HENRY PARK PRIMARY SCHOOL

SEMESTRAL ASSESSMENT 2020

PRIMARY 4

SCIENCE

SECTION A (56 MARKS)

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers on the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 4 ( )

Date: 27 October 2020

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

Sections	Marks
A	/ 56
B	/ 44
Total	/ 100

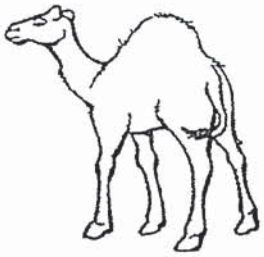
Parent's Signature _____

Booklet A (56 marks)

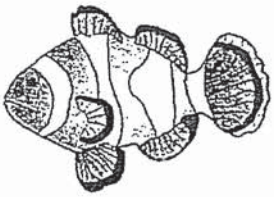
For each question from 1 to 28, four options are given. One of them is the correct answer.
Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which one of the following is <u>not</u> a living thing?

(1)

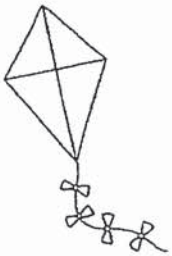


(2)



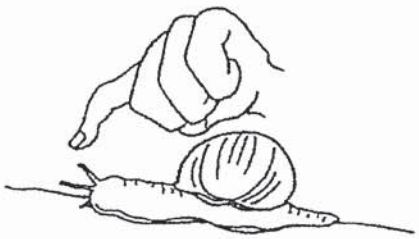
(3)

(4)



( )

2. A snail hides itself in its shell when touched.



This shows that the snail is a living thing because it can _____.

(1) grow

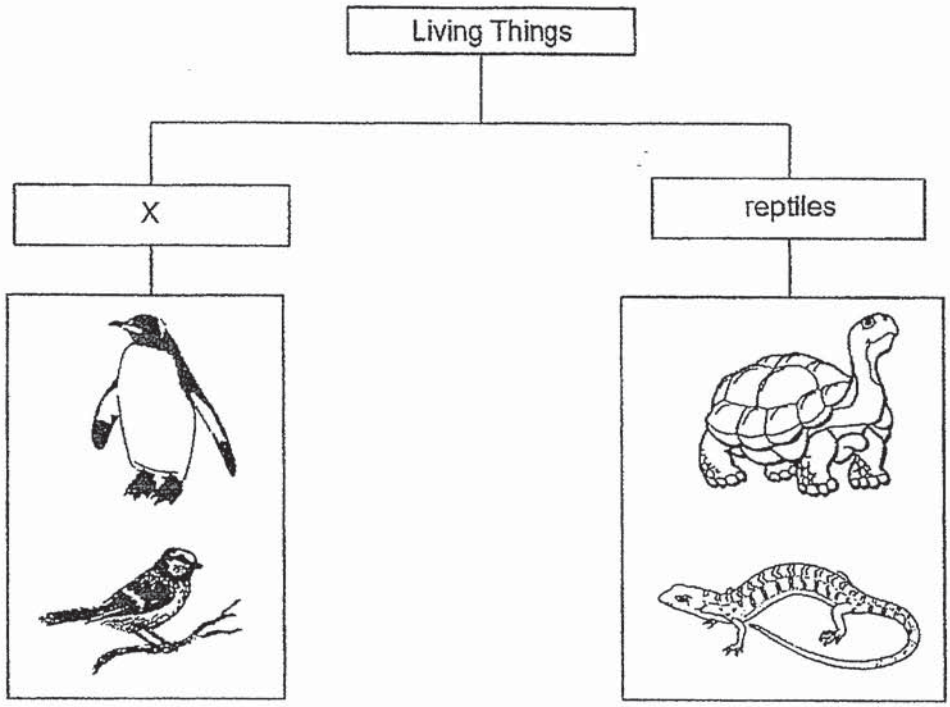
(2) move

(3) respond

(4) reproduce

( )

3. The table below shows how some living things can be grouped.



Which one of the following is the most suitable heading for group X?

(1) birds

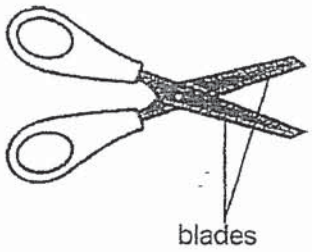
(2) Insects

(3) animals

(4) mammals

( )

4. The diagram shows a pair of scissors.



Metal is used to make the blades of the scissors because metal _____.

(1) is strong

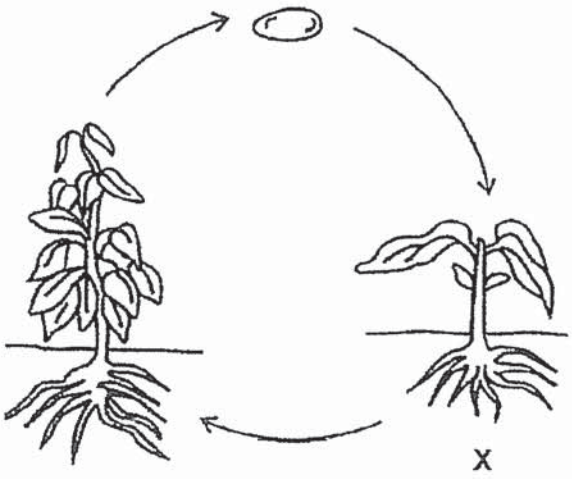
(2) is not waterproof

(3) bends easily without breaking

(4) allows some light to pass through

( )

5. The diagram shows the life cycle of a plant.



What is the stage marked X?

(1) egg

(2) seed

(3) adult plant

(4) young plant

( )

6. Which animal has a pupa as a stage in its life cycle?

(1) frog

(2) beetle

(3) chicken

(4) cockroach

( )

7. Which one of the following properties is true for both air and a marble?

(1) They can be seen.

(2) They occupy space.

(3) They have definite shapes.

(4) They have definite volumes.

( )

8. Which one of the following is a source of light?

Fire

(1)

The moon

(2)

A leaf

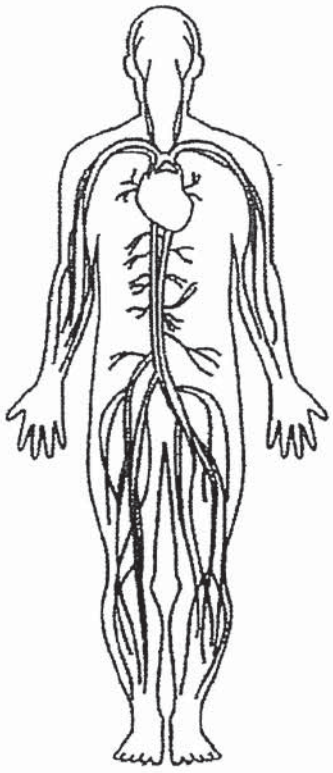
(3)

An orange

(4)

( )

9. Which organ system is shown in the diagram?



(1) skeletal system

(2) digestive system

(3) muscular system

(4) circulatory system

( )

10. Which one of the following is the best conductor of heat?

(1) A glass rod

(2) A metal rod

(3) A plastic rod

(4) A wooden rod

( )

11. The table shows Tanya's answers to three questions about matter.

	Question	Answer
A	Does it have mass?	Yes
B	Does it occupy space?	No
C	Can it exist as a solid, a liquid or a gas?	Yes

Which of the questions were answered correctly?

(1) A and B only

(2) B and C only

(3) A and C only

(4) A, B and C

( )

12. Mrs Dill hung her clothes out to dry in her backyard on a sunny day.

What is the main source of heat that dries the clothes?

(1) Air

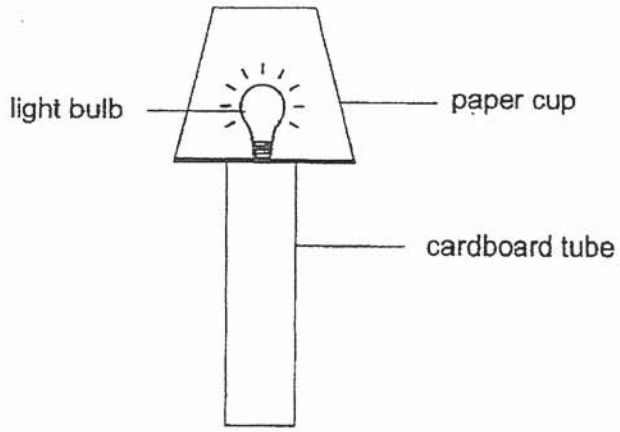
(2) Sun

(3) Bird

(4) Plants

( )

13. Ken made a model lighthouse using a cardboard tube, a paper cup, a lit light bulb, some wires and a battery.



Ken wanted to make his model lighthouse shine more brightly.

Which one of the following should Ken use to replace the paper cup with?

(1) steel cup

(2) ceramic cup

(3) styrofoam cup

(4) clear plastic cup

( )

14. Which of the following are <u>not</u> characteristics of insects?

A 3 body parts

B 3 pairs of legs

C give birth to young alive

D outer covering of feathers

(1) A and B only

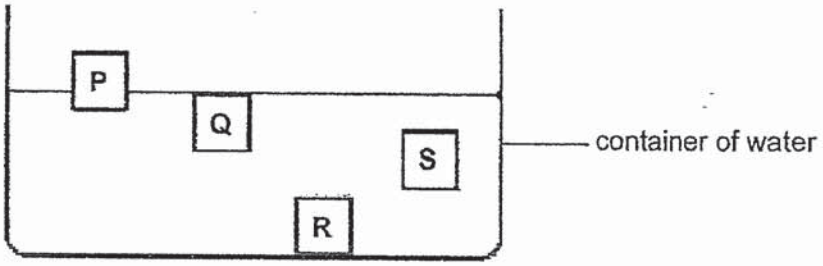
(2) B and C only

(3) C and D only

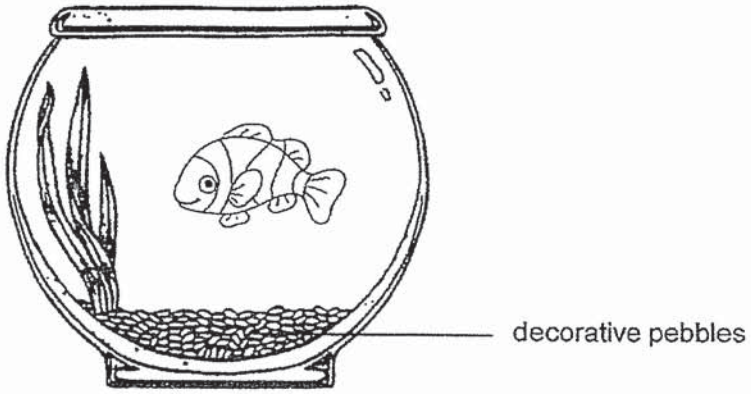
(4) A, B and D only

( )

15. Travis placed four similar cubes made of different materials, P, Q, R and S, in a container of water. The diagram shows his observation.



The diagram below shows Travis' fish bowl.



He wanted to make some decorative pebbles to put in his fish bowl.
Which material, P, Q, R or S, would be the best for Travis to use?

(1) P

(2) Q

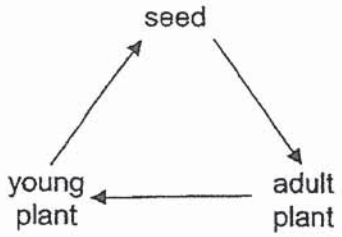
(3) R

(4) S

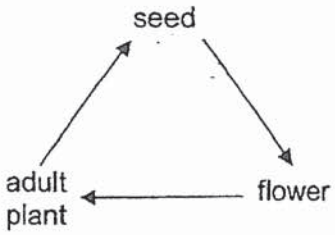
( )

16. Which of the following shows the correct stages in the life cycle of a flowering plant?

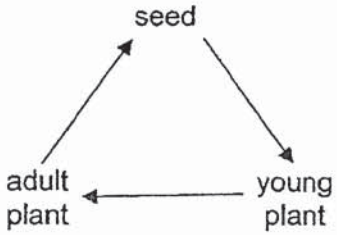
(1)



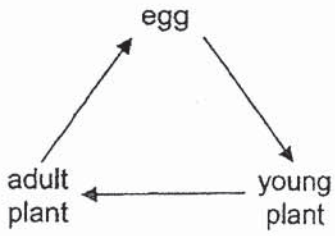
(2)



(3)

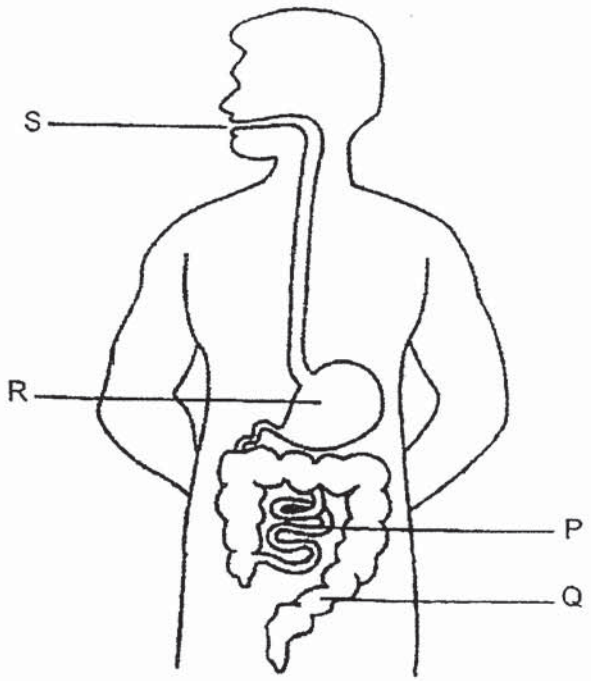


(4)



( )

17. The diagram shows the human digestive system.

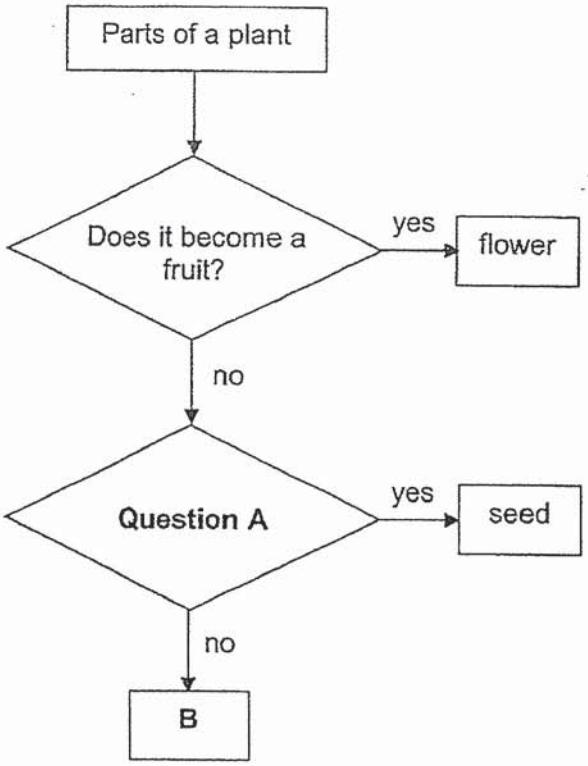


Which of the following correctly identifies the parts of the digestive system where digestion starts and absorption of water from undigested food?

	Parts of digestive system	
	Digestion starts here	Absorption of water from undigested food
(1)	R	P
(2)	R	Q
(3)	S	P
(4)	S	Q

( )

18. Study the chart below.



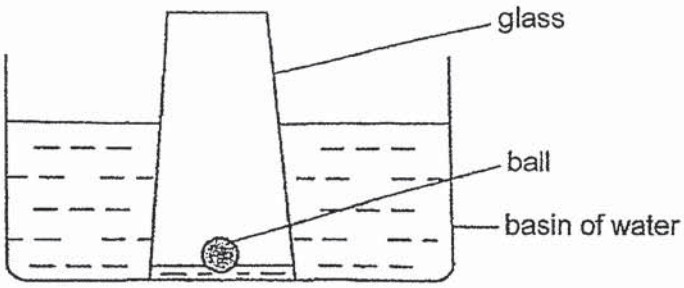
Which one of the following is correct?

	Question A	B
(1)	Does it hold the plant upright?	fruit
(2)	Does it grow into a flowering plant?	spore
(3)	Does it grow into a non-flowering plant?	leaf
(4)	Does it grow into a non-flowering plant?	spore

( )

19. James placed an empty glass and a small ball into a basin of water as shown in the diagram below. When the glass touched the bottom of the basin, he observed that the water level inside the glass was lower than the water level in the basin.

However, the ball still floated on the water as shown below.



Which of the following explains the difference in the water level inside and outside the glass?

(1) The ball in the glass is light.

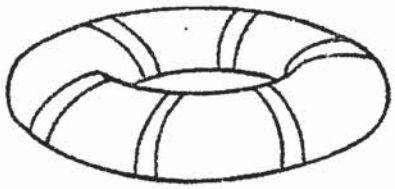
(2) The air in the glass occupied space.

(3) The ball pushed the water out from the glass.

(4) The air in the glass has a greater mass than the water.

( )

20. Darius had a float as shown in the diagram below. When he blew more air into the float, he observed that the size of the float remained the same.



Which one of the following best explains his observation?

(1) Air has mass.

(2) Air takes up space.

(3) Air can be compressed.

(4) Air has a definite shape.

( )

21. Lucas placed two plates in an air-conditioned room of 23°C and went off to play. Both plates were of similar size but made of different materials.

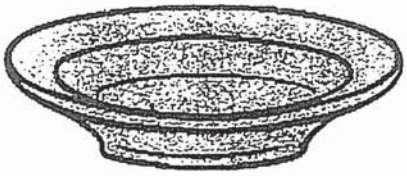


Plate A

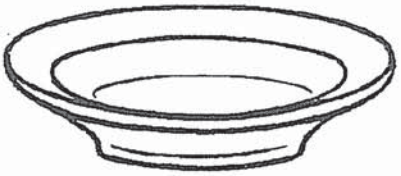


Plate B

When Lucas returned and touched the plates, plate A felt colder to the touch than plate B.

Which one of the following is most likely the reason why Lucas felt that plate A was colder than plate B?

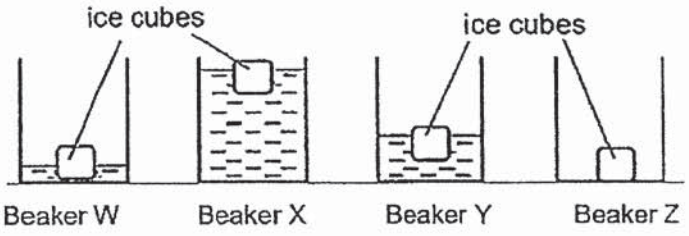
(1) Plate A lost more heat to Lucas' hand than plate B.

(2) Plate A lost more heat to the surroundings than plate B.

(3) Plate A gained more heat from Lucas' hand than plate B.

(4) Plate A gained more heat from the surroundings than plate B. ( )

22. Jane set up an experiment as shown below. She placed ice cubes of similar size into identical beakers, W, X, Y and Z.



Beakers W, X and Y contained different amounts of water measuring 75°C.

Based on the set-up, which ice cube in the beakers above would take the longest time to melt completely?

(1) Beaker W

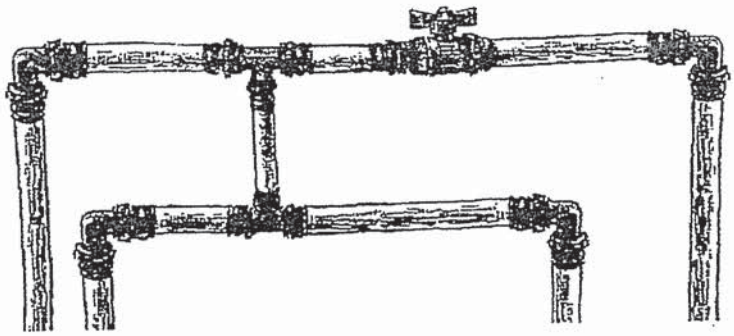
(2) Beaker X

(3) Beaker Y

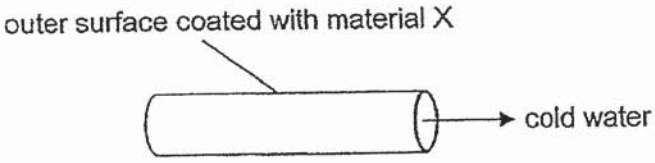
(4) Beaker Z

( )

23. Wally observed that most of the water pipes at home are made of copper, a type of metal. These pipes transport cold water to the taps in the house.



He suggested to his dad that the water pipes be coated with material X, a poor conductor of heat.
The diagram shows which part of the water pipe will be coated with material X.



Part of the water pipe

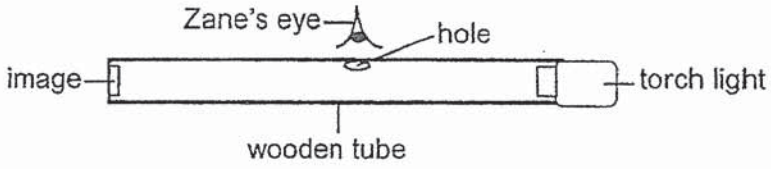
Which of the following statements correctly describe what will happen when the pipes are coated with material X?

A The surrounding air will lose heat quickly to the cold water.
B The cold water will gain heat slowly from the surrounding air.
C The water pipes will not gain heat from the surrounding air quickly.

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

( )

24. Zane created a toy using a wooden tube, a torch light fixed at one end and an image at the other end of the tube. He made a hole at the centre of the wooden tube to look at the image.



When he switched on the torch light, he could not see the image.

Which of the following could be the reason why Zane could not see the image?

(1) Light is a form of energy.
(2) There was no source of light in the tube.
(3) The wooden tube does not allow any light to pass through.
(4) Light reflected off the image was not reflected into Zane's eye.

( )

25. Karen created a sheep puppet using some pieces of cardboard and aluminium foil, as shown in diagram 1.

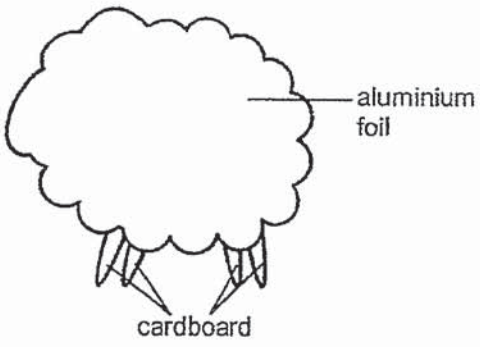


Diagram 1

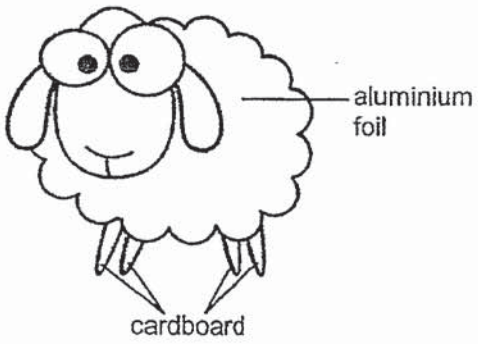
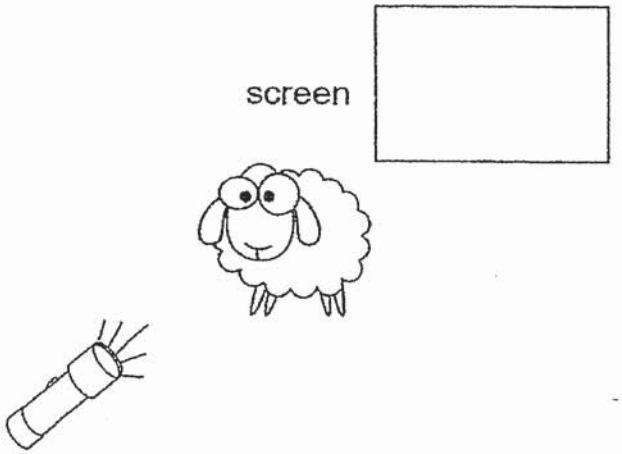


Diagram 2

She then drew in the face and ears of the sheep using a marker, as shown in diagram 2.

The diagram below shows Karen's set-up of the sheep puppet.



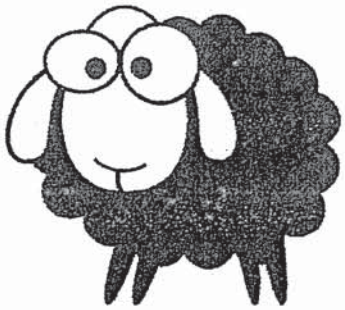
Question 25 continued

When Karen shone a torch on her puppet, she saw a shadow of the puppet on the wall.

Which one of the following is the shadow that Karen saw on the wall?

(1)

(2)



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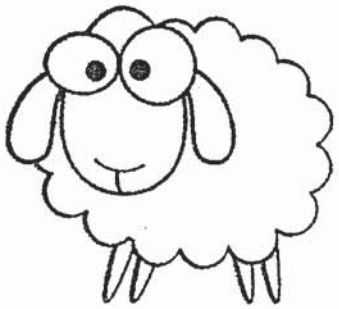
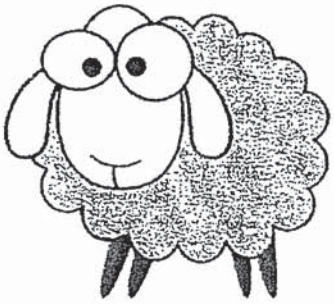


(4)



( )

26. Gabriel studied two animals, P and Q. At the end of his study, he recorded his observations as shown in the table below.

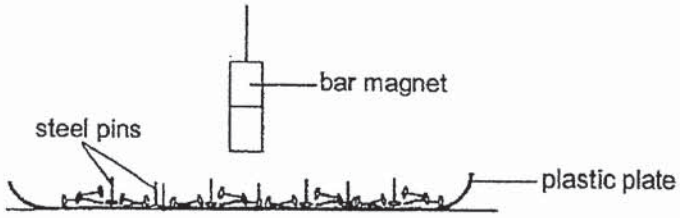
Observation	Animals	
	P	Q
has 6 legs	No	Yes
reproduce by laying eggs	Yes	Yes
the young lives in the water	No	Yes

Which one of the following correctly represents animals, P and Q?

	Animals	
	P	Q
(1)	mosquito	chicken
(2)	mosquito	butterfly
(3)	chicken	mosquito
(4)	butterfly	mosquito

( )

27. A bar magnet was placed near a plastic plate of steel pins. It was observed that none of the pins were attracted to the bar magnet.



Which one of the following is a possible reason for the observation?

(1) The bar magnet repelled the steel pins.

(2) The pins were attracted to the plastic plate.

(3) The magnet was too weak to attract any pins.

(4) The pins were not made of a magnetic material.

( )

28. A steel bar AB was magnetised using the stroking method as shown in Diagram 1. Diagram 2 shows the magnetic poles of AB after it was magnetised.

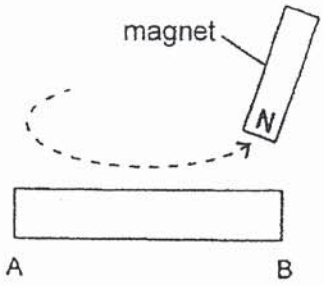


Diagram 1

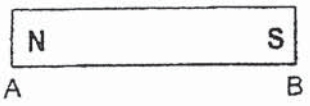


Diagram 2

Steel bar CD was magnetised as shown in Diagram 3.

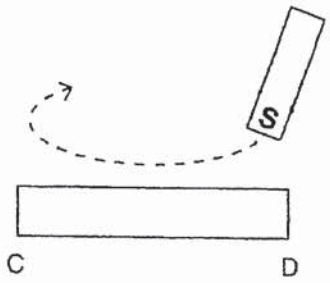
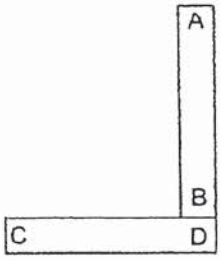


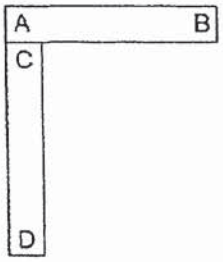
Diagram 3

Which of the following diagrams (P, Q or R) do <u>not</u> show a possible arrangement of the two bars, AB and CD, after they were magnetised?



P

Q



R

(1) P and Q only
(2) P and R only
(3) Q and R only
(4) P, Q and R

( )

End of Booklet A

HENRY PARK PRIMARY SCHOOL

SEMESTRAL ASSESSMENT 2020

PRIMARY 4

SCIENCE

SECTION B (44 MARKS)

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

Name: _____( )

Class: Primary 4 ( )

Date: 27 October 2020

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

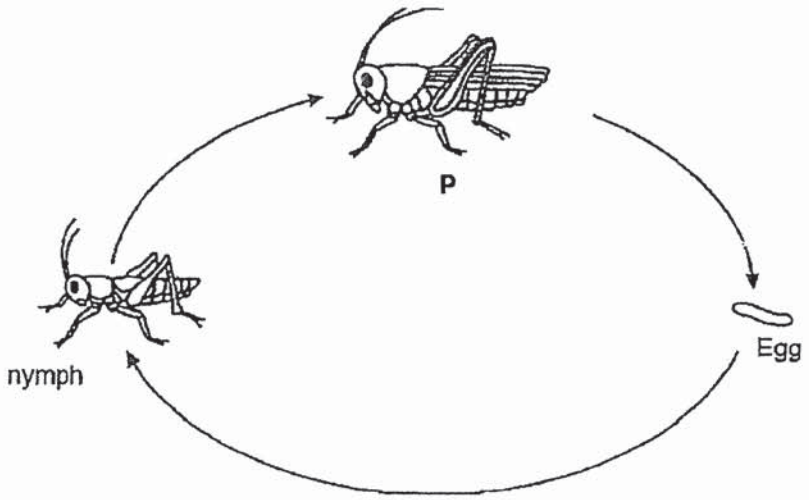
Marks for Section B: _____

Booklet B (44 marks)

For questions 29 to 41, write your answers in this booklet.

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

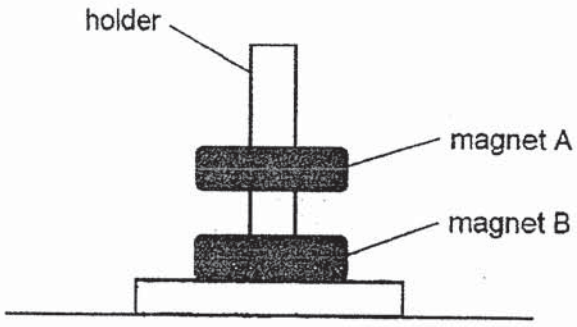
29. The diagram shows the stages in the life cycle of a grasshopper.



a) Name stage P. [1]

b) Name one other animal that has a similar life cycle as a grasshopper. [1]

30. Alice placed two ring magnets, A and B, through a holder as shown below.



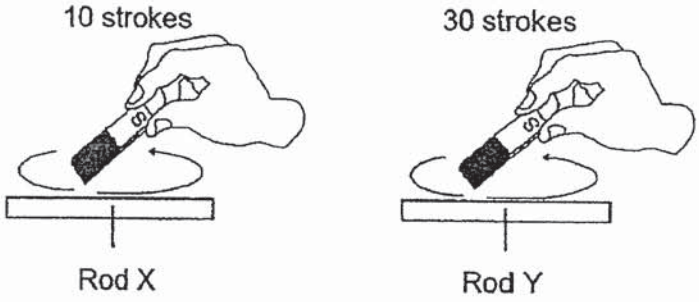
a) The holder was made of plastic and was not attracted to the magnets. [1]

Plastic is a _____ material.

b) Why was magnet A floating above magnet B? [1]

Magnet B was _____ magnet A.

Alice stroked two similar iron rods X and Y with the same magnet as shown below.



Both rods became magnets and were used to attract similar pins.

c) Circle the correct answer below. [1]

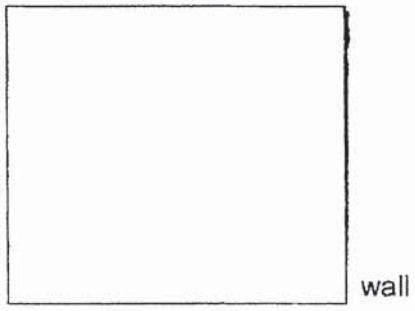
Rod Y attracted (less pins than / the same number of pins as / more pins than) rod X.

31. Ram shines a torch on a ball and a shadow is formed on a smooth wall.

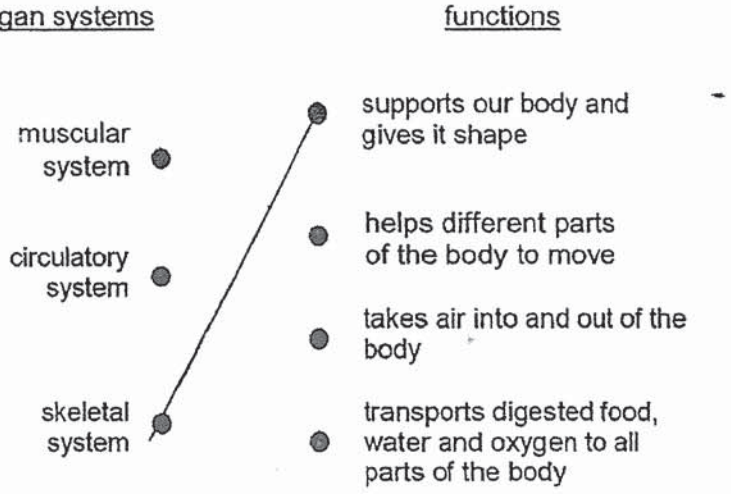
torch ball wall

a) A shadow is formed when light is _____ by an object. [1]

b) Draw the shadow of the ball that is formed on the wall. [1]



32. Draw lines to match the three organ systems to their functions. [3]



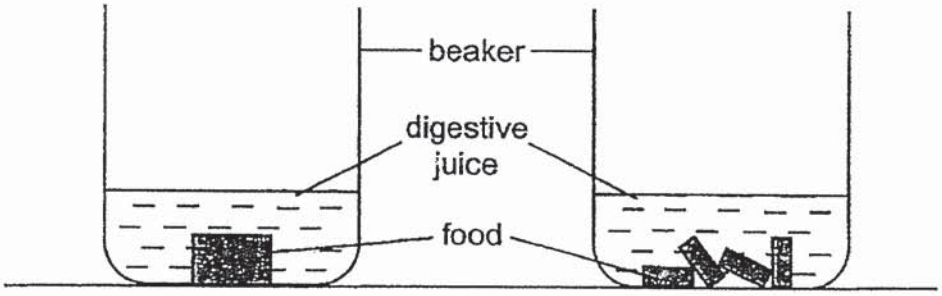
33. a) State what digestion is. [1]

_____

_____

b) Aurelia wanted to find out if cutting up food into smaller pieces helps the food to digest completely faster.

The diagram shows her experimental set-ups, A and B.



Based on Aurelia's experiment, complete the table below by ticking [✓] the correct boxes. [2]

Variables		Keep the same	Change
i)	amount of digestive juice		
ii)	size of food piece(s)		
iii)	mass of food		
iv)	temperature of digestive juice		

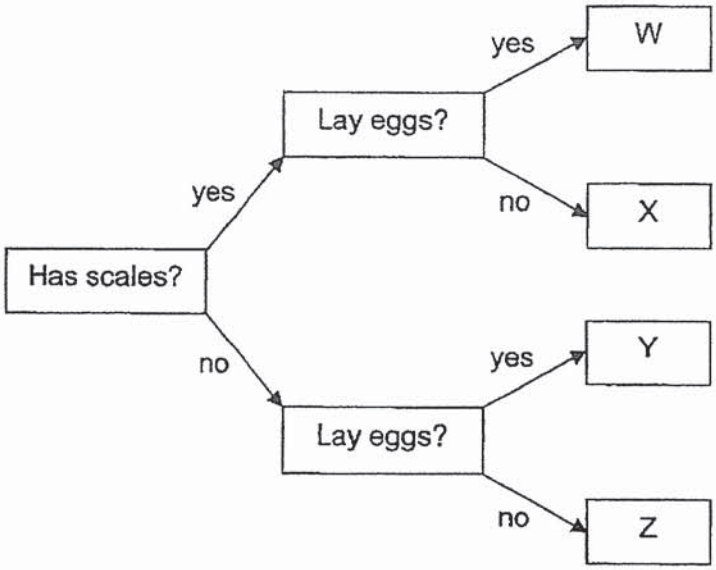
Based on the results of her experiment, Aurelia concluded that cutting up food into smaller pieces helps the food to digest completely faster.

c) What observation would show that her conclusion is correct? [1]

_____

_____

34. Animals W, X, Y and Z are classified as shown.



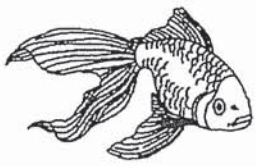
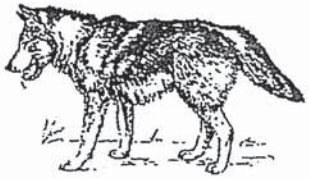
a) Based on the classification above, describe the characteristics of animal W. [1]

_____

_____

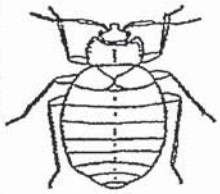
b) Study the pictures shown below. [1]

Fill in the blanks with the letters, W, X, Y or Z, from the diagram shown above.

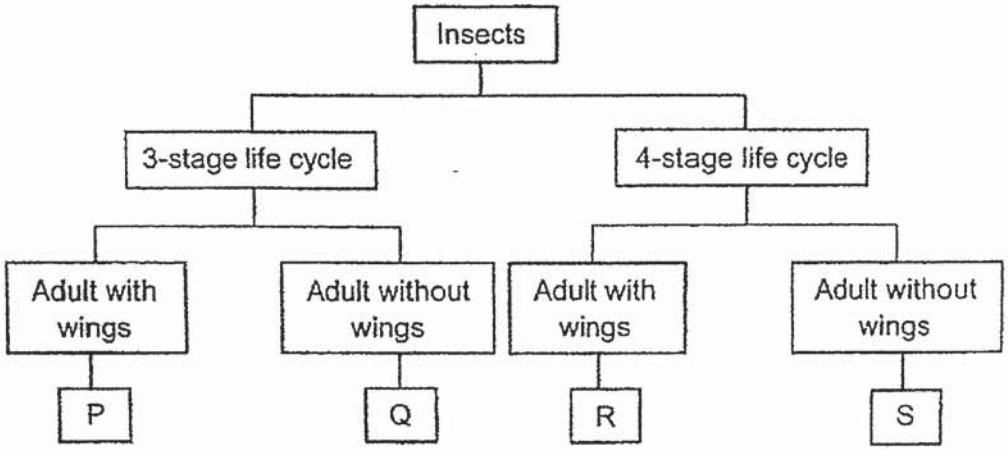
i)	ii)
 gold fish	 dog
Animal _____	Animal _____

Question 34 continued

The diagram shows insects M and N.

Insect M		Insect N	
			
young	adult	young	adult

Study the classification chart below.



Which group, P, Q, R or S, do insects M and N belong to? [1]

c (i) Insect M – Group _____

(ii) Insect N – Group _____

35. Jack grew some seeds of a plant in four pots in his room.
In each pot, he placed 3 seeds. The conditions and results are shown below.

	Condition		Result observed in each pot
Pot	Soil	Light	Appearance of the 3 seeds on Day 6
A	dry	absent	
B	wet	absent	
C	dry	present	
D	wet	present	

a) Based only on the results given, state the condition that did not affect the growth of the seeds. [1]

b) Using the results given, explain your answer in (a). [1]

c) Jack wanted to find out if the seeds needed water to grow. [2]

Which 2 pots should he compare to make a conclusion? Explain your answer.

36. May released a toy car from the top of ramp C. The toy car had a magnet attached to the front of it, as shown in diagram 1.

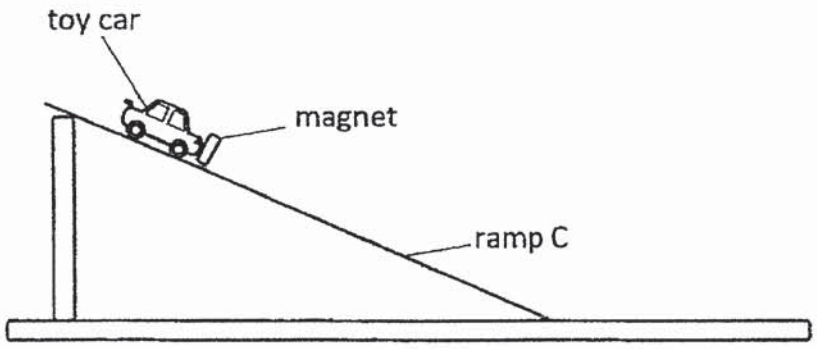


Diagram 1

May observed that the car rolled down ramp C, when it was released.

Then, May placed object T at a fixed point at the bottom of the ramp C, as shown in diagram 2.

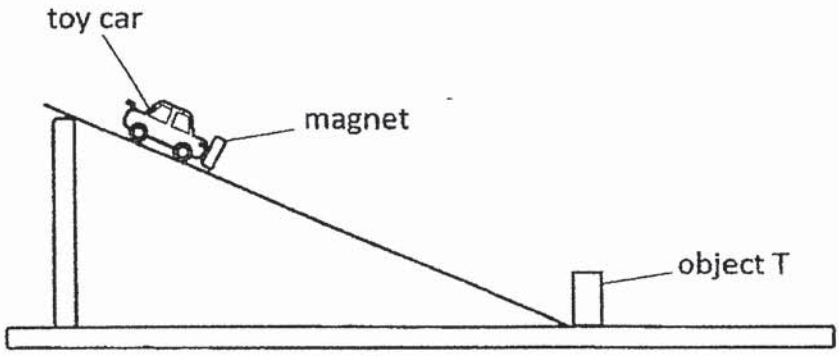


Diagram 2

Diagram 3 shows what happened when the toy car was released from the top.

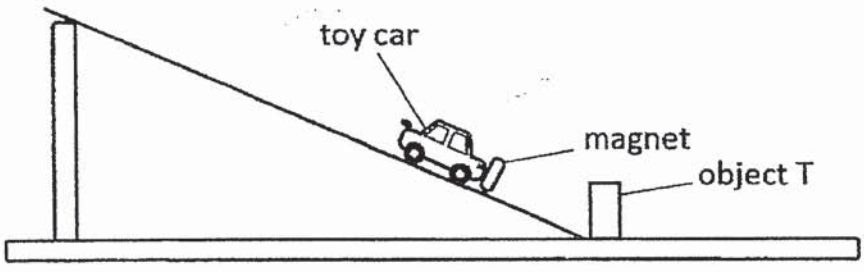


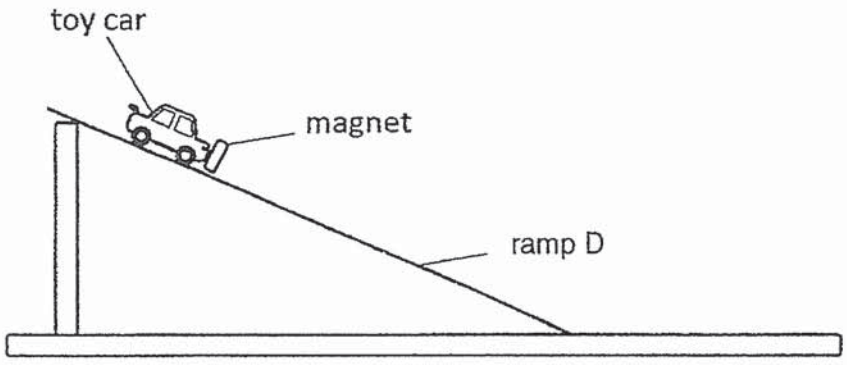
Diagram 3

The toy car rolled down but stopped a distance away from object T as shown in diagram 3.

a) Explain why. [2]

Question 36 continued

May repeated the experiment using ramp D as shown. She did not use object T.



When May released the toy car from the same height, she observed that it did not move at all.

b) Suggest a possible reason for her observation. [1]

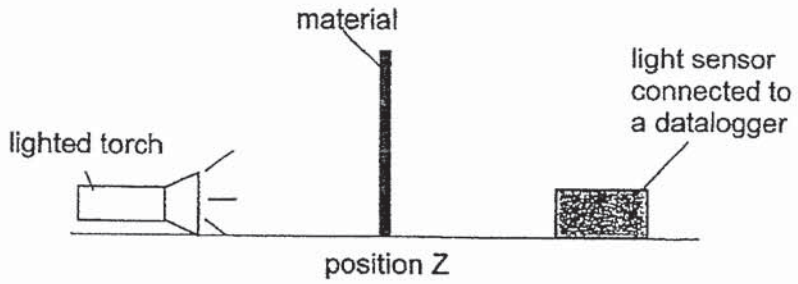
_____

_____

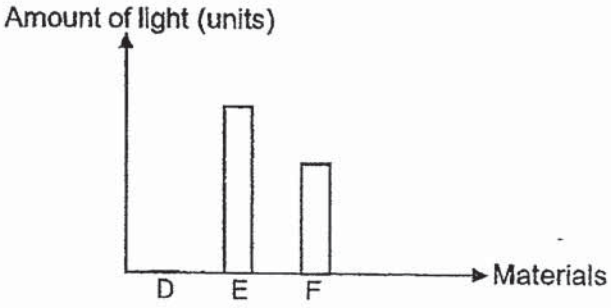
c) Based on the observation, name one material that ramp D could be made of. [1]

_____

37. Mrs Yan conducted the experiment, shown below, in a dark room. She wanted to find out how much light is blocked by materials, D, E and F.

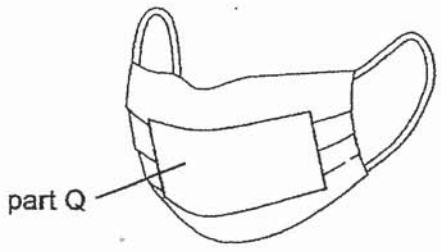


She placed materials D, E and F, at position Z, one at the time. She recorded the amount of light detected by the light sensor in the graph below.



a) Based on the graph, which material, D, E or F, allows no light to pass through? [1]

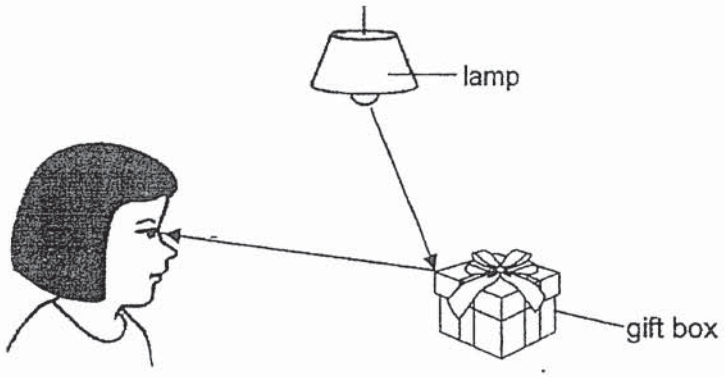
Mrs Yan teaches at a school for the hearing impaired. She designed a mask that has a special part Q that would allow the children to observe her lip movements clearly and understand what she is saying.



b) Based on the information given, which one of the materials, D, E or F, should she use to make part Q? [2]

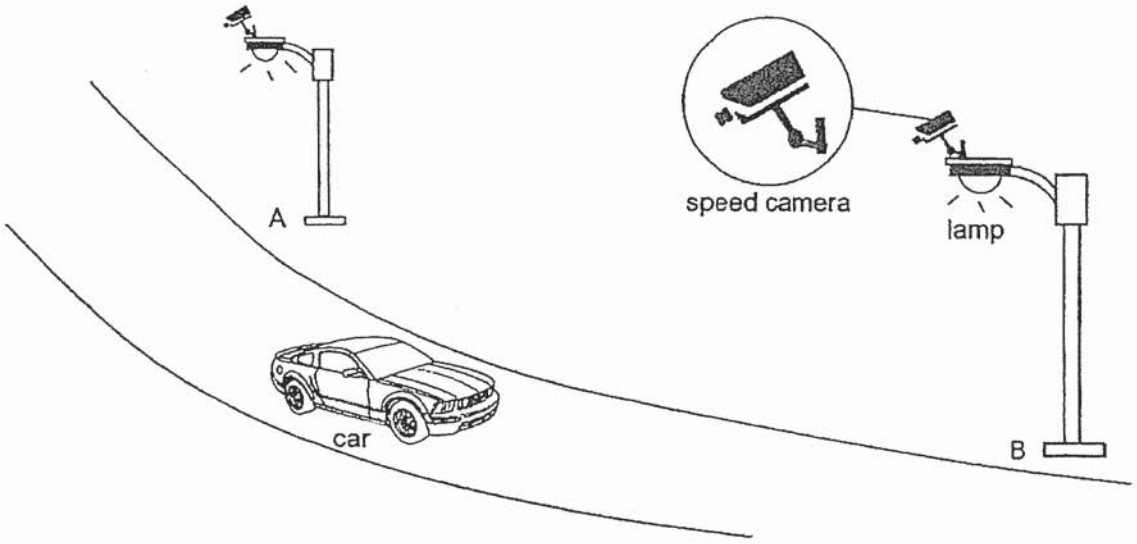
Using information given, explain your answer.

38. Pam is looking at a gift box as shown.



a) Based on the diagram, describe how Pam is able to see the gift box. [1]

b) ABC Company installs speed cameras along roads. The diagram shows speed cameras on the top of lamp posts located at two points, A and B, along a road.



At each point, the speed camera takes a picture of the car passing by. The pictures help to calculate how fast the car had travelled from point A to point B. The pictures will only be clear if the surrounding light is very bright.

i) During the day, the lamps are switched off. [1]

Name the source of light for the speed cameras.

Question 38 continued

One night, the picture taken by the speed camera at point A was not clear while the picture taken by the speed camera at point B was very clear.

ABC Company found out that one of the light bulbs of the lamp at point A was not working.

ii) Using the information given, explain why the picture taken by the speed camera at point A was not as clear as the one taken by the speed camera at point B. [2]

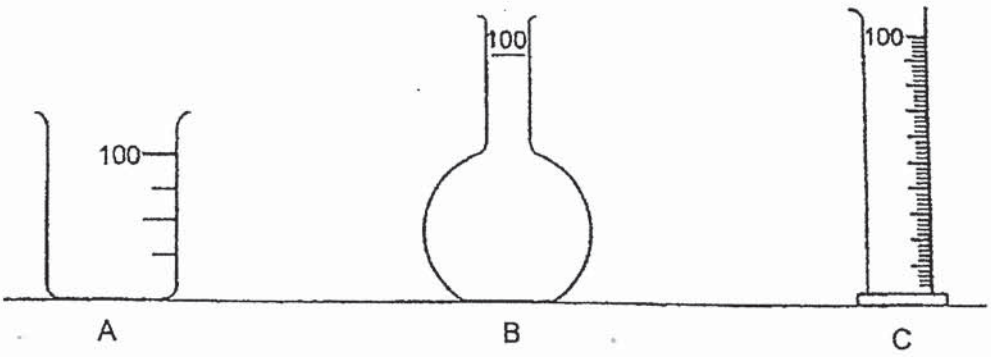
39. Matter like liquids have mass and occupy space.

a) State two other properties of liquids. [1]

Property 1:

Property 2:

b) Look at the containers, A, B and C, below. Each can be used to measure volume of liquid up to 100 cm^3.

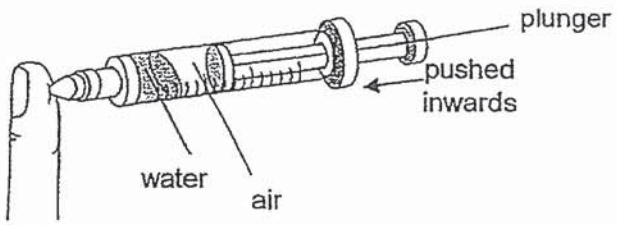


Which container, A, B or C, can accurately measure 78 cm^3? [1]

Explain your answer.

Question 39 continued

Billy fills a syringe with some water as shown in the diagram below. He pushes the plunger inwards into the syringe until he could not push any longer.



c) State what will happen to the volume of air and water (**increase, decrease** or **remain the same**) in the syringe after Billy pushes the plunger inwards. [2]

i) volume of air:

_____

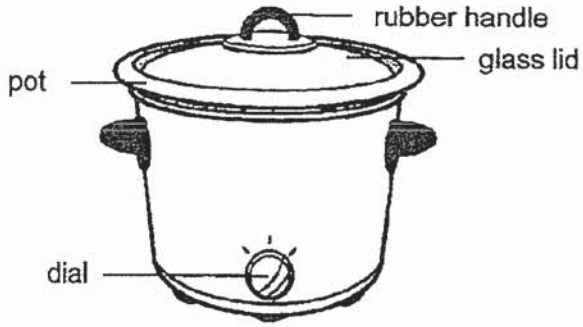
ii) volume of water:

_____

40. Ms Tan uses a slow cooker shown in the diagram below.

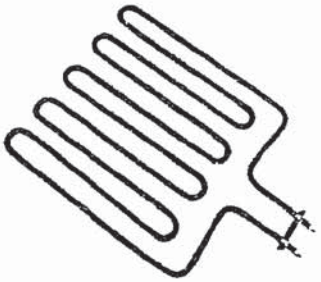
It takes a long period to cook food without needing anyone to monitor. The slow cooker takes a long time to reach the temperature that is needed to cook the food.

The lid of the slow cooker fits the pot perfectly to ensure that the hot air does not escape from the pot.



A heating element, shown below, is found at the base of the slow cooker.

It is made of metal.



The heating element heats up the pot of the slow cooker. The dial controls the temperature of the heating element.

The table shows the time taken to cook the chicken at different temperatures.

Temperature set to cook the chicken (°C)	Time taken to cook the chicken (h)
65	2
50	4

a) How does the temperature set affect the amount of heat given off by the heating element in the slow cooker? [1]

Question 40 continued

b) The pot is made of ceramic. [2]

Explain why a ceramic pot is more suitable for cooking than a metal pot.

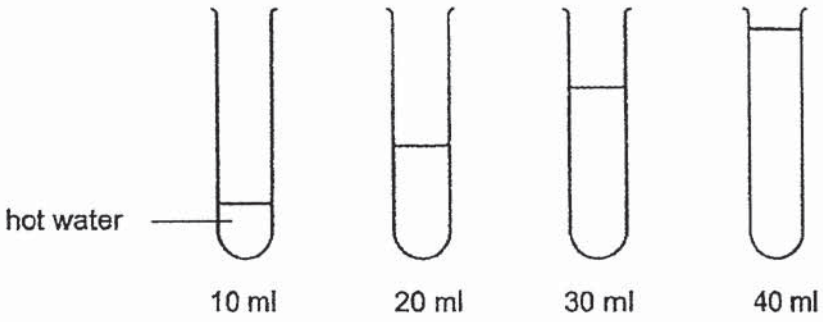
One day, Ms Tan could not find the glass lid of the slow cooker. So, she used a metal lid that she could find.

The diagram shows the metal lid that Ms Tan used.

When Ms Tan returned from work that day, she realised that the food was not fully cooked. Her mother said that it was because of the metal lid she used.

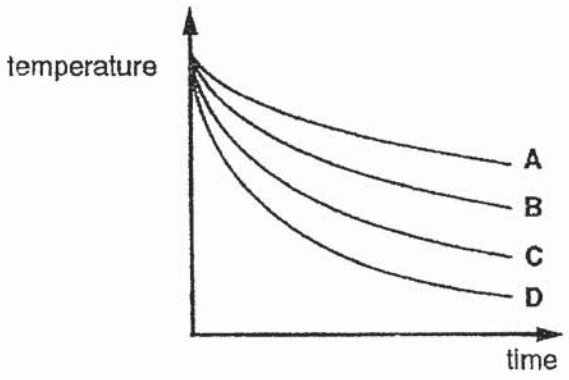
c) How did the metal lid cause the food to be not fully cooked? [1]

41. Susan pours hot water of the same temperature into four similar tubes. The amount of hot water in each tube is different as shown below.



The water in each tube cools down. Susan measures and records down the temperature of water in each tube at the end of the experiment.

The graph shows her results.

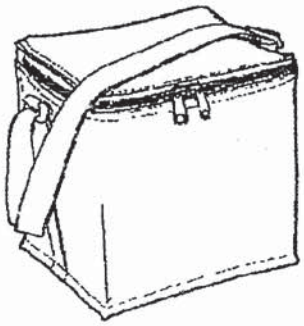


a) Which line (A, B, C or D) shows the results for the tube with 40 ml of hot water? [1]
Explain your answer.

_____

_____

The diagram shows a cooler bag. A cooler bag is used to keep drinks cold for a longer time.



Question 41 continued

A piece of foam, shown below, is used in between the inner and outer layers of the bag. The piece of foam consists of many tiny holes.

b) Explain how the foam help in keeping the drinks cold for a longer time. [2]

Kate bought a container of hot soup and a can of cold drink and placed them in the cooler bag.

When she reached her office, after 20 minutes, her container of hot soup had cooled down and the can of drink was no longer cold.

c) What could have caused the hot soup to cool down and the can of drink to be not as cold as when she bought it? [1]

End of Booklet B

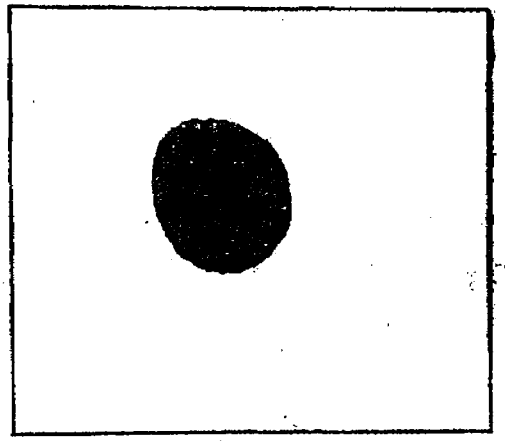
ANSWER KEY

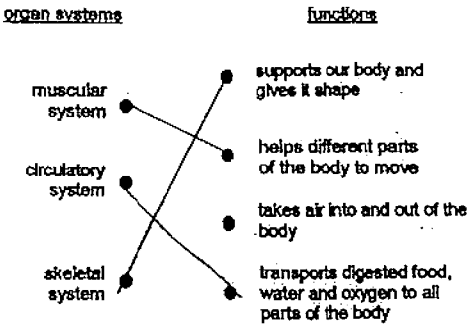
YEAR: 2020
LEVEL: PRIMARY 4
SCHOOL: HENRY PARK PRIMARY SCHOOL
SUBJECT: SCIENCE
TERM: SA2

BOOKLET A

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

BOOKLET B

Q29	a) adult b) Cockroach
Q30	a) Plastic is a non-magnetic material b) Magnet B was repelling magnet A c) Rod Y attracted more pins than rod X.
Q31	a) blocked b) 

Q32	
Q33	a) Digestion is the breaking down of food into simpler substances. bi) Keep the same bii) change biii) mass of food (keep the same) biv) keep the same c) After a certain time, there will be no food pieces in set up B but there will still be food pieces in A.
Q34	a) W has scales and lay eggs. bi) Animal W bii) Animal Z ci) Q cii) R
Q35	a) The light received by the plant. b) Without any light, plant B still grew. c) A nd B. There is only variable changed and that is the presence of water.
Q36	a) Object T repelled the magnet on the toy car as the like poles of two magnets facing each other repels each other. Thus the toy car stops rolling down at a certain distance away from object T as the two magnets are repelling away from each other. b) The toy car's magnet was attracted to ramp D. c) Cobalt
Q37	a) D b) E. E allows most light to pass through so when Mrs Yan is talking in class it allows the children to observe her lips movement making it clearer for the students to understand what she is saying.
Q38	a) Light from the lamp that is travelling in a straight line is reflected off the gift box into Pan's eyes enabling her to see the gift box. bi) The sun

	bii) The source of light come from the Sun.
Q39	a) Property 1 : Has no definite shape and had a fixed volume. Property 2 : Liquid has definite volume. b) C because it has a lot of lines which enables the user to measure 78cm3 more accurately. ci) decrease cii) remain the same.
Q40	a) The lower the temperature, the lesser heat given off. b)Ceramic is a poorer conductor of heat and so the pot will conduct heat from the heating element to the food more slowly. c) Metal is a good conductor of heat and so food in the pot will lose heat to the cooler surrounding air faster.
Q41	a) A, as 40ml of hot water has the most amount of heat and so it takes the longest time to lose heat. b) Air trapped in the foam is a poor conductor od heat. So it would conduct heat from the surrounding air to the drinks slowly. c) The hot soup loss heat to the can of drink while the can of drink gained heat from the container of hot soup.

END