MARIS STELLA HIGH SCHOOL (PRIMARY)

SA2 EXAMINATION

SCIENCE

3 NOVEMBER 2020

BOOKLET A

NAME: _____ ( )

CLASS: Primary 4 ( )

28 questions

56 marks

Total Time for Booklets A & B: 1 h 45 min

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FOLLOW ALL INSTRUCTIONS CAREFULLY.

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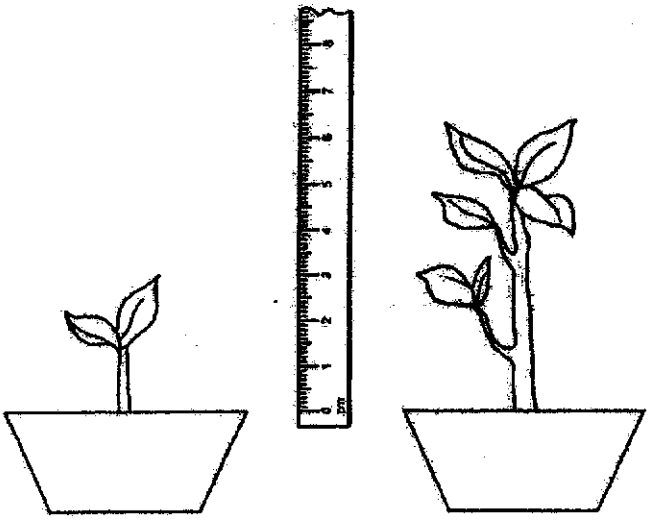
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For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet (OAS).

(56 marks)

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



At the start After two weeks

From Dennis' observation, he can conclude that living things _____.

(1) grow
(2) breathe
(3) respond
(4) reproduce

2 Which of the following characteristics is found in birds and **not** in other animals?

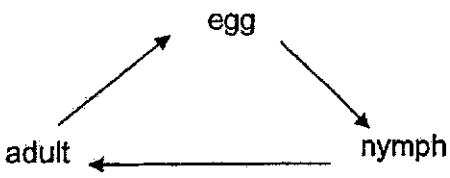
(1) They can fly.
(2) They lay eggs.
(3) They live on land.
(4) They have feathers as their outer covering.

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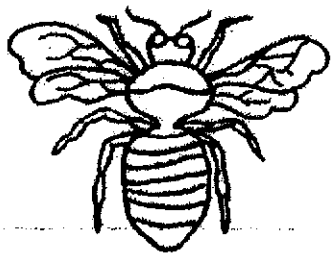
3 The diagram below shows the life cycle of an animal.



Which animal is likely to have the life cycle as shown above?

(1) beetle
(2) butterfly
(3) mosquito
(4) grasshopper

4 Jane found an animal as shown below.



Which of the following characteristics can she use to identify if the animal is an insect?

A number of legs
B presence of wings
C number of body parts

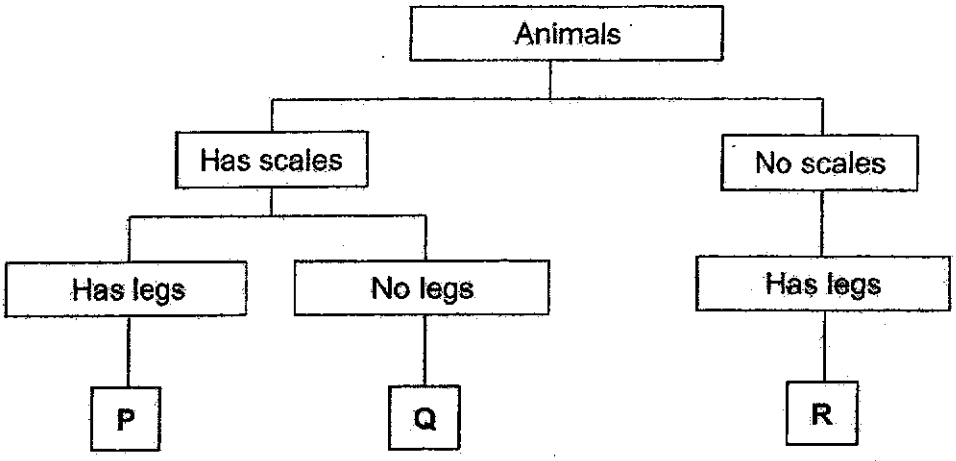
(1) A only
(2) C only
(3) A and C only
(4) A, B and C

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5 Study the chart below.



Which of the following most likely represents P, Q and R?

	P	Q	R
(1)	crocodile	snake	fish
(2)	crocodile	fish	frog
(3)	fish	snake	crocodile
(4)	frog	fish	crocodile

6 Which of the following statements about flowering plants and non-flowering plants is true?

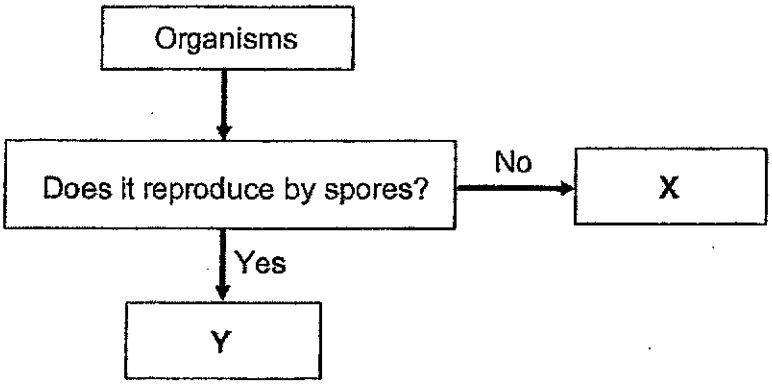
(1) Both can make their own food.
(2) Both cannot make their own food.
(3) Non-flowering plants can make their own food but flowering plants cannot.
(4) Flowering plants can make their own food but non-flowering plants cannot.

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7 Study the flowchart below.



Which of the following best represents organisms X and Y?

	X	Y
(1)	rose plant	mould
(2)	mushroom	rose plant
(3)	fern	mushroom
(4)	mould	fern

8 Which of the following is the function of the roots of a plant?

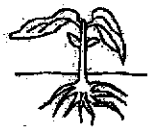
(1) make food
(2) take in soil
(3) take in water
(4) hold the plant upright

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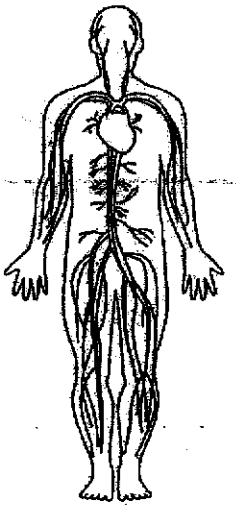
9 A, B and C are different stages in the life cycle of a plant.

A	B	C
		

Which of the following shows the correct sequence in the life cycle of the plant?

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

10 Study the diagram below.



The diagram above shows the _____ system.

(1) skeletal
(2) muscular
(3) circulatory
(4) respiratory

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11 Which of the following is true about the human digestive system?

	Organ that produces digestive juices	Organ involved in the absorption of excess water
(1)	mouth	small intestine
(2)	stomach	large intestine
(3)	large intestine	gullet
(4)	small intestine	mouth

12 Which one of the following has a fixed shape?

(1) air
(2) oil
(3) water
(4) plasticine

13 Matter is anything that has mass and occupies space.

Which of the following is matter?

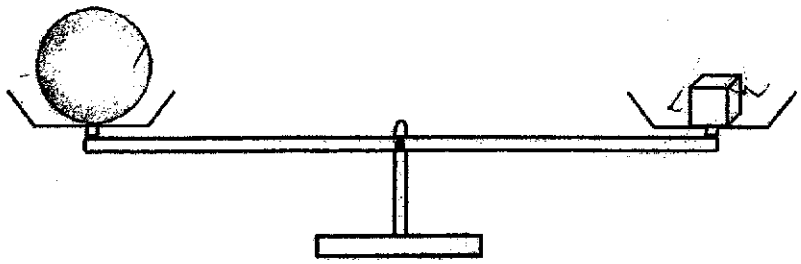
(1) soil
(2) light
(3) heat
(4) shadow

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14 Study the diagram below.



Which of the following statements is true?

(1) Both objects have the same size.
(2) Both objects have the same mass.
(3) Both objects have the same shape.
(4) Both objects have the same volume.

15 The statements below describe the properties of material X.

- It is strong.
- It is flexible.
- It is waterproof.
- It does not allow light to pass through.

Which one of the following objects can be made from material X?

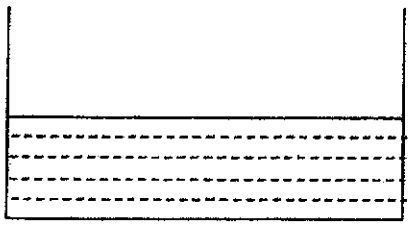
(1) table
(2) window
(3) car tyre
(4) bath towel

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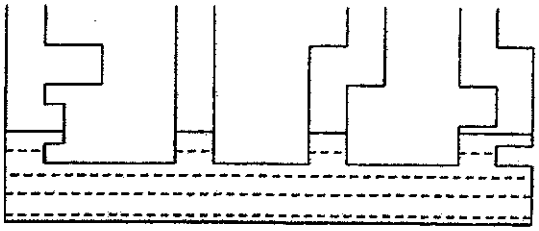
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16 Study the diagram below. Both container X and the communicating vessel are filled with 500 ml of liquid.



container X



communicating vessel

Based on the observation above, which of the following can be concluded?

(1) Liquid has mass.
(2) Liquid cannot be compressed.
(3) Liquid does not have definite shape.
(4) Liquid does not have definite volume.

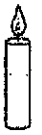
17 Which one of the following is a source of light?

(1)



orange

(2)



candle flame

(3)



leaf

(4)



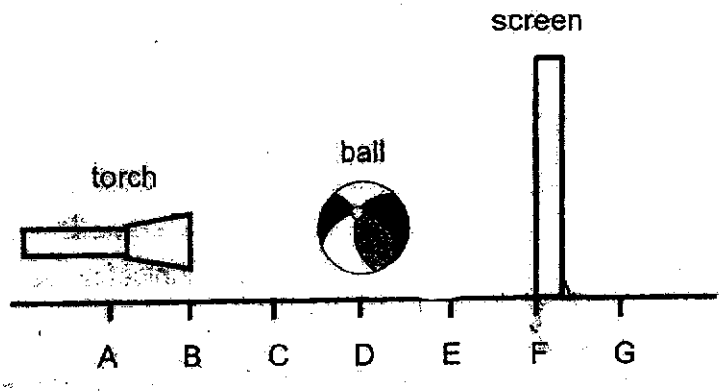
mirror

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18 Russell placed a ball at position D and a light source at position B. A shadow is formed on the screen.



Without shifting the position of the ball, which positions should the torch and screen be placed if Russell wants to obtain the shortest shadow on the screen?

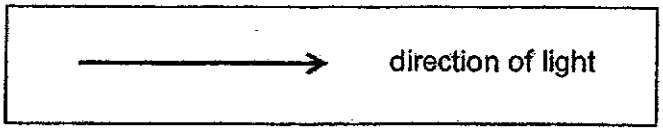
	Position of torch	Position of screen
(1)	A	G
(2)	A	E
(3)	C	E
(4)	C	G

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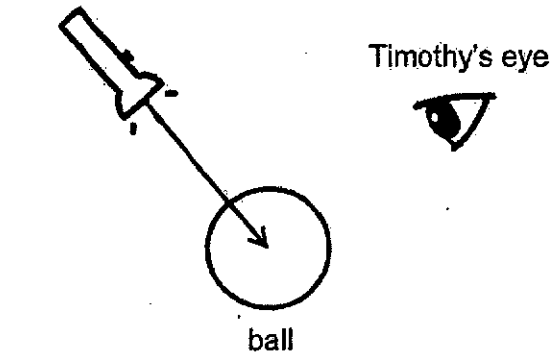
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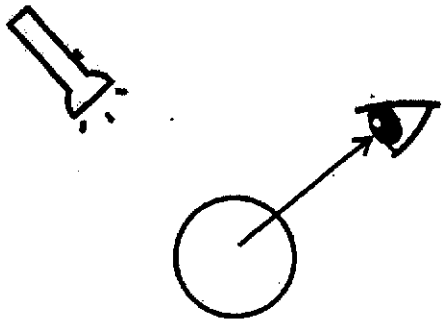
19 Which one of the following explains why Timothy can see the ball?



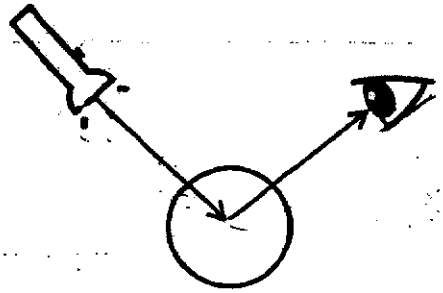
(1)



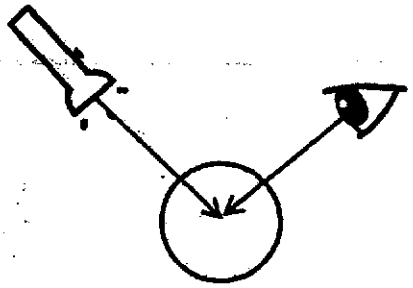
(2)



(3)



(4)

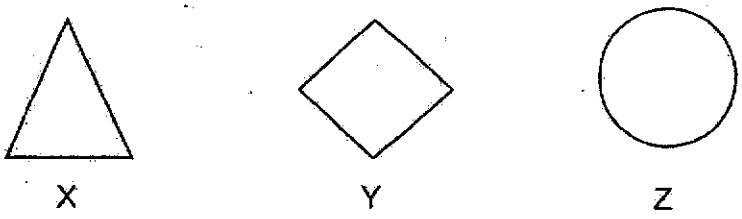


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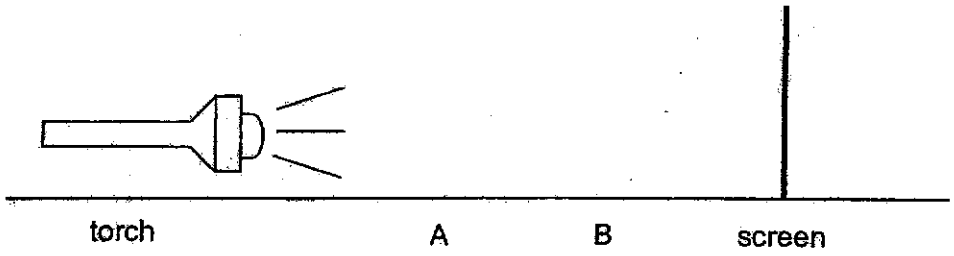
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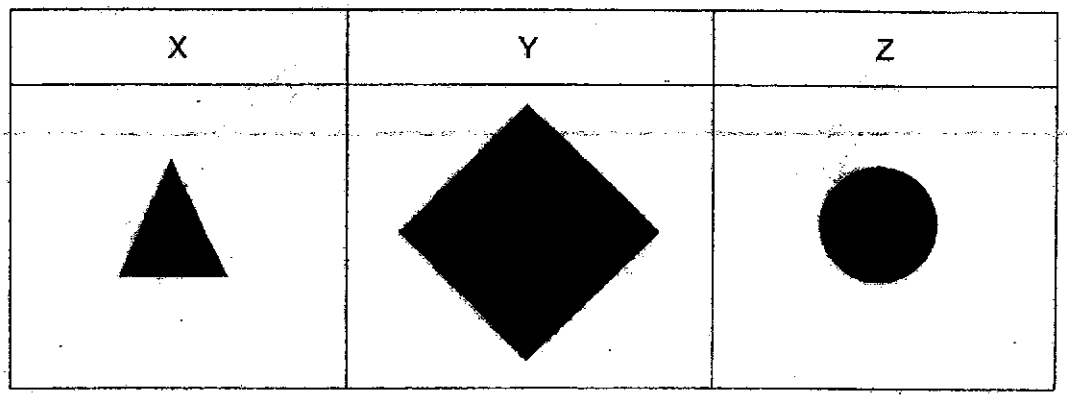
20 Objects X, Y and Z are the same height.



Patricia placed each object, one at a time, at position A or B in the set-up shown below.



The shadows formed on the screen when the objects were placed between the torch and screen are shown below.



Based on the observations made, which of the following is correct?

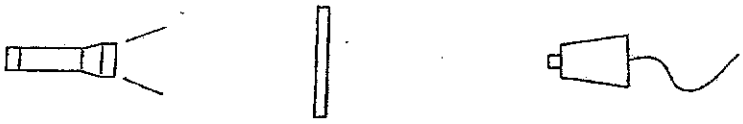
(1) Object Z was placed at position A.
(2) Object Y was placed at position B.
(3) Objects X and Z were placed at position A.
(4) Objects X and Z were placed at position B.

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21 Edward conducted an experiment as shown below in a completely dark room.



torch material light sensor

The amount of light detected by the light sensor when materials W, X, Y and Z, were placed between the torch and the light sensor is recorded in the table below.

Material	W	X	Y	Z
Amount of light detected (unit)	500	0	400	30

Which of the following is correct?

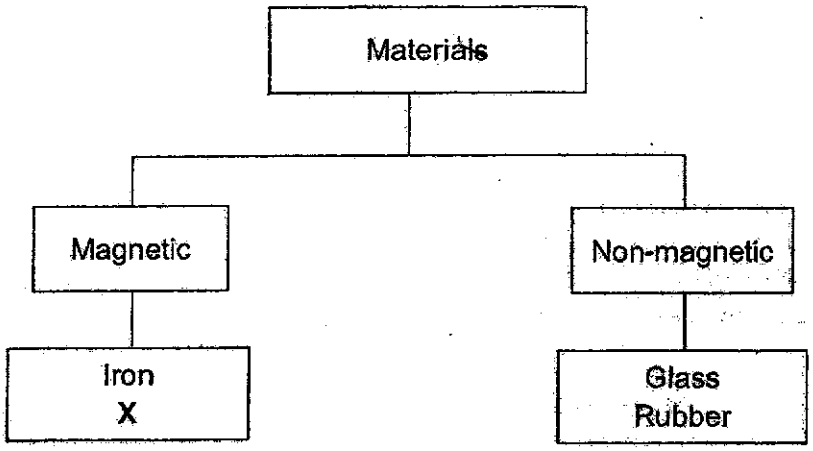
	Allows light to pass through	**Does not allow light to pass through**
(1)	W and Y	X and Z
(2)	X, Y and Z	W
(3)	W, Y and Z	X
(4)	X and Z	W and Y

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22 Study the chart below.



What could material **X** be?

(1) steel
(2) plastic
(3) copper
(4) aluminium

23 The diagram below shows a magnet and a plastic block.



What will happen to the plastic block if the magnet is brought nearer to it?

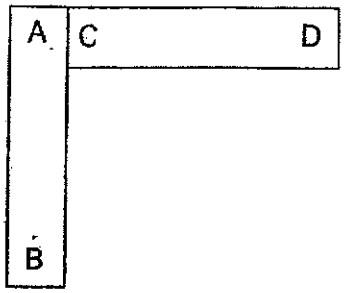
(1) It will not move.
(2) It will move down.
(3) It will move to the left.
(4) It will move to the right.

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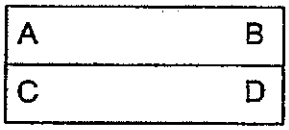
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24 Mary arranged two magnets AB and CD as shown below.

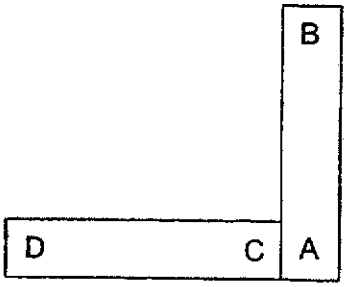


Which one of the following arrangements is **not** possible?

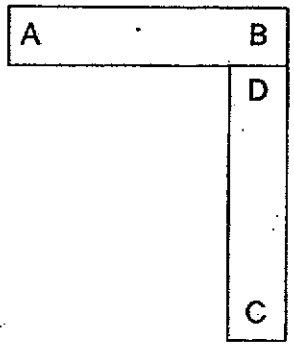
(1)



(2)



(3)



(4)



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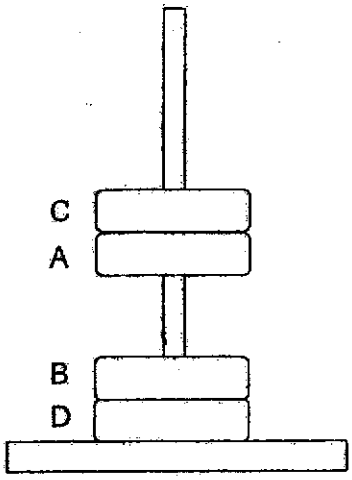
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25 The table below describes rings A, B, C and D.

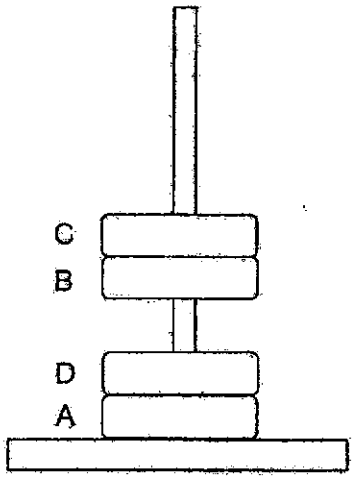
Ring	Description
A	It is a magnet.
B	It is a magnet.
C	It is made of a magnetic material.
D	It is made of a non-magnetic material.

Which one of the following is **not** a possible observation?

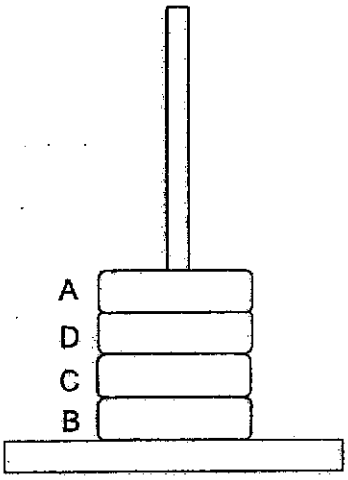
(1)



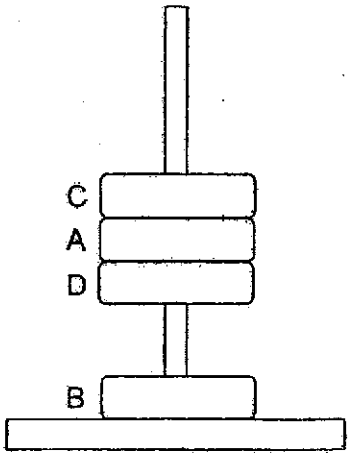
(2)



(3)



(4)

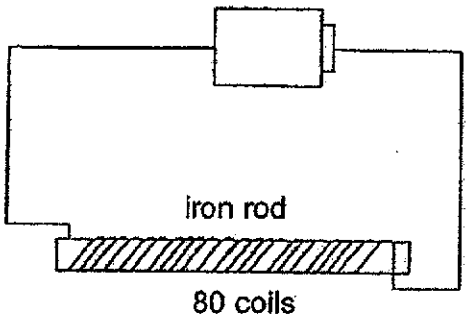


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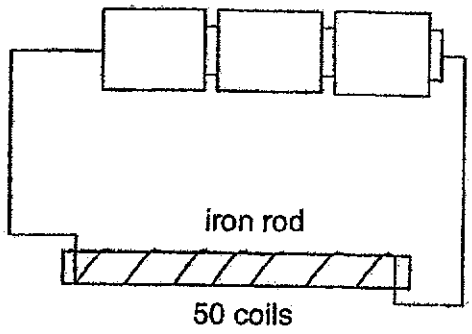
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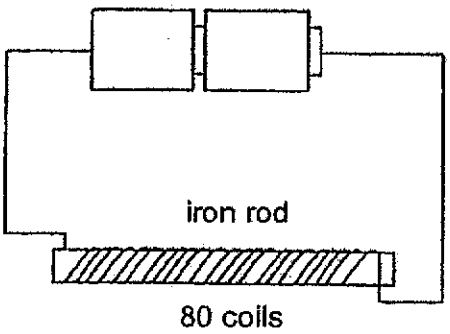
26 Four electromagnets made from identical iron rods are shown below.



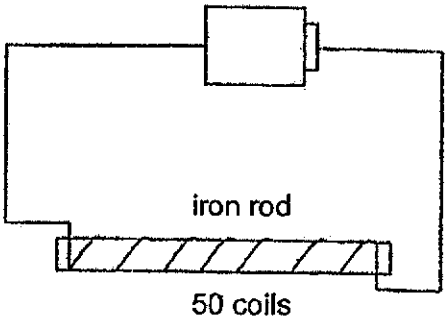
Set-up A



Set-up B



Set-up C



Set-up D

Stefan wants to find out if the number of batteries will affect the magnetism of the electromagnet.

Which two set-ups should he use for his experiment?

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

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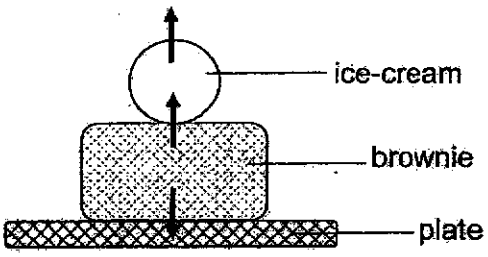
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27 Oscar took out a piece of warm brownie from the oven and placed it on a plate. He then placed a scoop of ice-cream on top of the brownie.

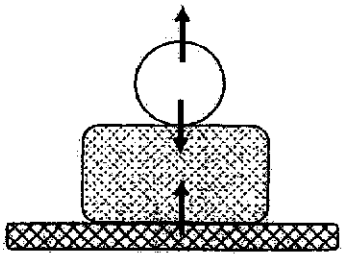
The arrows (⟶) show the direction of heat flow.

Which one of the following diagrams correctly shows how heat flows?

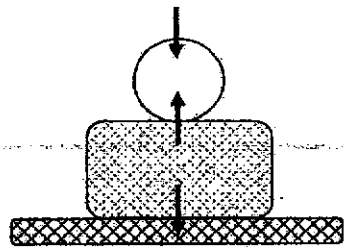
(1)



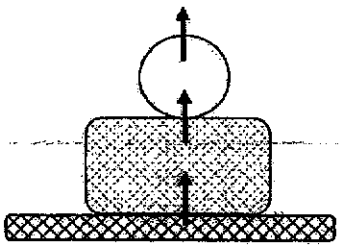
(2)



(3)



(4)

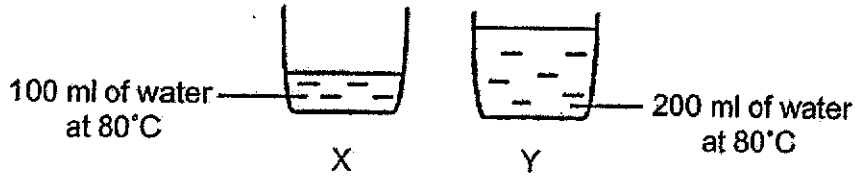


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28 The diagram below shows two identical beakers, X and Y, filled with different amounts of water at the same temperature.



Three students made the following statements.

Abby The water in Y has more heat energy than X.

Bella The water in both beakers has the same temperature.

Claire The water in both beakers has the same amount of heat energy.

Whose statement(s) is/are correct?

(1) Abby only
(2) Bella only
(3) Abby and Bella only
(4) Bella and Claire only

End of Booklet A

Go on to Booklet B

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MARIS STELLA HIGH SCHOOL (PRIMARY)

SA2 EXAMINATION

SCIENCE

3 NOVEMBER 2020

BOOKLET B

NAME: _____ ( )

CLASS: Primary 4 ( )

12 questions

44 marks

Total Time for Booklets A & B: 1 h 45 min

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

FOLLOW ALL INSTRUCTIONS CAREFULLY.

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

Parent's Signature: _____

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For questions 29 to 40, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question.

(44 marks)

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29 **(a)** Classify the following living things into animals and plants. [2]



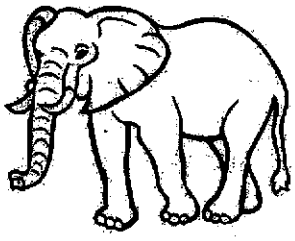
coconut tree



eagle



fern



elephant

Animals	Plants

(b) Fill in the blanks with the type of outer covering of the animal groups. [2]

Animal group	Outer covering
Mammals	
Amphibians	

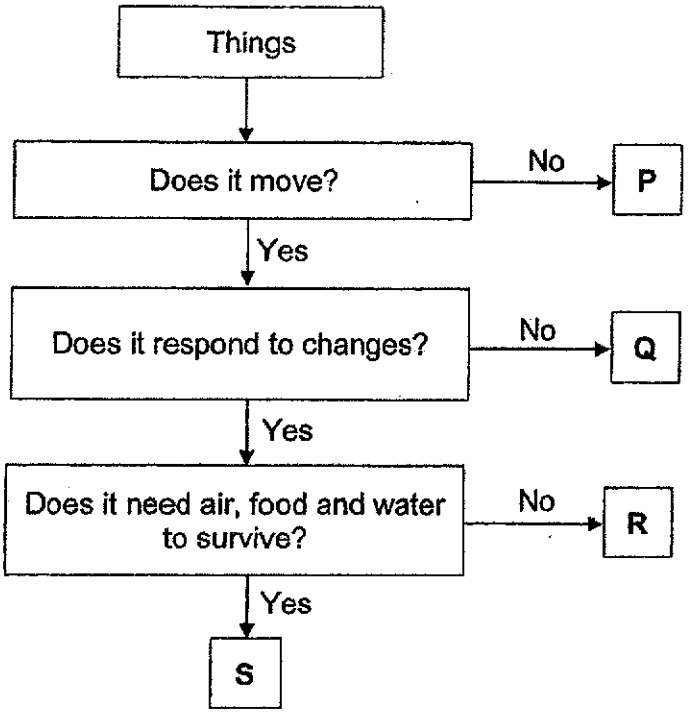
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30 Study the flowchart below.



(a) State one characteristic of P. [1]

(b) State one difference between Q and R. [1]

(c) Classify P, Q, R and S into living and non-living things. [1]

Living things	Non-living things

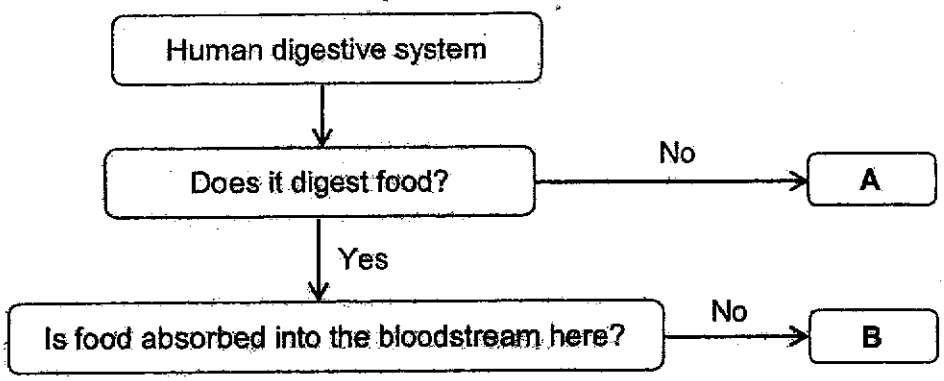
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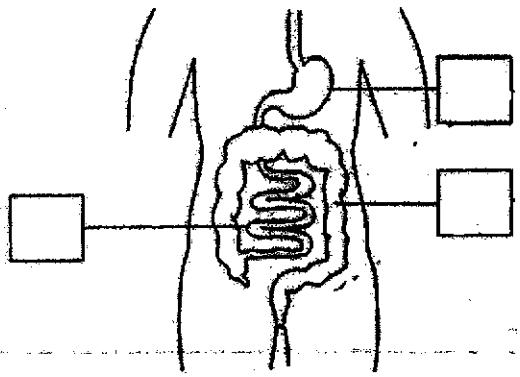
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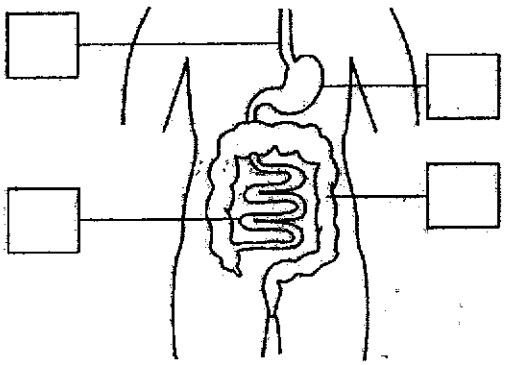
31 Study the flowchart. A and B are parts of the human digestive system.



(a) Based on the information on the flowchart, fill in **A** and **B** in two of the boxes in the human digestive system diagram below. [2]



(b) Tick (✓) one box to show where the stomach is in the human digestive system below. [1]



3

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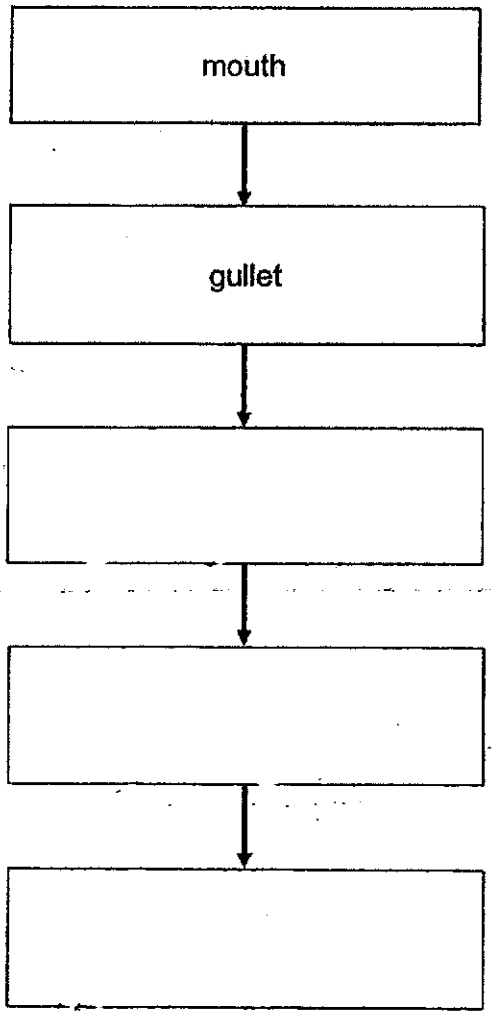
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The arrows (⟶) in the diagram below show the direction of movement of food in the human digestive system.

(c) Choose the correct word from the box below to fill in the three blanks. [1]

small intestine	large intestine	stomach



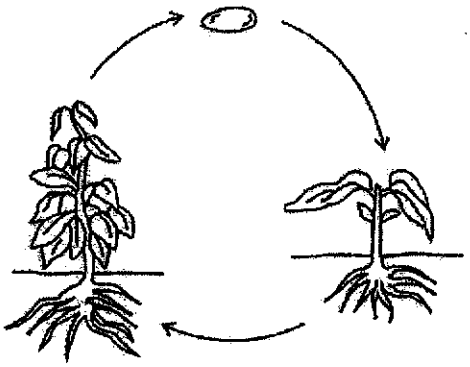
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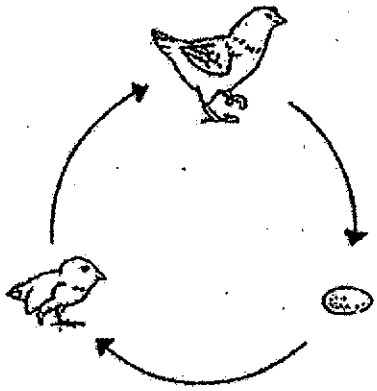
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32 Study the life cycles shown below.



life cycle of plant Y



life cycle of animal Z

(a) State one similarity between the life cycles of plant Y and animal Z. [1]

_____

(b) State two characteristics of living things that can be observed from the life cycles shown above. [2]

1. _____

2. _____

(c) Why are life cycles important to living things? [1]

_____

_____

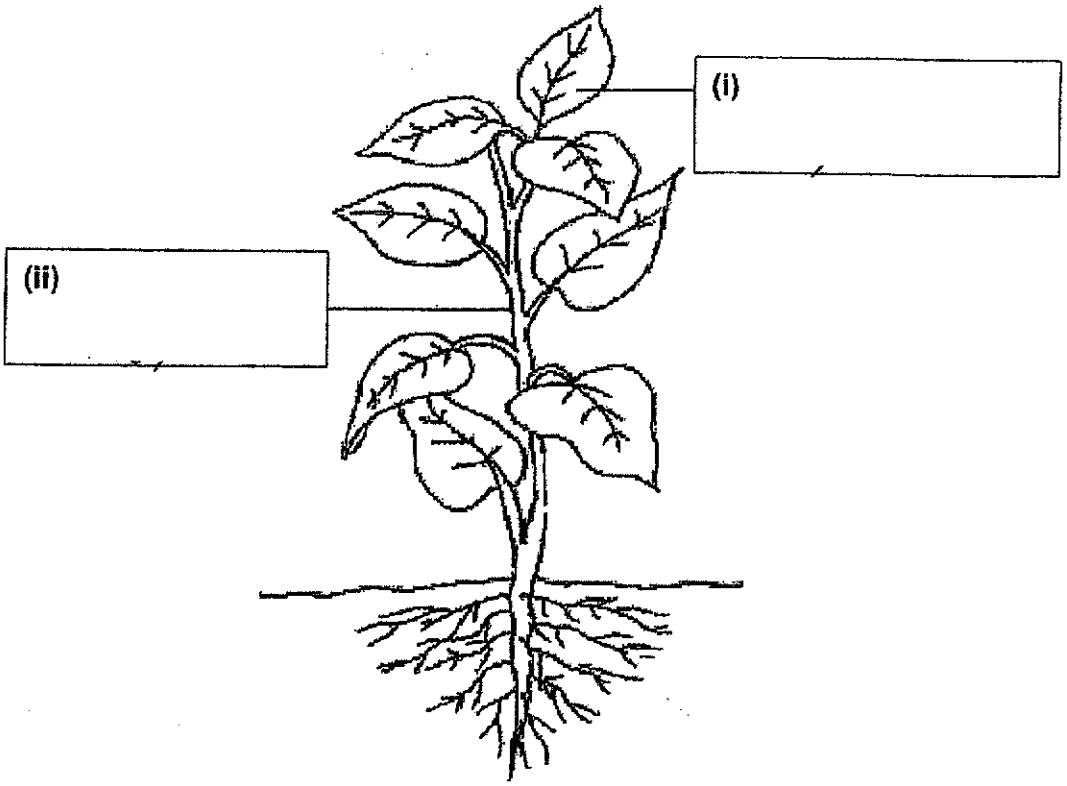
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33 The diagram below shows an adult plant.



(a) Name the plant parts by filling in the blanks in the diagram above. [1]

(b) State one function of plant part **(i)**. [1]

_____

(c) State one function of plant part **(ii)**. [1]

_____

3	3

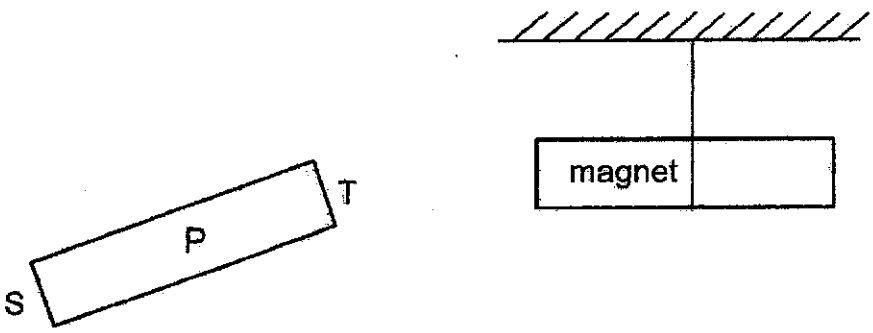
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34 The diagram below shows a magnet and bar P.

When end T of bar P was brought near to the magnet, the magnet moved away from bar P.



Based on the observation, fill in the blank below.

(a) Bar P is a _____. [1]

Circle the correct answer.

(b) When end S of bar P is brought near to the magnet, the magnet moved

(away from / towards) bar P. [1]

(c) Based the observations made when ends T and S were brought near to the magnet, state two properties of magnets. [2]

1. _____

_____

2. _____

_____

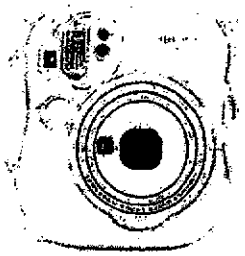
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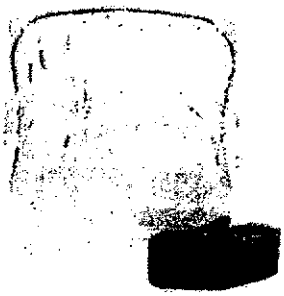
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35 Amos wanted to use his camera to take pictures underwater. To do so, he needed to put the camera in a camera casing to prevent the camera from getting wet.



camera



camera casing

He wanted to find out which materials, A, B or C, is the most suitable to make the camera casing. He dotted each of the materials with ink which spreads when in contact with water. One end of each material was submerged in water as shown in Diagram 1 below.

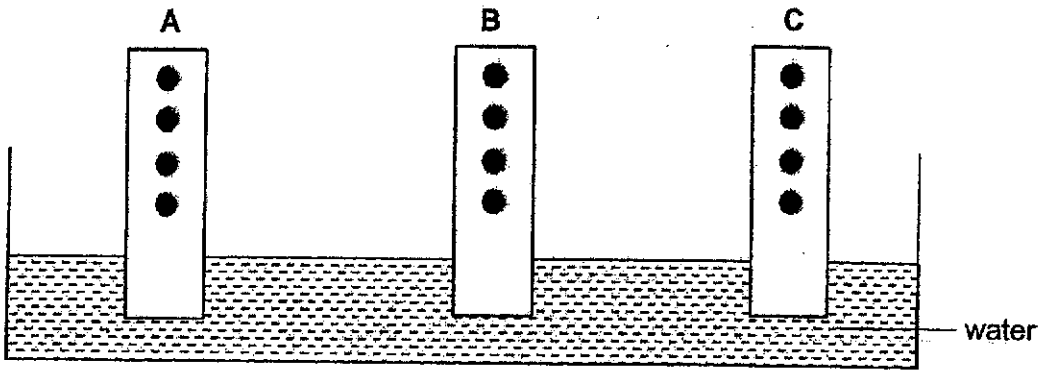


Diagram 1

After 5 minutes, he observed that some of the ink dots on the materials had spread as shown in Diagram 2 below.

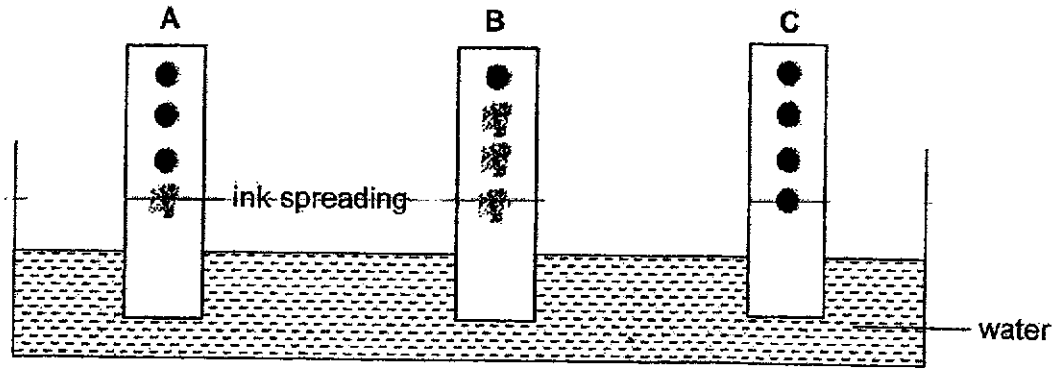


Diagram 2

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(a) Which property of material did Amos test? [1]

(b) Based on the results shown in Diagram 2, which material, A, B or C, is the most suitable to make the camera casing? Explain your answer. [1]

(c) Explain why the material B is more suitable to make a bath towel than material A. [1]

(d) Other than number, size and position of the ink dots, state another variable that must be kept the same for the experiment to be fair. [1]

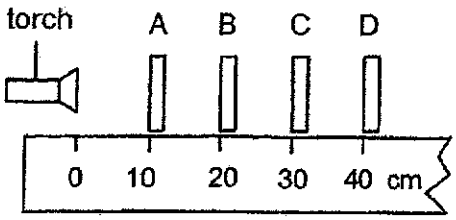
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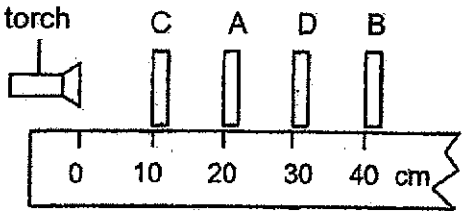
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36 Ben set up an experiment to investigate the transparency of materials, A, B, C and D. He conducted the experiments as shown below in a dark room.



Set-up P

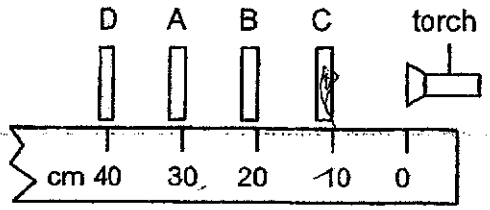


Set-up Q

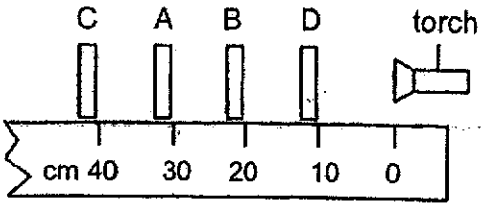
The table below shows the distance travelled by light in set-ups P and Q.

Set-up	Distance travelled by the light (cm)
P	20
Q	30

Ben shifted the positions of the materials and torch in both the set-ups as shown below.



Set-up R



Set-up S

(a) Complete the table below by writing down the distance travelled by light in set-ups R and S. [2]

Set-up	Distance travelled by the light (cm)
R	
S	

	2

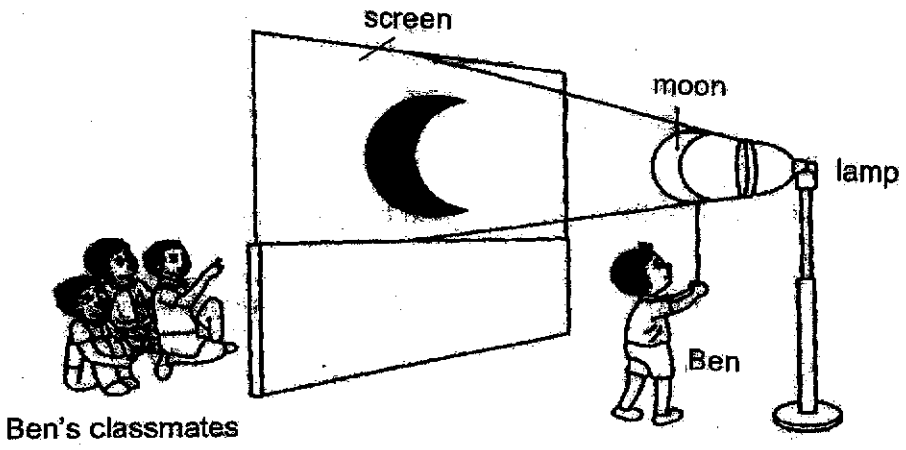
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Ben set up a shadow play in a dark room. He placed a cut-out of a moon between the lamp and the screen as shown below. The lamp is the only object that gives off light in the room.

His classmates could see the shadow of the moon from the other side of the screen.



(b) Based on Ben's results, which materials, A, B, C and D, are suitable to make the cut-out of the moon? [1]

_____

(c) State the property of the screen that allows Branden's classmates to see the shadow of the moon. [1]

_____

	2

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37 **(a)** Study the statements below and put a tick (✓) in the appropriate boxes. [2]

	Statement	True	False
(i)	All matter can be seen.		
(ii)	All matter have definite volume.		
(iii)	Gases do not have mass.		
(iv)	Liquids cannot be compressed.		

The diagram below shows three sealed containers, A, B and C, of different volume.



(b) Which of the containers, A, B and C, can be filled with 120 cm^3 of air? Explain your answer. [2]

_____

_____

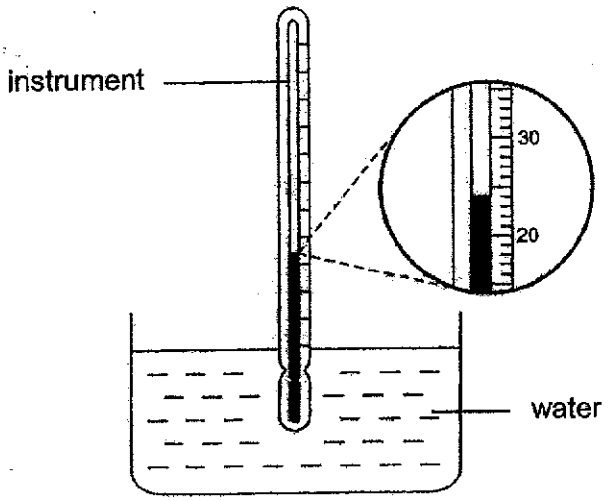
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38 Denzel used an instrument to measure the temperature of water in the basin.



(a) What is the instrument called? [1]

(b) What is the temperature of the water in the basin? [1]

(c) What is temperature? [1]

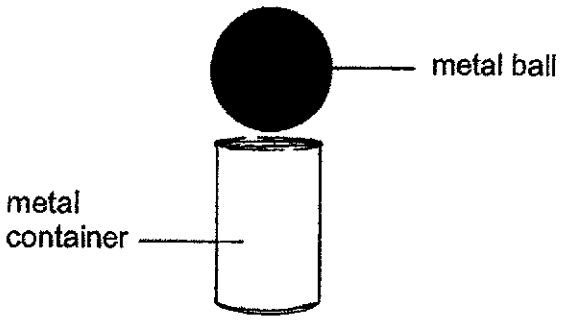
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39 (a) Huiling wanted to put a metal ball inside an empty metal container but she was unable to do so as the metal ball was slightly bigger than the metal container.



(i) Tick (✓) what Huiling can do to fit the metal ball into the metal container. [1]

	Tick (✓)
Heat the metal ball.	
Heat the metal container.	

(ii) Explain your answer chosen in **(a)(i)**. [1]

_____

_____

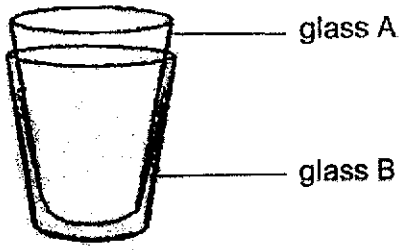
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(b) Two glasses, A and B, are stuck together as shown below.



(i) Suggest what Huiling can do to separate the two glasses without breaking them. [1]

_____

_____

(ii) Explain your answer in **(b)(i)**. [1]

_____

_____

	2

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40 Naomi wanted to find out if the magnetic strength of a magnet is affected by the number of times it is dropped.

Naomi increased the number of times a magnet is dropped from a fixed height and counted the number of steel clips attracted by the magnet. The table below shows her results.

Number of times the magnet was dropped	0	1	2	3	4
Number of steel clips attracted	16	14	12	10	8

(a) Based on the results, what is the relationship between the number of times the magnet is dropped and its magnetic strength? [1]

Naomi replaced the steel clips with plastic clips.

(b) Predict the number of plastic clips that will be attracted by the magnet. [1]

(c) Explain your answer in **(b)**. [1]

End of Booklet B

	3

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SCHOOL : MARIS STELLA HIGH SCHOOL

LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2020 SA2

SECTION A

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

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

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

SECTION B

Q28)	(a) Animals: eagle, elephant Plants: fern, coconut tree (b) Fur Moist skin
Q29)	(a) It does not move (b) R responds to changes while Q does not respond to changes (c) Living things: S Non – living things: Q, P
Q31)	(a) B, A (b) Second box (counting from top to bottom) (c) Stomach Small intestine Large intestine

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Q32)	(a) Both the life cycles of plant Y and animal X have 3 stages (b) Living things reproduce Living things grow (c) This is to ensure the continuity of their kind.
Q33)	(a) (i) leaf (ii) stem (b) Traps sunlight to make food for the plant (c) Holds the plant in an upright position
Q34)	(a) Magnet (b) Towards (c) 1. Only magnet can repel each other 2. the unlike poles of a magnet attract each other while the like poles repel each other
Q35)	(a) The waterproofness of the material (b) Material C. none of the ink drops on material C spread when material C was put into the water as material C was waterproof and the camera casing needs to be waterproof. (c) More ink drops spread on material B than A. B was more absorbent than material A (d) The thickness of the materials
Q36)	(a) 20cm 10cm (b) Materials B and D (c) The screen must be translucent
Q37)	(a) (i) False (ii) False (iii) False (iv) True (b) Containers A, B and c. air does not have a definite volume and cannot be a=compressed
Q38)	(a) Thermometer] (b) 24.0 °c (c) Temperature is measurement if hot

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Q39)	(a) (i) second (ii) when the metal container is headed, it will gain heat and expand increasing the size of the container, allowing the metal ball to be put into the container. (b) (i) Hui Ling could put some ice cubes in glass A (ii) Glass A will lose heat to the ice cubes and contract, allowing Hui Ling to separate the two glasses.
Q40)	(a) As the number of times the magnet was being dropped increases, the magnetic strength of the magnet decreases. (b) 0 (c) Plastic is a non – magnetic material and the magnet can only attract magnetic materials.

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