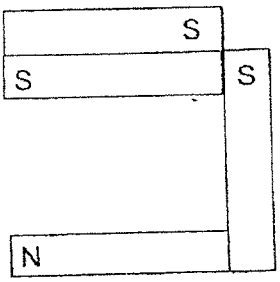
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20 Study the arrangements of four bar magnets as shown below.
Which arrangement is possible?

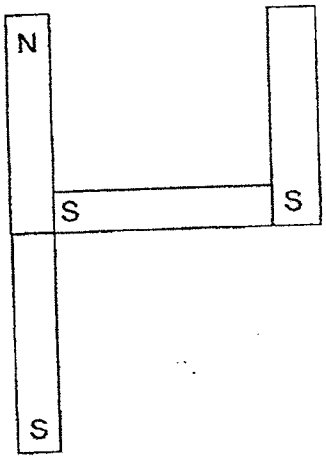
(1)



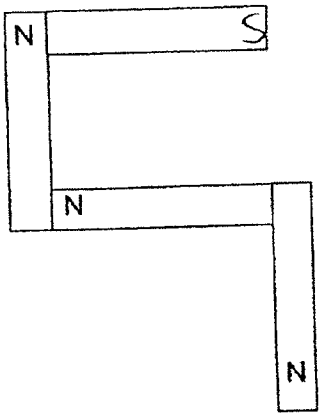
(2)



(3)



(4)



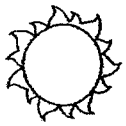
21 Which one of the following is **not** a source of light?

lighted candle



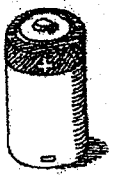
(1)

Sun



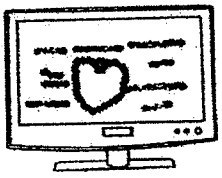
(2)

battery



(3)

television (switched on)



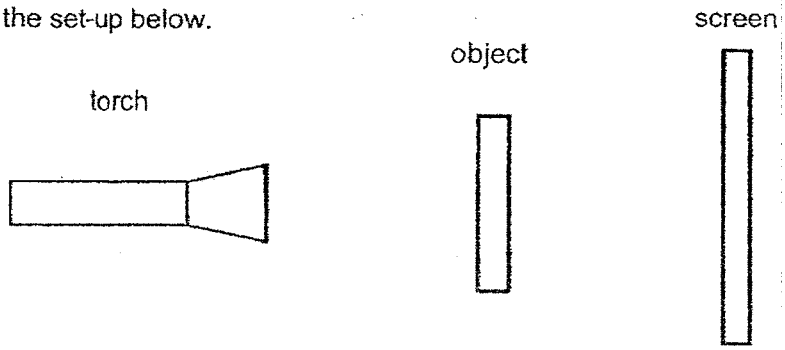
(4)

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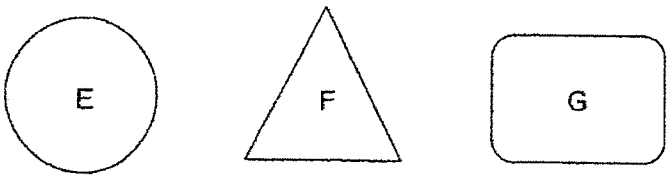
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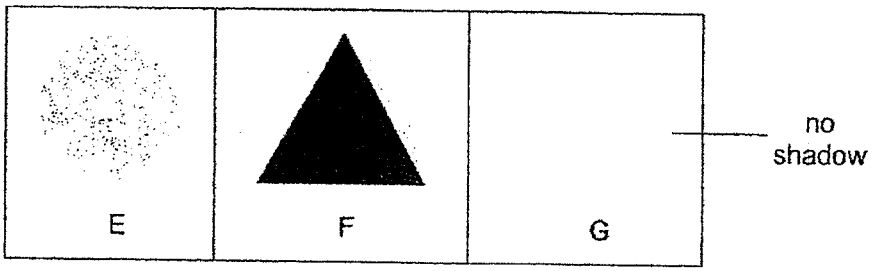
22 Study the set-up below.



Objects E, F and G were placed in between the light source and the screen one at a time.



The following shadows were formed on the screen.



Based on the observations above, which of the following statements is correct?

(1) Object E blocked the most light.
(2) Object F allowed most light to pass through.
(3) Object G did not allow any light to pass through.
(4) The path of light was blocked by at least one of the objects.

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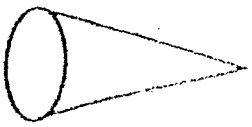
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23 Annie used a torch to shine at an object. She discovered that the object could cast both the shadows shown below.



Which of the following was the object that Annie had shone the torch at?

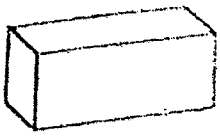
(1)



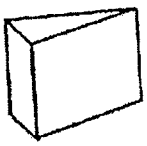
(2)



(3)



(4)

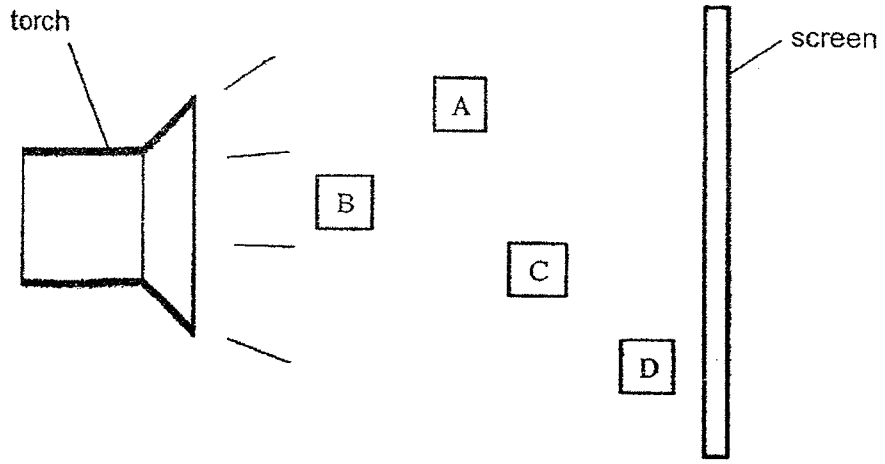


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24 Study the set-up below. Four identical metal cubes, A, B, C and D, were placed at different positions between a torch and a screen.



The torch was switched on and four shadows were cast on the screen.

Which of the following correctly shows the shadow sizes of metal cubes A, B, C and D from largest to smallest?

	Largest shadow ⟶ Smallest shadow			
(1)	A	B	C	D
(2)	A	C	D	B
(3)	B	A	C	D
(4)	C	A	B	D

25 Which of the following is a matter?

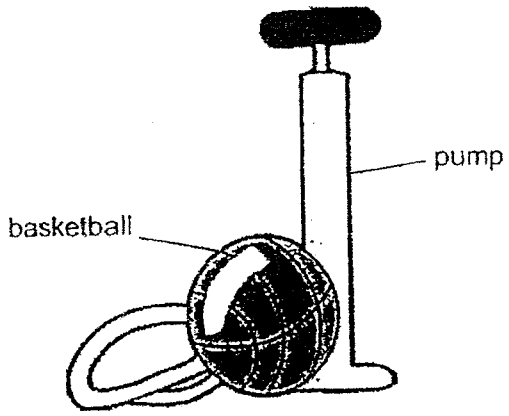
(1) wind
(2) music
(3) shadow
(4) light from a flame

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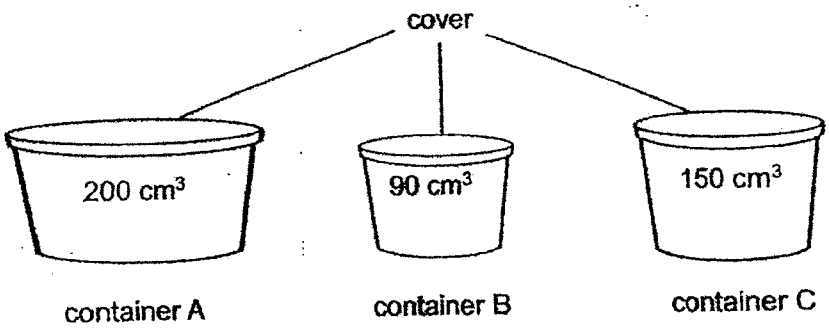
26 The basketball becomes bigger when air is pumped into it.



What does this tell us about air?

(1) Air has mass.
(2) Air cannot be seen.
(3) Air occupies space.
(4) Air cannot be compressed.

27 The diagram below shows three tightly covered containers with different volumes.



Which covered container(s) can be filled with 180 cm^3 of air?

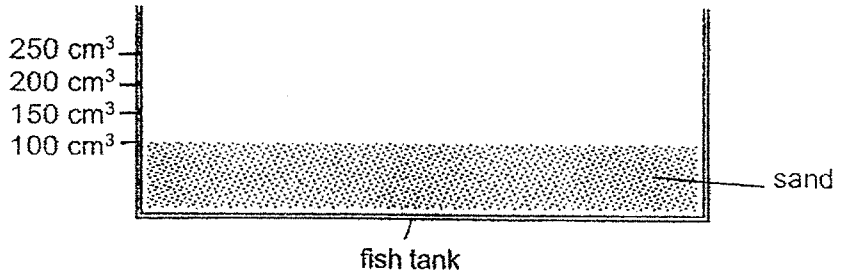
(1) A only
(2) C only
(3) A and C
(4) A, B and C

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28 Ken bought a new fish tank. He filled it with sand up to the 100 cm^3 mark as shown in the diagram below.



The next day, he poured 150 cm^3 of water into the tank.

What will be the water level in the beaker be?

(1) 100 cm^3
(2) 250 cm^3
(3) more than 250 cm^3
(4) between 100 cm^3 and 250 cm^3

(Go on to Booklet B)

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NAN HUA PRIMARY SCHOOL
MID-YEAR EXAMINATION 2022
PRIMARY 4

SCIENCE

BOOKLET B

12 Open-ended questions (44 marks)

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name, index number and class in the spaces provided below.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Do not use correction fluid/tape or highlighters.

Marks Obtained

Section B		/ 44

Name: _____ ( ) Class: P 4S_____

Date: 11th May 2022 Parent's Signature:_____

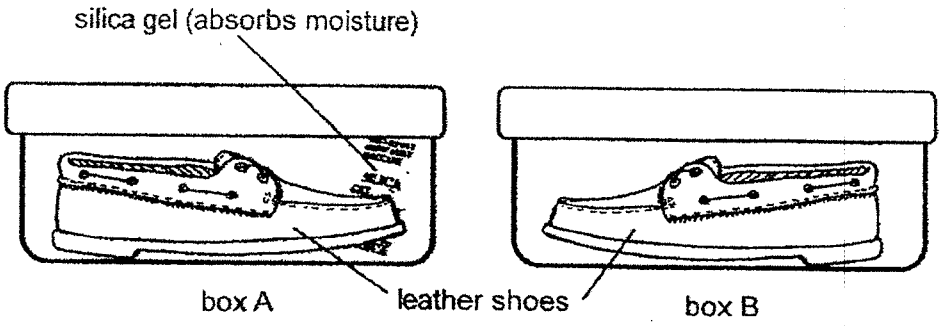
This booklet consists of 15 printed pages.

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Section B: (44 marks)
Write your answers to questions 29 to 40 in the space provided.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

29 Ahmad placed an identical leather shoe in two identical boxes, A and B, as shown in the diagram below. He placed a packet of silica gel in box A. The two boxes were then covered and placed in a shoe cabinet.



After a month, Ahmad found grey substance on the shoe in box B but not on the shoe in box A.

(a) Name the grey substance found on the shoe in box B. [1]

_____

(b) Explain why the grey substance was not found on the shoe in box A. [2]

_____

_____

(c) State one other condition needed for the grey substance to grow. [1]

_____

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Score	
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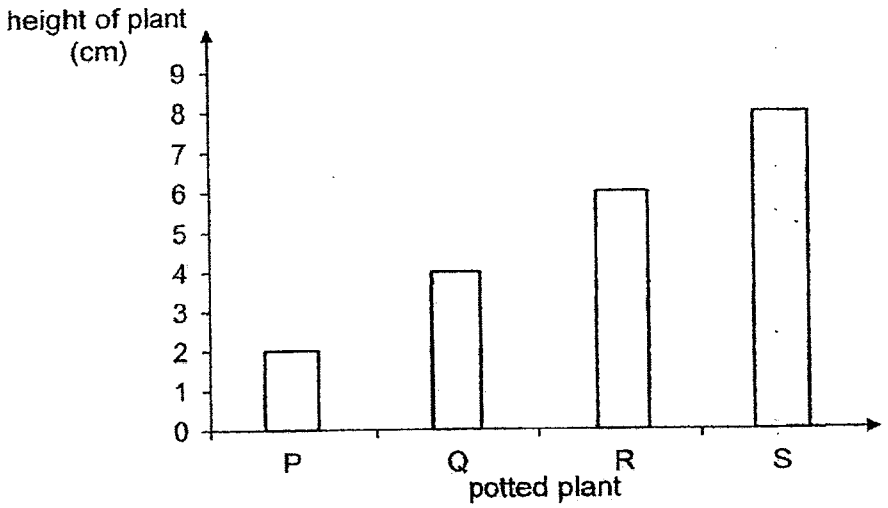
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30 Kumar placed four similar potted plants, P, Q, R and S, under the sun for a different number of hours over a period of ten days. Each potted plant was watered with the same amount of water each day.

The table below shows the number of hours the plants were placed under the sun for each day.

potted plant	number of hours exposed to the sun
P	1
Q	3
R	5
S	7

After ten days, Kumar measured the height of the plants and plotted a graph as shown below.



(a) From the table and graph, what is the relationship between the number of hours the plant is exposed to the sun and the height of the plant? [1]

_____

_____

(b) Explain why Kumar had to expose the plants to the sun. [2]

_____

_____

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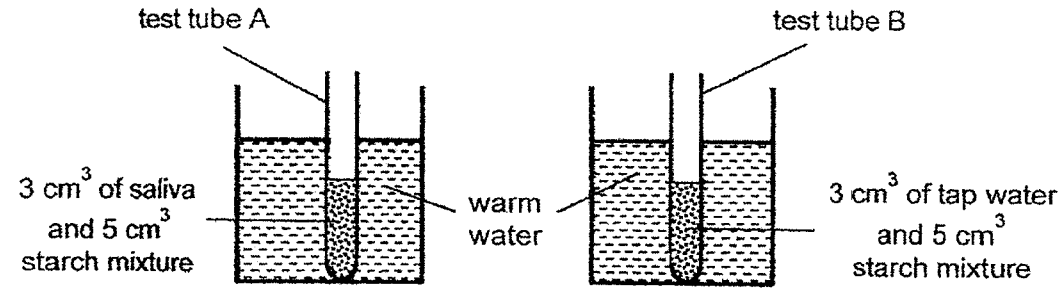
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31 Lee wants to find out if there are digestive juices in saliva that can digest starch. In his experiment, he uses iodine to test for starch. The colour change of iodine is shown in the table below.

presence of starch	colour of iodine
absent	remains brown
present	turns blue-black

Lee sets up the experiment as shown below.



Every 20 seconds, Lee takes a drop of the mixture from each test tube and tests the mixture with iodine.

He records the results in the table below.

time (seconds)	20	40	60	80	100
colour of iodine in test tube A	blue-black	blue-black	blue-black	brown	brown
colour of iodine in test tube B	blue-black	blue-black	blue-black	blue-black	blue-black

(a) State the reason why the colour of iodine in test tube A changes from blue-black to brown but the colour of iodine in test tube B remains unchanged at 80 seconds?

[2]

Test tube A : _____

_____

Test tube B : _____

_____

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(b) What can Lee conclude from **(a)** about saliva? [1]

_____

_____

(c) What will Lee observe if the amount of saliva used in test tube A is increased to 5 cm^3? [1]

_____

_____

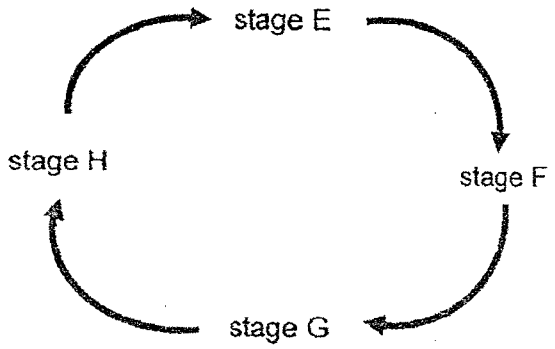
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Score	4

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32 The life cycle of animal Z is shown in the diagram below.



life cycle of animal Z

Animal Z is able to reproduce at stage F only. At stage G, it can be found on leaves. It sheds its skin multiple times at stage H. It stops eating at stage E.

(a) Identify the stages in the life cycle of animal Z. [2]

(i) E : _____

(ii) F : _____

(iii) G : _____

(iv) H : _____

(b) Which animal group does animal Z belongs to? [1]

_____

(c) Give a reason why stage G can be found on leaves. [1]

_____

_____

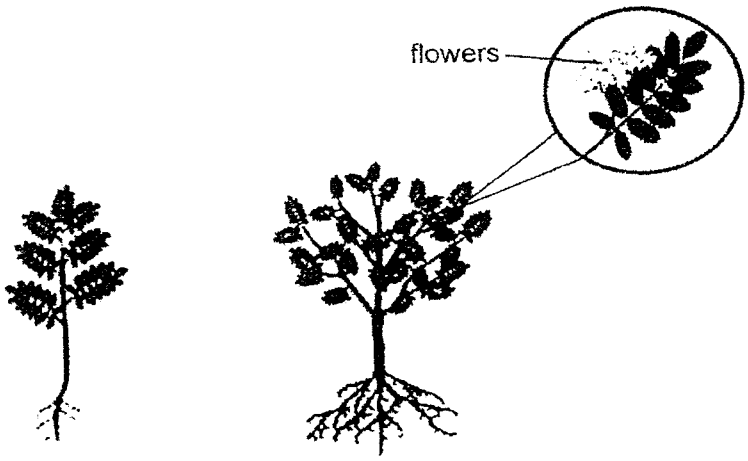
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33 The diagram below shows the different stages of the life cycle of a wheat plant.



(a) (i) Identify stage B and C. [1]

Stage B : _____

Stage C : _____

(ii) Give a reason for your answer in (i). [1]

_____

_____

(b) Is the plant able to make food at stage B? Explain why. [1]

_____

_____

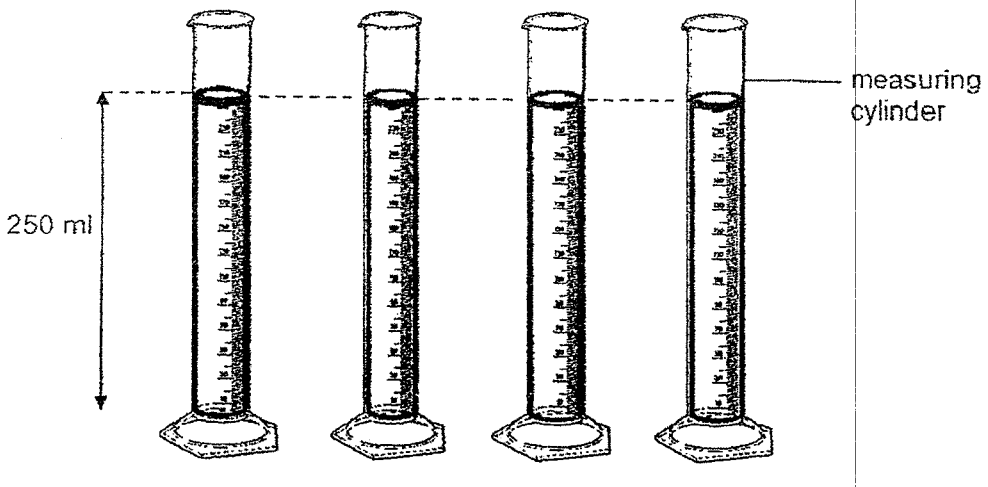
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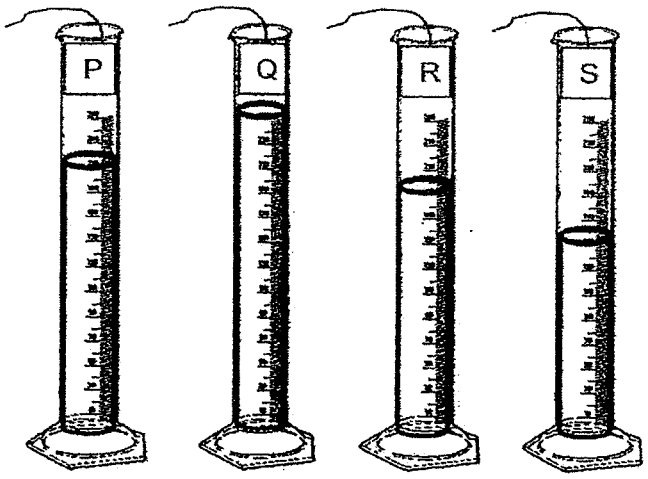
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34 Miko poured 250 ml of water into each of four identical measuring cylinders as shown in the diagram below.



Miko then dipped four strips, P, Q, R and S of the same size, which are made of different materials into each measuring cylinder for a minute and removed them.

The diagram below shows the measuring cylinders after she had removed the strips.



(a) Which is the most absorbent material, P, Q, R or S? [1]

_____

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(b) **(i)** Miko wants to make gloves to be used when washing dishes. Which material, P, Q, R or S should she pick? Explain why. [2]

_____

_____

_____

(ii) Give an example of a material that has the property suitable for making the gloves in **(b)**. [1]

_____

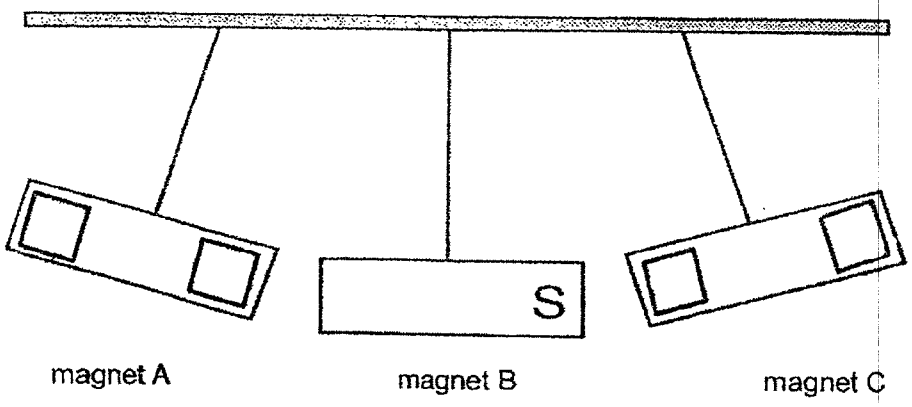
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35 The diagram below shows what happens when three bar magnets, A, B and C, are suspended by strings next to one another.



(a) In the boxes of the diagram above, **label** all the poles of magnets A and C, with the letters '**N**' to show the North pole and '**S**' to show the South pole. [2]

(b) What will happen to magnets A and C if magnet B is removed from the set-up? [1]

_____

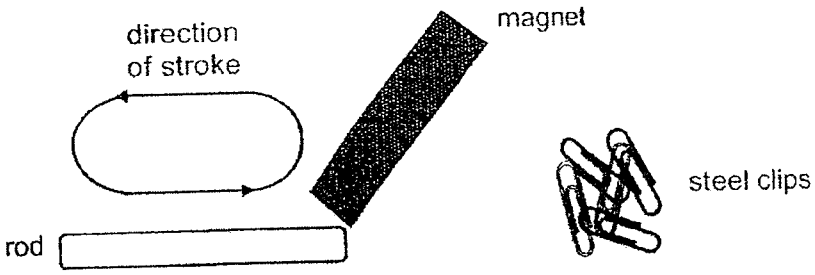
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Score	3

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36 Mary used a piece of bar magnet to magnetise a rod. She stroked the rod with the magnet from one end to the other end. She then observed the number of steel clips picked up by the rod as the number of strokes increased and recorded her observations in the table below.



Number of strokes	Number of steel clips picked up
20	2
40	4
60	5

(a) What is the relationship between the number of strokes and the number of steel clips picked up by the rod? [2]

_____

_____

(b) Her friend, Jenny, used the same method to magnetise a rod made of a Different material. But the rod was not able to pick up any steel clips. Name the type of material that each rod is likely to be made of. [2]

Mary's rod: _____

Jenny's rod: _____

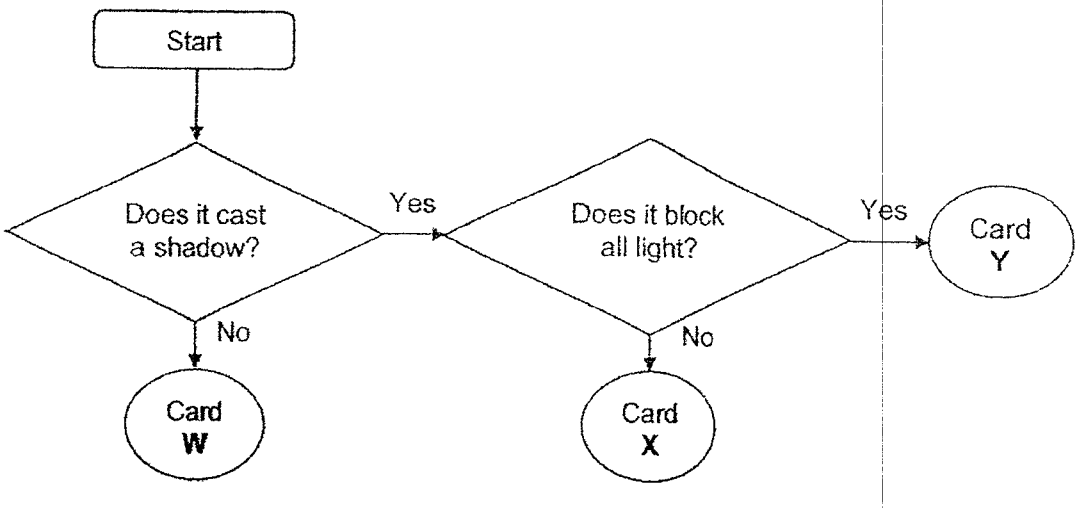
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37 Study the flow chart below and answer the questions that follow.

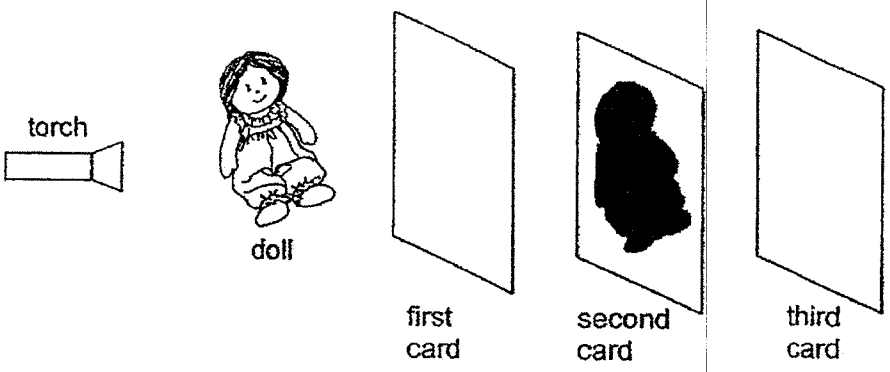


(a) Based on the flow chart above, state the cards, W, X and Y, that can be used to make the following objects. [2]

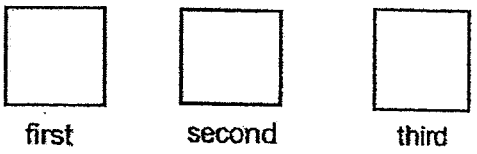
Clear window pane : Card _____

Toilet door : Card _____

(b) The three cards were arranged as shown in the diagram below. Same then shone a torch at a doll and observed a dark shadow on the second card. [2]



In the boxes below, write the letters, W, X and Y to identify the three cards used.



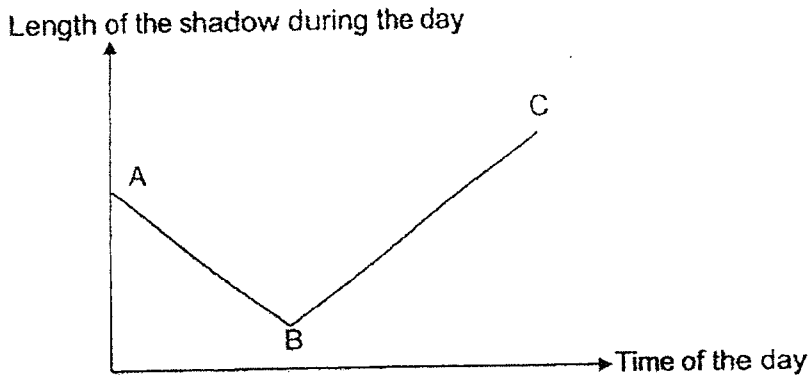
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38 The line graph below shows the length of the shadow of a tree during the day.



(a) Which part of the graph, A, B or C, shows the shadow of the tree at noon? Explain your answer. [2]

(b) Sean is at the beach and he uses a beach umbrella to provide shade for himself from the glaring sun.



Will he be able to see a shadow of the beach umbrella on the ground? Explain your answer. [2]

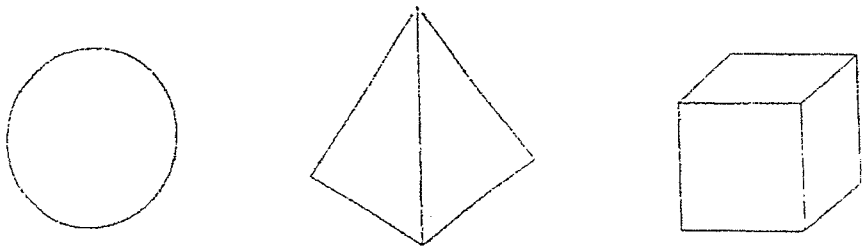
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39 As part of an experiment, Jason moulded the same piece of clay into a sphere, a pyramid and a cube, one at a time as shown below.

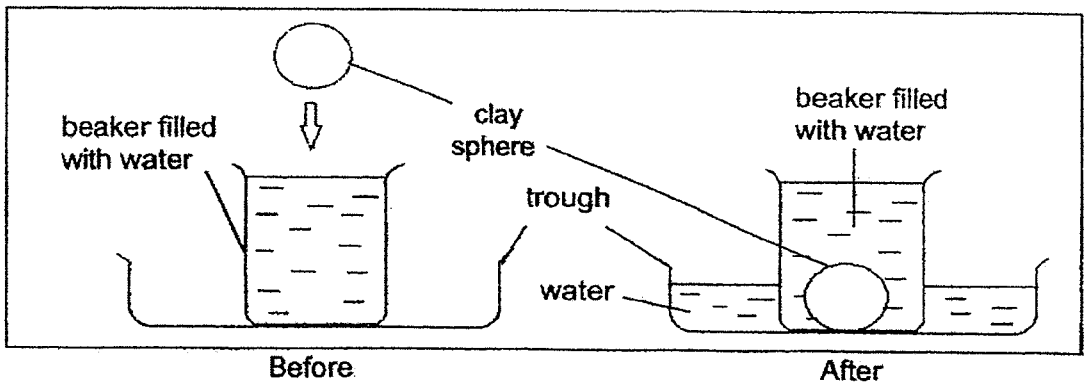


sphere pyramid cube

(a) Would the mass of the clay change when Jason moulded it?
Explain your answer. [1]

(b) What property changed when the clay was being moulded? [1]

(c) Jason decided to take the experiment a step further. He prepared a beaker full of water. He then placed the clay sphere gently into the beaker and noticed that some water overflowed from the beaker to the trough as shown in the diagram below.



Based on the experiment above, what can you conclude about the clay? [1]

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Score	3

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40 (a) State two common properties of all matter. [2]

_____

_____

The table below shows the properties of four specimens, A, B, C and D.

Properties	A	B	C	D
Can be seen.	No	Yes	Yes	Yes
Has mass.	Yes	Yes	No	Yes
Is a non-living thing.	Yes	No	Yes	Yes
Has a definite volume.	No	Yes	No	Yes

(b) Which of the specimen(s), A, B, C or D, is / are matter? [1]

_____

(c) Based on the properties given in the table, give an example of specimen A. [1]

_____

~ End of paper ~

Score	
	4

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YEAR : 2022
LEVEL : PRIMARY 4
SCHOOL : NAN HUA PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : MID YEAR EXAMINATION

(BOOKLET A)

Q1	4	Q2	3	Q3	3	Q4	1	Q5	2
Q6	2	Q7	2	Q8	3	Q9	2	Q10	1
Q11	3	Q12	4	Q13	4	Q14	1	Q15	2
Q16	2	Q17	3	Q18	1	Q19	1	Q20	2
Q21	3	Q22	4	Q23	3	Q24	3	Q25	1
Q26	3	Q27	4	Q28	4				

(BOOKLET B)

Q29	a)	Mould
	b)	The silicon gel removes moisture from box A. Mould cannot grow without moisture.
	c)	Air
Q30	a)	As the number of hours exposed as the sun increases the height of the plant increases.
	b)	The plant can trap sunlight to make food.
Q31	a)	Test tube A :No more starch was presenting the mixture at 80 seconds Test tube B :Starch was still present in the mixture at 80 seconds
	b)	There are digestive juices that digest starch in saliva.
	c)	The iodine will turn from blue-black to brown before 80 seconds.
Q32	a)	(i) E: pupa (ii) F : adult (iii) G : egg (iv) H : larva
	b)	Insects
	c)	To ensure that the young have food once they are hatched.
Q33	a)	(i)Stage B : Young Stage C : Adult (ii) The plant in Stage C has flowers while the plant in Stage B does not.
	b)	Yes. Leaves helps the plants to make food.
Q34	a)	S
	b)	(i) Q. The amount of water left in the container after Q is removed is the same as the amount of water at the start of the experiment remains at 250cm^3 material Q is waterproof. Hence, it is suitable to use as grow when washing dishes and Miko's hand will not get wet. (ii) Rubber

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Q35	a)	S N magnet A S N magnet C
	b)	Magnet A will be attracted
Q36	a)	As the number of strokes increases the number of steel clips picked up increases.
	b)	Mary's rod: iron Jenny's rod: rubber
Q37	a)	Clear window pane: Card W Toilet door : Card Y
	b)	W, Y, X first, second, third
Q38	a)	B. As the sun in noon is at the top the shadow would be the shortest.
	b)	Yes. The umbrella is opaque causing a shadow to form on the ground.
Q39	a)	The mass of clay did not change as no matter was removed from.
	b)	The shape
	c)	The clay occupies space
Q40	a)	Matter occupies space and has mass
	b)	Matter A, B and D
	c)	Air

END

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