

**PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)**

**MID-YEAR EXAMINATION 2022**

**PRIMARY FOUR**

**SCIENCE**

**BOOKLET A**

**NAME : \_\_\_\_\_ ( )**

**CLASS : P4 \_\_\_\_\_**

**DATE : 6 May 2022**

**TOTAL TIME FOR BOOKLETS A & B: 1 hour and 45 minutes**

**INSTRUCTIONS TO PUPILS**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

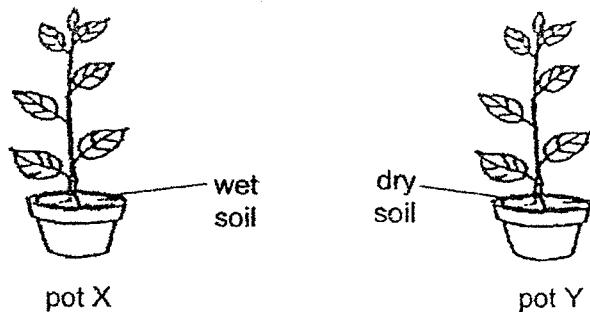
**ANSWER ALL QUESTIONS.**



**Section A (28 x 2 = 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). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. John had two similar plants in identical pots filled with an equal amount of soil. Both pots were placed next to each other in the garden.

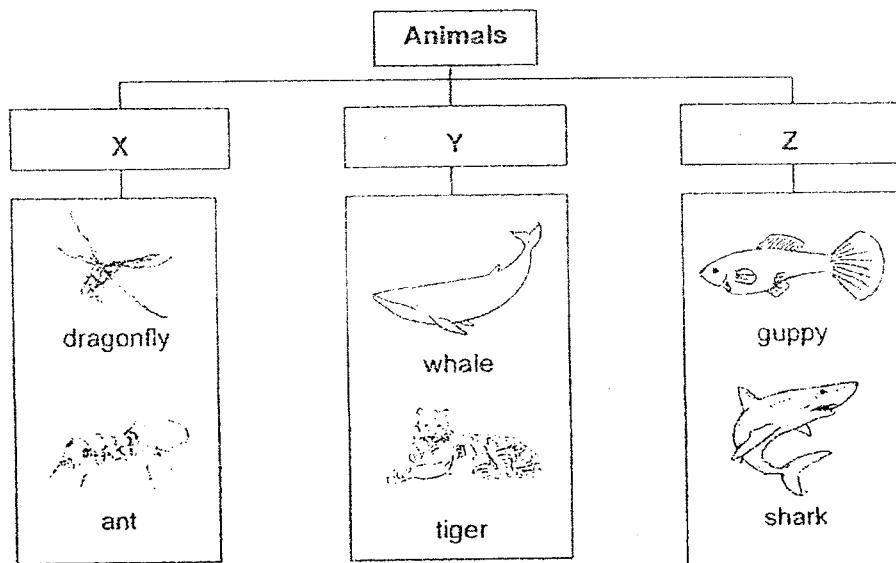


A week later, he observed that the plant in pot Y died but the plant in pot X grew taller.

This shows that the plants need \_\_\_\_\_ to survive.

- (1) air
- (2) soil
- (3) water
- (4) sunlight

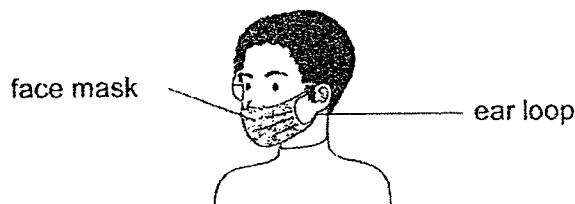
2. Study the classification diagram below carefully.



Which one of the following identifies the animal groups correctly?

	X	Y	Z
(1)	insects	mammals	amphibians
(2)	reptiles	fish	amphibians
(3)	insects	mammals	fish
(4)	amphibians	reptiles	fish

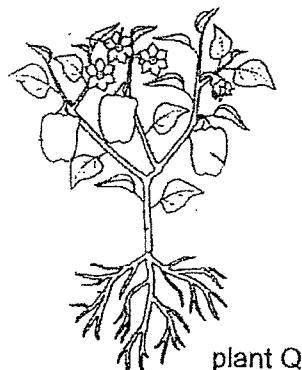
3. The diagram shows a person wearing a face mask.



Rubber is used to make the ear loops because rubber \_\_\_\_\_.

- (1) is flexible
- (2) is waterproof
- (3) can reflect light
- (4) can sink in water

4. Emily saw plant Q and concluded that it is an adult plant.



What did she observe that led her to that conclusion?

Plant Q has \_\_\_\_\_.

- (1) stem
- (2) roots
- (3) fruits
- (4) leaves

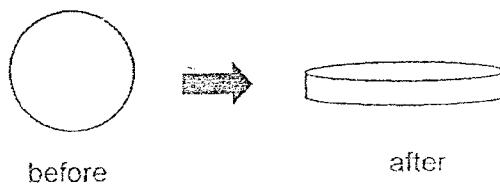
5. Which one of the following is not matter?

- (1) light
- (2) sand
- (3) water
- (4) sponge

6. In which part of the digestive system is water removed from undigested food?

- (1) mouth
- (2) stomach
- (3) small intestine
- (4) large intestine

7. Rosie took a ball of plasticine and flattened it as shown below.



What happened to the mass and volume of the plasticine after it has been flattened?

	mass of plasticine	volume of plasticine
(1)	decreased	decreased
(2)	increased	remained the same
(3)	remained the same	remained the same
(4)	remained the same	increased

8. Four rose plants of the same height were planted in four identical pots, A, B, C and D.

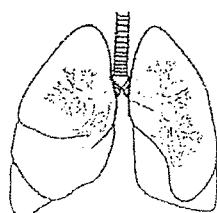
The table below shows the conditions given to the four pots.

	Pot A	Pot B	Pot C	Pot D
Amount of garden soil	400 g	400 g	800 g	800 g
Amount of water given every day	100 ml	200 ml	100 ml	200 ml
Place pots were placed	In the garden	In the garden	In the garden	In the living room

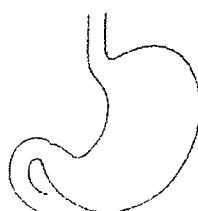
Which two pots should be used to find out if the amount of soil would affect the plant's growth?

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

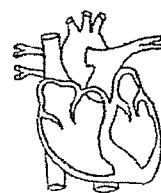
9. The diagram below shows 3 body parts from the human body systems.



lungs



stomach



heart

Which of the following body systems match the parts above correctly?

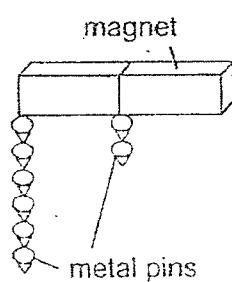
	<b>lungs</b>	<b>stomach</b>	<b>heart</b>
(1)	respiratory	circulatory	digestive
(2)	circulatory	respiratory	digestive
(3)	digestive	circulatory	respiratory
(4)	respiratory	digestive	circulatory

10. Which one of the following statements about magnets is correct?

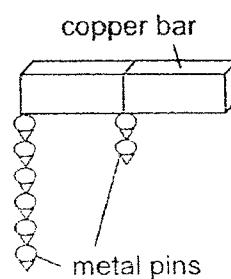
- (1) A magnet can attract all metals.
- (2) A magnet is made of magnetic material.
- (3) A small magnet has less magnetic strength.
- (4) A magnet can repel non-magnetic materials.

11. Which one of the following diagrams is correct?

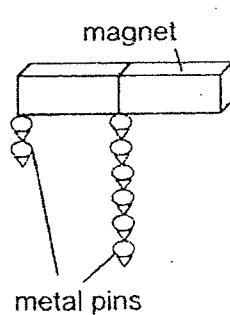
(1)



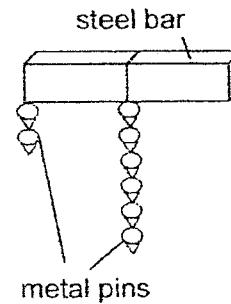
(2)



(3)



(4)



12. Ali made the following observations of an animal.

- It eats meat only.
- It has an outer covering of hair.
- It gives birth to several young each time.

Which group of animals matched Ali's observations?

- (1) fish
- (2) birds
- (3) reptiles
- (4) mammals

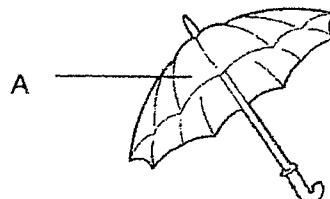
13. The table below describes the characteristics of living things A, B, C and D. A tick (✓) shows the characteristic the living thing has.

Characteristic	A	B	C	D
Can move	✓			
Reproduces from seed		✓		
Can make its own food		✓	✓	

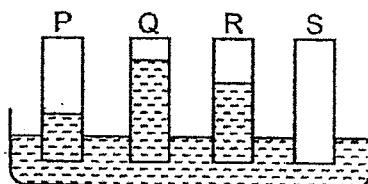
Which one of the living things A, B, C or D is a fern?

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

14. The picture shows a part of an umbrella labelled A.



Fadli had four strips of different materials with the same mass and size. He wanted to find out which material is most suitable to make part A of the umbrella. He dipped the strips into a dish of water to carry out his investigation.



At the end of the experiment, which of the following would not help Fadli decide which material is most suited to make part A of the umbrella?

- (1) the position of each strip in water
- (2) the amount of water left in the dish
- (3) the length of the strip that remained dry
- (4) the amount of water absorbed by each strip

15. Joseph kept four mealworm beetles, A, B, C and D. They are at different stages of their life cycles.

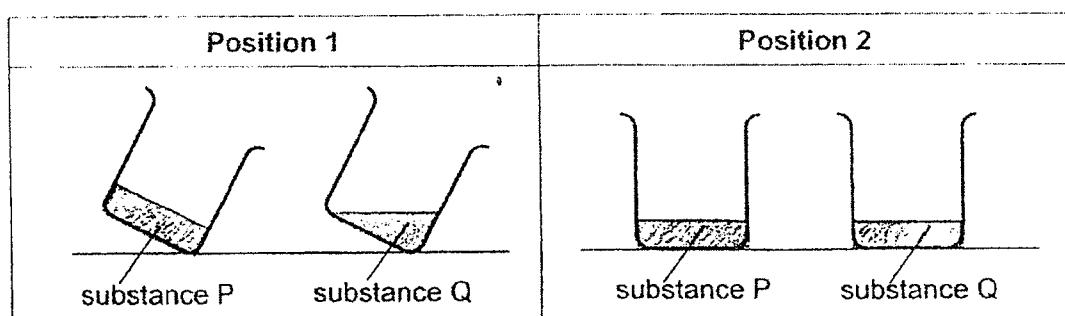
He kept each mealworm beetle in a separate container and he placed 20 g of food in each of the container.

He measured the mass of food left in the container after 3 days and recorded the results in a table.

Mealworm	Mass of food left (g)
A	10
B	20
C	14
D	6

Which mealworm is most likely to be in the pupa stage?

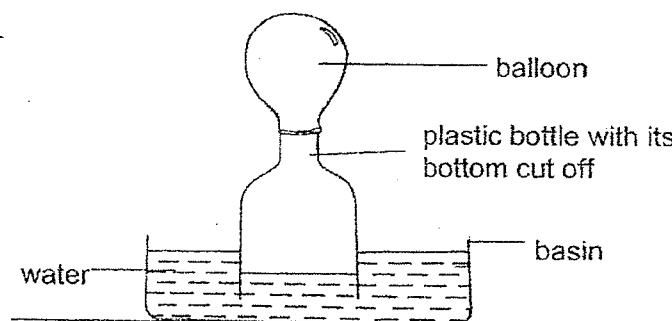
- (1) A
  - (2) B
  - (3) C
  - (4) D
16. The diagram below shows substance P and substance Q placed in different positions.



Which states of matter are substances P and Q in?

	substance P	substance Q
(1)	solid	solid
(2)	solid	liquid
(3)	liquid	liquid
(4)	liquid	solid

17. When Devi pushed the plastic bottle into the basin of water, the balloon inflated.



This shows that \_\_\_\_\_.

- A air has mass
  - B air takes up space
  - C air has no definite shape
- (1) B only  
 (2) A and C only  
 (3) B and C only  
 (4) A, B and C

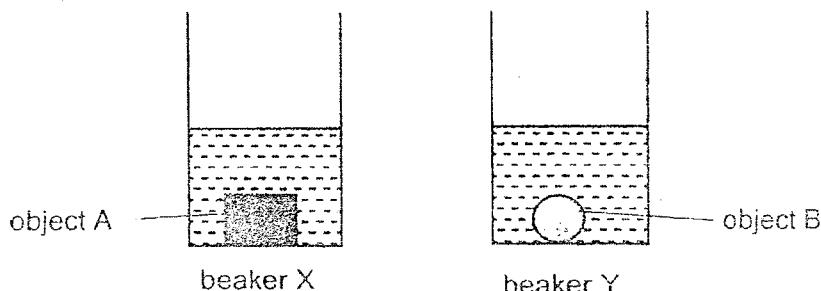
18. The table below describes the states of three matter, A, B and C.

	A	B	C
Has fixed shape	No	Yes	No
Has fixed volume	Yes	Yes	No

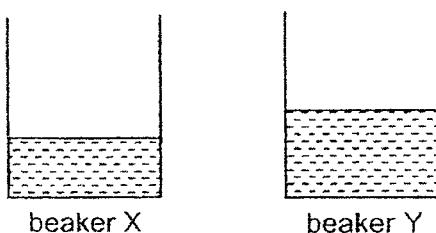
Based on the table above, what could A, B and C be respectively?

	A	B	C
(1)	juice	table	air
(2)	air	table	tea
(3)	juice	air	table
(4)	table	tea	air

19. Lily placed objects A and B in two identical beakers as shown below.



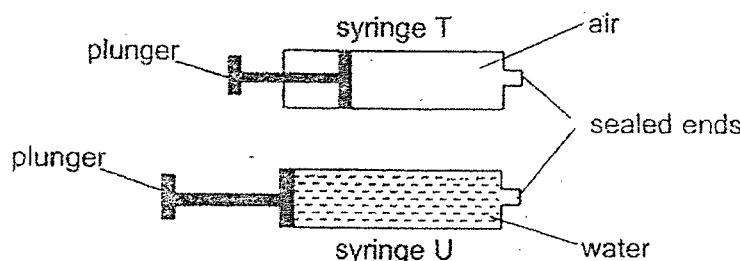
The diagram below shows the amount of water left in the beakers after removing both objects.



Which of the following statements about the two objects is correct?

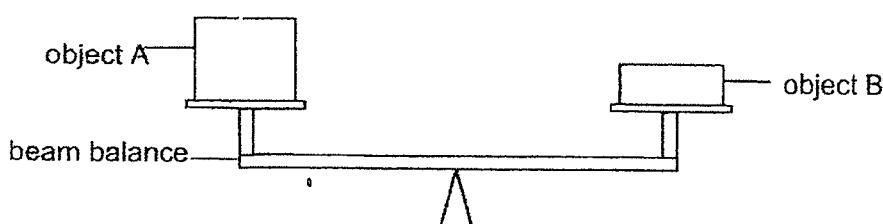
- (1) Both objects have the same volume.
- (2) Object A has a larger volume than object B.
- (3) Object B has a larger volume than object A.
- (4) Object A occupies less space than object B.

20. Swee Lee filled two similar syringes, T and U with the same volume of air and water respectively. She observed that the plunger of syringe T moved a little while the plunger of syringe U did not move at all when pushed.



Based on her observations, what conclusion can she make about air and water?

- (1) Water has a bigger mass than air.
  - (2) Both air and water do not have a definite shape.
  - (3) Both air and water do not have a definite volume.
  - (4) Air can be compressed while water cannot be compressed.
21. Gopal conducted an experiment with a beam balance. The result of his experiment was shown below.



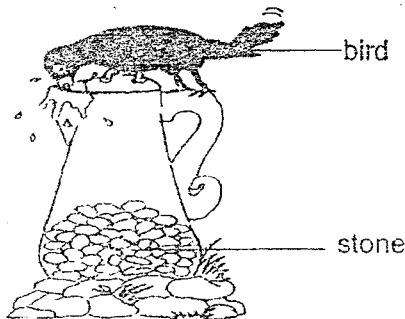
He made the following conclusions based on his observation.

- A Object A is heavier than object B.
- B Object A and B have the same mass.
- C Object A and B have the same volume.
- D Object A has more volume than object B.

Which of his conclusions are correct?

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

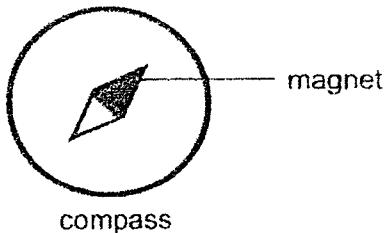
22. A bird threw stones into a pitcher of water to make the water level rise.



What property of matter does the stones show when the water level rises?

- (1) The stones have mass.
- (2) The stones occupy space.
- (3) The stones have a definite shape.
- (4) The stones cannot be compressed.

23. Tom lost his way while going home. He used a compass to help him find his direction back home.



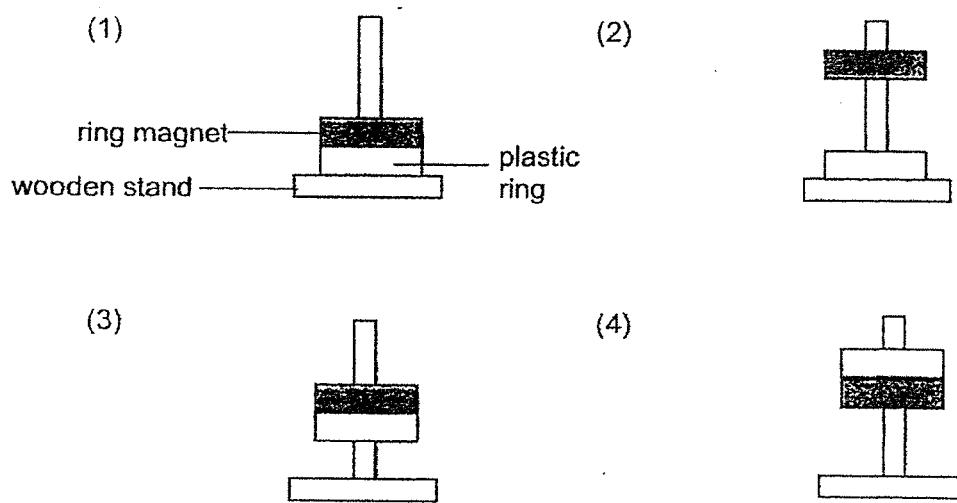
The compass is able to do so because \_\_\_\_\_.

- (1) like poles repel
- (2) unlike poles attract
- (3) magnets attract magnetic materials
- (4) magnets come to rest in a North-South direction

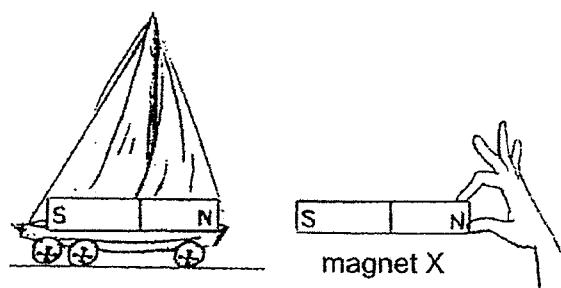
24. Nadia was given a set of materials as shown below.



She placed the ring(s) onto the wooden stand in several different arrangements. Which one of the following set-ups is possible?



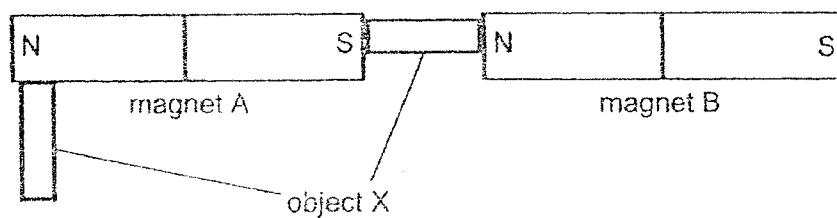
25. Sharon attached a strong magnet on her toy sailboat as shown below. She brought another strong magnet X near the sailboat.



What would most likely happen to the toy sailboat?

- (1) It remains still.
- (2) It spins around.
- (3) It moves towards magnet X.
- (4) It moves away from magnet X.

26. Study the diagram below.

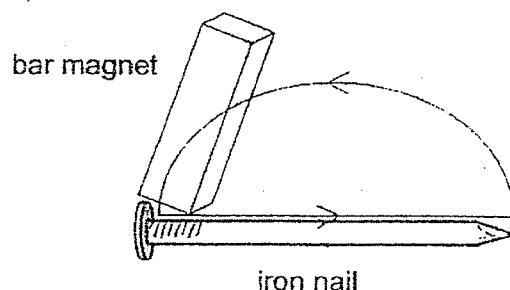


Both magnet A and magnet B attract object X.

Object X could possibly be a/an \_\_\_\_\_.

- A iron rod
  - B plastic rod
  - C rod magnet
  - D wooden rod
- 
- (1) A only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B, C and D

27. Xueli used a bar magnet to stroke an iron nail in the direction as shown below.



There are three different iron nails, X, Y and Z. She stroked each iron nail a different number of times. Then, she placed each nail near some steel pins and recorded the number of steel pins attracted by the nail.

Iron nail	Number of strokes	Number of steel pins attracted
X	30	2
Y	50	4
Z	80	7

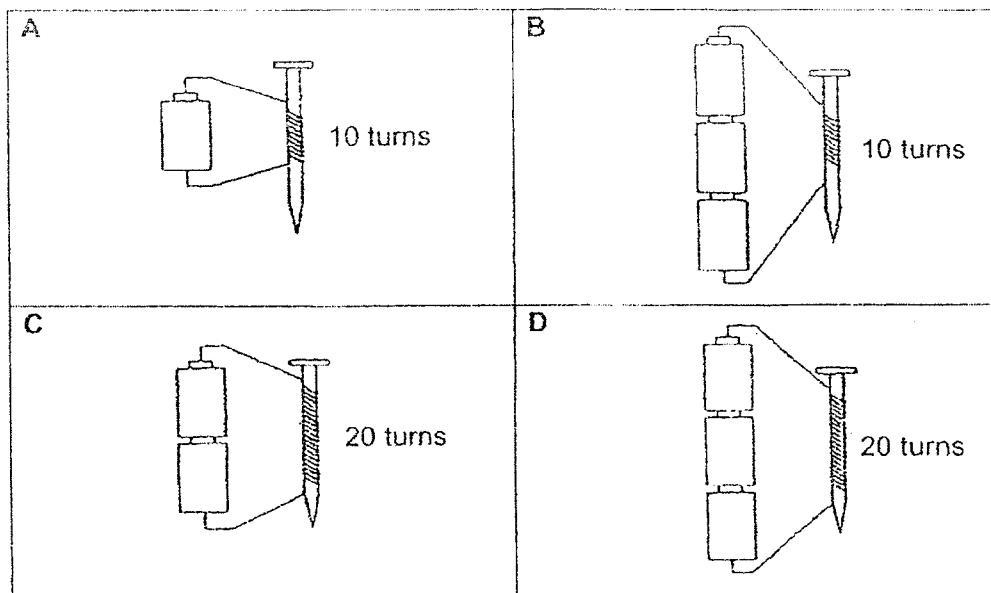
What is the relationship between the number of strokes and the number of the steel pins attracted to it?

- (1) The steel pins are not affected by the number of strokes.
- (2) The more the number of strokes, the lower the magnetic strength of the nail.
- (3) The fewer the number of strokes, the more the number of steel pins attracted.
- (4) The more the number of strokes, the more the number of steel pins attracted.

28. An iron nail becomes a magnet when it is placed in a coil of wire connected to a battery or a few batteries.

Paul wanted to find out if the number of batteries would affect the strength of the magnet.

He set up four arrangements below.



Which of the following pairs of arrangements should he choose for his experiment to be a fair test?

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

**END OF BOOKLET A**

**PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)****MID-YEAR EXAMINATION 2022****PRIMARY FOUR****SCIENCE****BOOKLET B**

**NAME : \_\_\_\_\_ ( )**

**CLASS : P4 \_\_\_\_\_**

**DATE : 6 May 2022**

**TOTAL TIME FOR BOOKLETS A & B: 1 hour and 45 minutes**

<b>BOOKLET A</b>	<b>/ 56</b>
<b>BOOKLET B</b>	<b>/ 44</b>
<b>TOTAL</b>	<b>/ 100</b>

Parent's Signature: \_\_\_\_\_

**INSTRUCTIONS TO PUPILS**

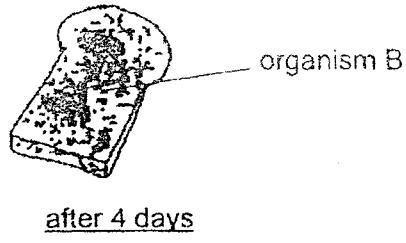
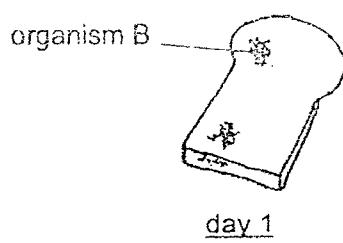
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
Answer all questions.**

**SECTION B: 44 Marks**

For questions 29 to 41, write your answers in the spaces provided.

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

29. Mei Ling found an organism B growing on a piece of bread. She wanted to find out if it would grow without sunlight. She placed the piece of bread in a dark cupboard.



After 4 days, she noticed that the organism B was still alive and there was more of it growing on the bread.

- (a) What could organism B be? [1]

---

- (b) Mei Ling concluded that the organism B could not be a plant. Explain how she came to her conclusion. [1]

---

---

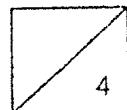
- (c) Based on the information given, state a similar characteristic between animals and the organism B. [1]

---

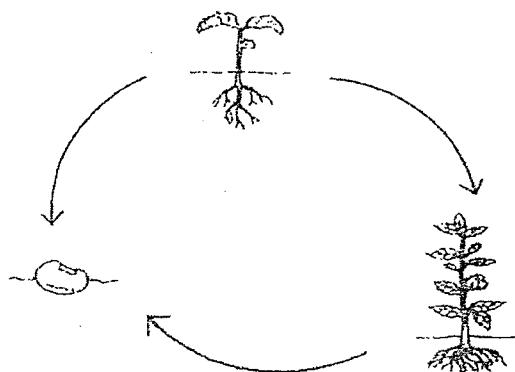
---

- (d) Where does organism B get its food from? [1]

---



30. Study the life cycle of a plant below.



- (a) One of the arrows has been wrongly drawn. Circle the incorrect arrow in the diagram above. [1]

The diagram below shows a developing young plant.



- (b) State three conditions needed for the young plant to develop from a seed. [1]
- 

- (c) State the functions of the following parts. [2]

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

---



---

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

---



---

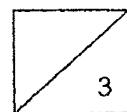
4

31. Andy placed objects P, Q and R, close together in pairs to observe how they interacted with each other.

Objects	Observation
<input type="checkbox"/> P <input type="checkbox"/> Q	Nothing happens
<input type="checkbox"/> Q <input type="checkbox"/> R	Nothing happens
<input type="checkbox"/> P <input type="checkbox"/> Y - R - Z	P attracts part Y
<input type="checkbox"/> P <input type="checkbox"/> Z - R - Y	P repels part Z

Based on the above observations, put a tick ( $\checkmark$ ) in the appropriate boxes below. [3]

	Statement	True	False	Not possible to tell
(a)	Object P is a magnet.			
(b)	Object Q is magnetic.			
(c)	Object R can be used to magnetise an iron nail.			



32. Leela observed the states of matter K, M and P. She recorded her observations in the table below.

Properties	K	M	P
Has mass	Yes	Yes	Yes
Takes up space	Yes	Yes	Yes
Has a definite volume	Yes	No	Yes
Has a definite shape	Yes	No	No

- (a) Based on the table, which matter, M or P, is in the gaseous state?  
Explain your answer.

[2]

---

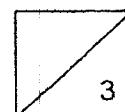
---

- (b) Leela concluded that matter K is a solid.  
What properties of matter K did Leela observe to make the conclusion?

[1]

---

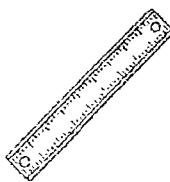
---



33. The diagram shows three different apparatus R, S and T.



R



S



T

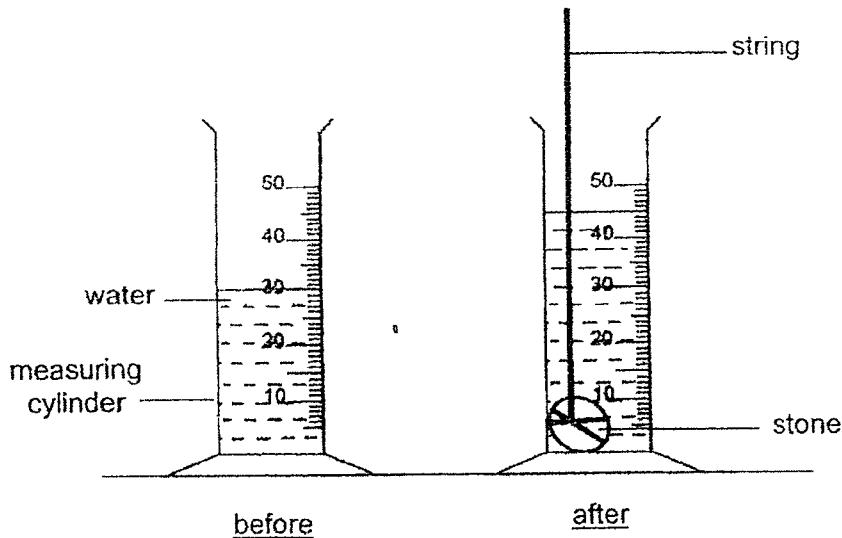


marble

- (a) Which one of the above apparatus, R, S or T, should be used to measure the volume of a marble? [1]
- 

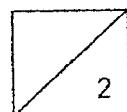
A student wanted to find out the volume of a stone.

First, she filled a measuring cylinder with some water as shown below.  
Then, she lowered the stone into the measuring cylinder.

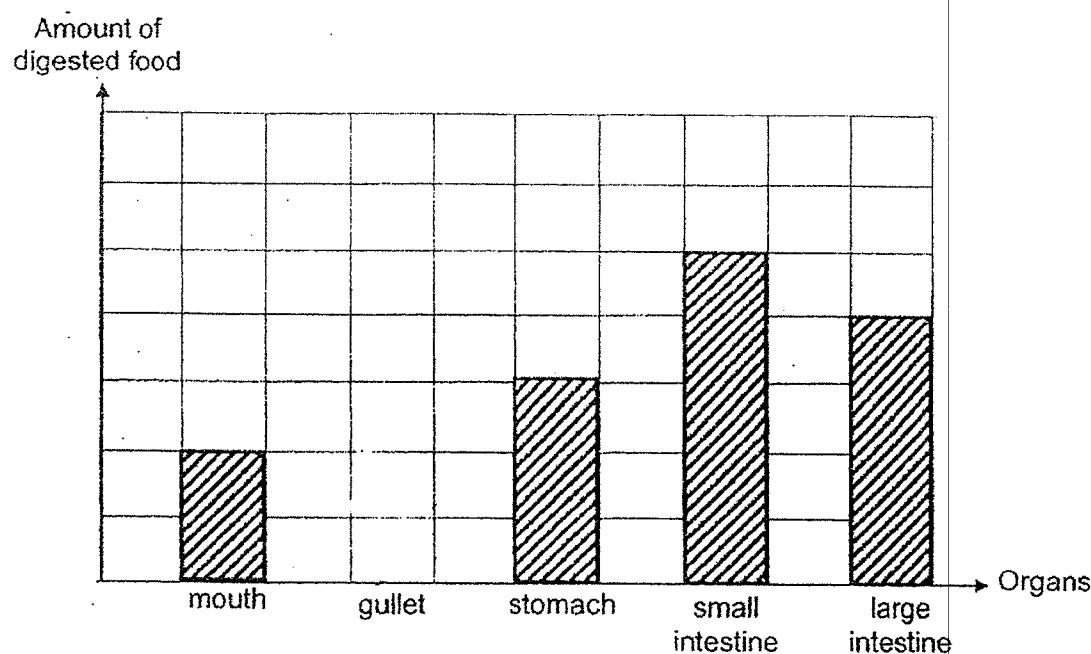


- (b) What is the volume of the stone? [1]

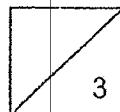
\_\_\_\_\_ cm<sup>3</sup>



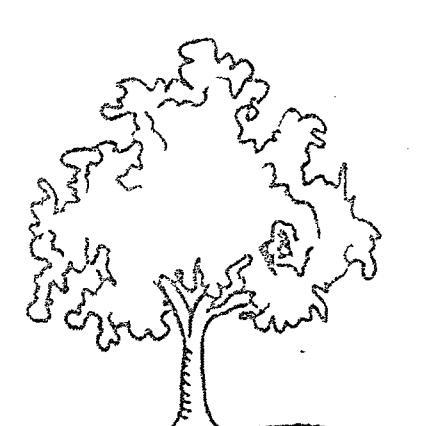
34. Debbie drew a graph to show how the amount of digested food changes as it moves through the human digestive system. She did not finish drawing the graph.



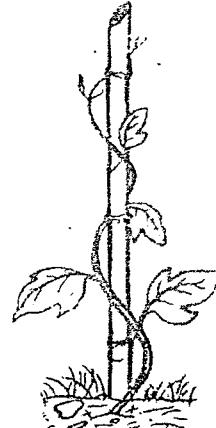
- (a) Complete the graph above by drawing a bar (█) to show the amount of digested food in the gullet. [1]
- (b) Debbie made a mistake in drawing the amount of digested food in one of the organs. State the organ and give a reason for your answer. [2]
- 
- 



35. Study the two plants, A and B, in the diagram below.



plant A



plant B

- (a) Based on your observations, what is the difference between the stems of plant A and B? [1]

---

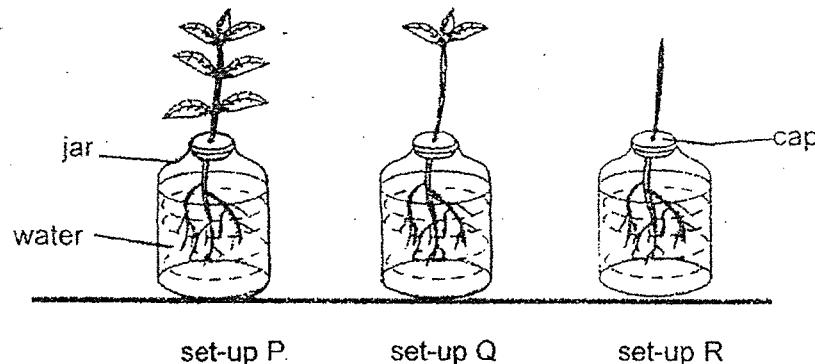
---

- (b) Why does plant B coil around a pole for support? [1]

---

---

Joe used three similar plants in his experiment. He removed some leaves from the plant in set-up Q and removed all the leaves from set-up R.



- (c) Which plant part in all the set-ups take in water? [1]
- 

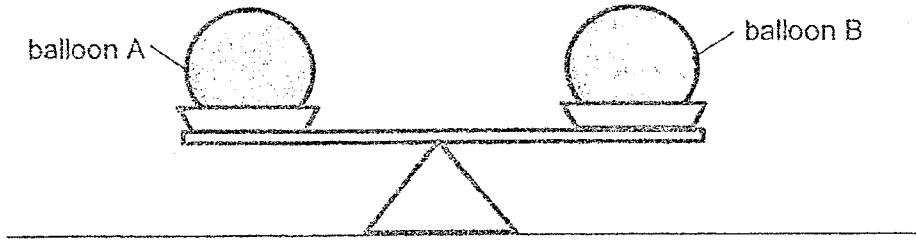
After a week, he measured the amount of water left in each set-up. The results are shown in the table below.

Set-up	Volume of water left in the jar (ml)	
	Day 1	Day 2
P	250	150
Q	250	200
R	250	220

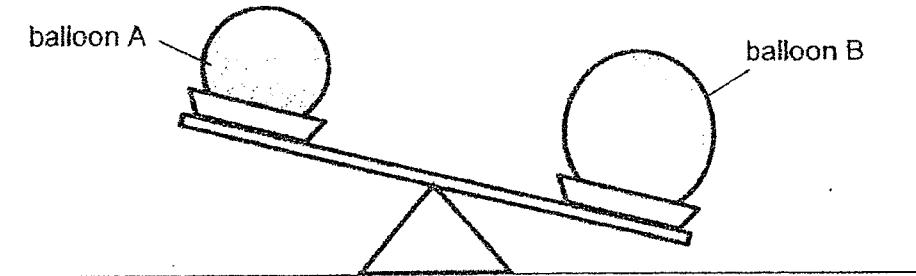
- (d) Based on the results in the table, what is the relationship between the number of leaves and the amount of water taken in by the plant? [1]
- 
- 

4

36. Amir conducted an experiment to find out the property of matter in the gaseous state. He pumped the same amount of air into two identical balloons A and B. He then placed them on a weighing balance as shown below.



Amir pumped another  $200 \text{ cm}^3$  of air into balloon B and put it back on the weighing balance as shown below.



- (a) Explain why the balloon became bigger. [1]

---

---

- (b) Why did the weighing balance tilt downwards after  $200 \text{ cm}^3$  of air was pumped into balloon B? [1]

---

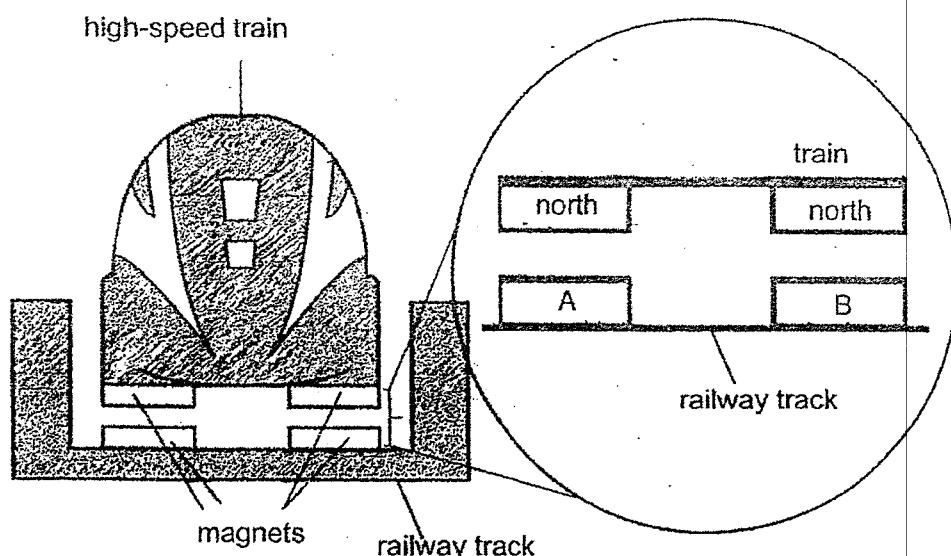
---

- (c) Besides air, state another example of matter in the gaseous state. [1]

---

3

37. The diagram below shows the front view of a high-speed train.



The high-speed train has strong electromagnets under the train and on the railway track. The train 'floats' above the railway track as shown above.

- (a) Label poles A and B.

[2]

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

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

- (b) Based on the property of a magnet, explain how the high-speed train is able to 'float' above the railway track.

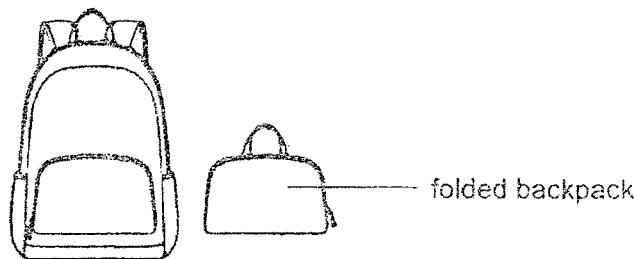
[1]

---

---

3

38. Mr Lim wanted to make a backpack that can be folded easily for children. He used materials A, B and C and carried out tests to find out the properties of the materials.



The table below shows the properties of the materials A, B and C.

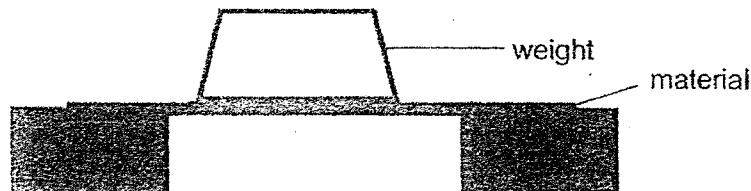
Material	Is it waterproof?	Is it flexible?	Can it sink or float?
A	No	No	sink
B	Yes	Yes	float
C	No	Yes	float

- (a) Based on the table above, state a physical property of the material to make the backpack. Explain why the physical property is needed to make a backpack. [2]

Property: \_\_\_\_\_

Reason: \_\_\_\_\_

Mr Lim wanted to find out how much weight the material A, B and C could carry without tearing.



The table below shows the results of the experiment.

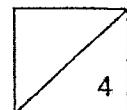
Material	Weight the material could carry before it tore (kg)
A	1
B	9
C	2

Mr Lim found out that a student's backpack could carry between 4kg to 6kg of weight.

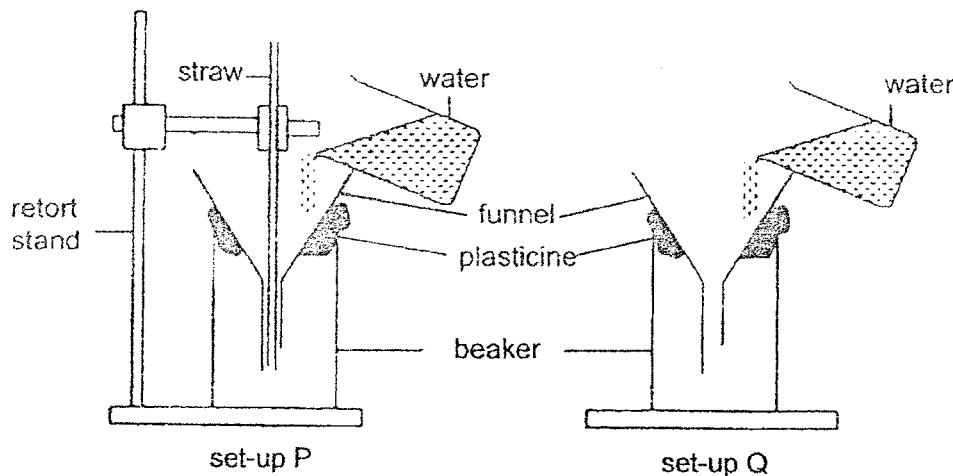
- (b) Based on the results of the experiment, which material (A, B or C) would be most suitable to make the backpack? Why? [2]

---

---



39. Delia set up two experiments as shown in the diagrams below. Two balls of plasticine were used to hold the funnel in place and to prevent air from escaping. Delia then poured the same volume of water at the same time into each of the funnels.



Delia compared the amount of water collected in the beakers of both set-ups after 5 minutes.

- (a) Which set-up, P or Q, would Delia observe a greater volume of water in the beaker? Explain your answer. [2]

---

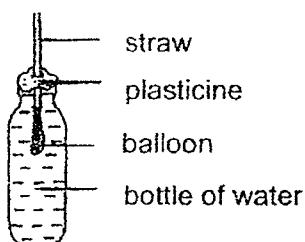


---



---

Delia set up another experiment as shown.



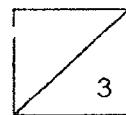
She tried to inflate the balloon by blowing through the straw.

- (b) Would the balloon inflate? Explain your answer. [1]

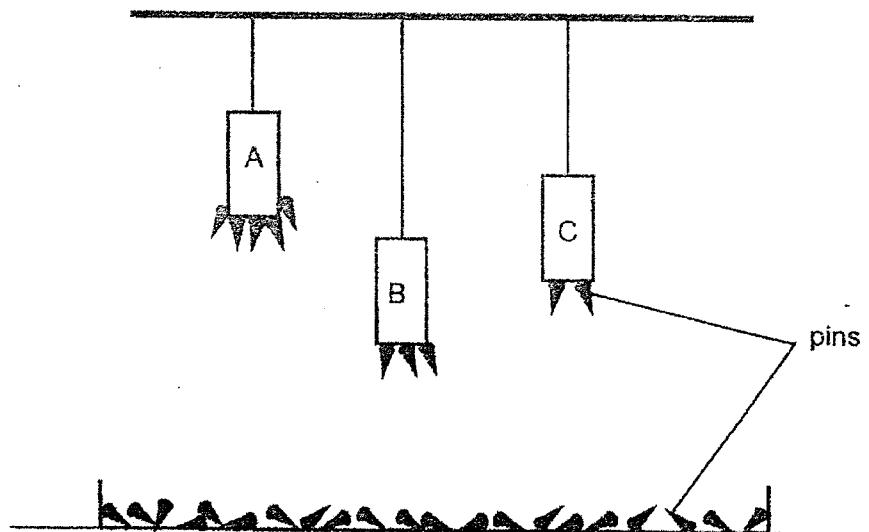
---



---



40. Sophie hung three magnets, A, B and C on a string of different lengths. The magnets were of the same size. She placed them directly above a container of steel pins as shown below.



- (a) Based on the diagram above, which magnet has the most magnetic strength? [1]

---

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

---

---

- (c) Sophie wanted to find out whether magnet A or magnet C has more magnetic strength. Suggest how she should change the position of the magnets. [1]

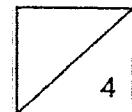
---

---

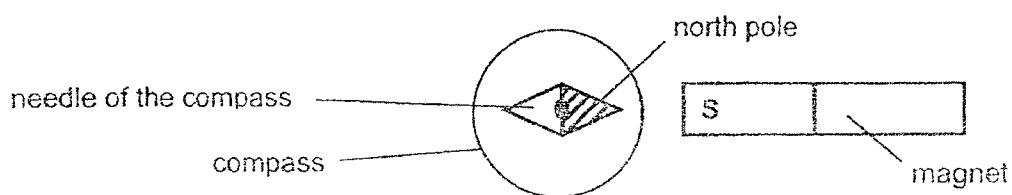
- (d) Suggest one way Sophie can increase the magnetic strength of all the magnets. [1]

---

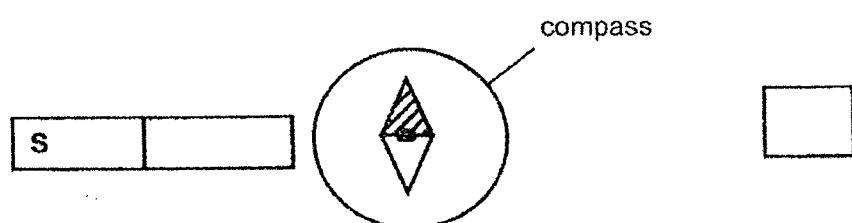
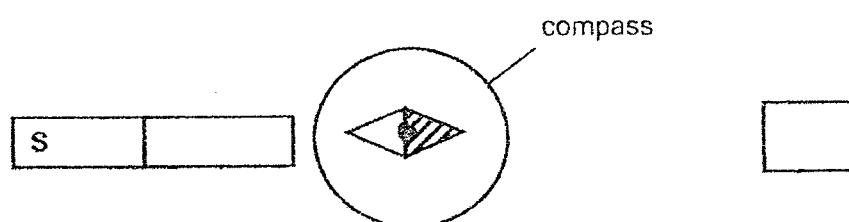
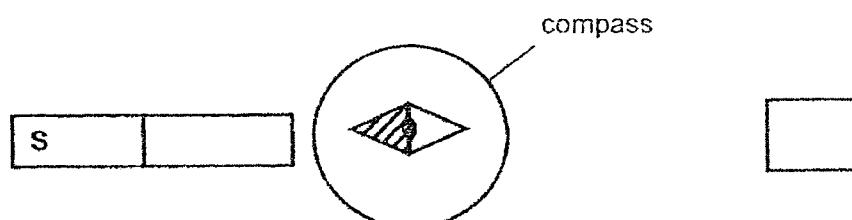
---



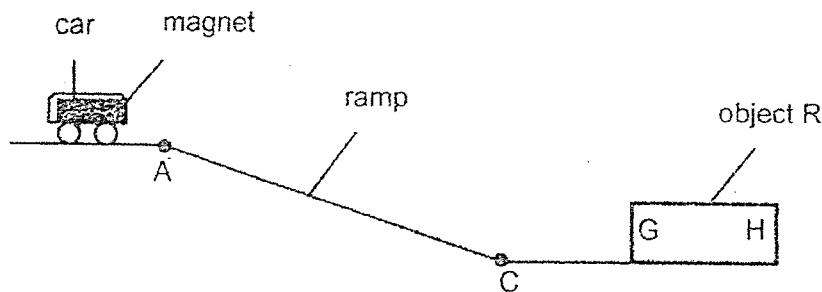
41. The needle of a compass is a magnet. When another magnet is placed near the compass, the needle will move and stop at the position as shown below.



- (a) Tick ( $\checkmark$ ) the box which shows the correct position of the needle when the magnet is brought near the compass. [1]



Zaki set up an experiment as shown below. When he released the toy car from position A, the car moved down the ramp before stopping at C. The car did not touch G of object R.



Zaki turned object R around so that H was facing the ramp. When he released the toy car from A, the car moved down more quickly towards H of object R and touched H.

- (b) Explain why the car was able to move down more quickly towards H. [1]

---

---

- (c) Name a material for object R. [1]

---

- (d) Without changing any of the materials used, suggest one way which Zaki can make the toy car move down the ramp faster towards H. [1]

---

---

4

**END OF BOOKLET B**

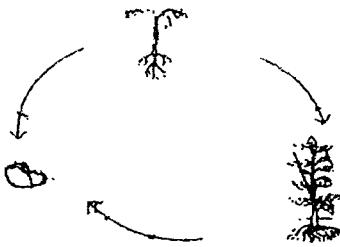


YEAR : 2022  
 LEVEL : PRIMARY 4  
 SCHOOL : PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)  
 SUBJECT : SCIENCE  
 TERM : MID YEAR EXAMINATION

(BOOKLET A)

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

(BOOKLET B)

Q29	a)	Mould
	b)	Fungi do not need sunlight to grow.
	c)	Both animals need and organism B need water, food and oxygen to grow and survive.
	d)	Organism B gets its food from the piece of bread.
Q30	a)	
	b)	water, oxygen, warmth
	c)	A : A anchors the young plant firmly to the ground. B : Stores food for the seedling.
Q31	a)	True
	b)	False
	c)	True
Q32	a)	Matter M. It is the only state of matter that does not have a definite volume, and only matter in the gaseous state does not have a definite volume.
	b)	State of matter K is the only state that has a definite shape, and only solids have a definite shape.
Q33	a)	Apparatus T.
	b)	15 cm <sup>3</sup>

Q34	a)	<table border="1"> <thead> <tr> <th>Part of Digestive System</th> <th>Amount of digested food</th> </tr> </thead> <tbody> <tr><td>mouth</td><td>Low</td></tr> <tr><td>stomach</td><td>Medium</td></tr> <tr><td>small intestine</td><td>High</td></tr> <tr><td>large intestine</td><td>Low</td></tr> </tbody> </table>	Part of Digestive System	Amount of digested food	mouth	Low	stomach	Medium	small intestine	High	large intestine	Low
Part of Digestive System	Amount of digested food											
mouth	Low											
stomach	Medium											
small intestine	High											
large intestine	Low											
b)	Large intestine. The amount of digested food in the large intestine should be 0 as digestion ends in the small intestine.											
Q35	a)	The stem of plant A is strong while the stem of plant B is weak										
	b)	The stem of plant B is weak, hence, the plant coils around a pole to reach for more sunlight to make food.										
	c)	Roots										
	d)	As the number of leaves increases, the amount of water taken in by the plant increases.										
Q36	a)	When $200\text{cm}^3$ of air was pumped into balloon B, it occupied some space in the balloon, causing the balloon to expand.										
	b)	After $200\text{cm}^3$ of air was pumped into balloon B, the air added to the mass of the balloon, causing the balloon to weigh heavier and the weighing balance to tilt downwards										
	c)	Nitrogen										
Q37	a)	A : North B : North										
	b)	The like poles of the magnets under the train and on the railway track are facing each other, and like poles repel.										
Q38	a)	Property: Flexibility Reason: The backpack must have flexibility to be folded.										
	b)	Material B. B can hold the most weight. It is the strongest.										
Q39	a)	Set-up P. In set-up P, there was a straw which allowed air to escape but in set-up Q air cannot escape. The water took up more space that was previously occupied by the air in set-up D.										
	b)	No. Water cannot be compressed for the balloon to inflate.										
Q40	a)	Based on the diagram above, magnet A has the most magnetic strength.										
	b)	Although magnet A was hung on the shortest string and was the furthest away from the steel pins, it attracted the most number of steel pins.										
	c)	Sophie should hang magnets A and C on strings of equal length.										
	d)	Sophie can stroke the magnet with another stronger magnetism using the same pole more times in the same direction.										
Q41	a)											
	b)	The pole of the magnet of the car and h are unlike poles so they attract each other.										
	c)	Iron										
	d)	Place object R nearer to the ramp.										