Anglo-Chinese School (Junior)

SEMESTRAL ASSESSMENT (2022)

PRIMARY 4

SCIENCE

BOOKLET A

Thursday **12 May 2022** **1 hr 45 min**

Name: _____ ( ) Class: 4.( )

INSTRUCTIONS TO PUPILS

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 28 questions in this booklet.

4 Answer ALL questions.

5 Shade your answers in the Optical Answer Sheet (OAS) provided.

This question paper consists of 22 printed pages (inclusive of cover page).

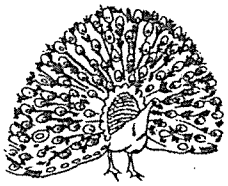
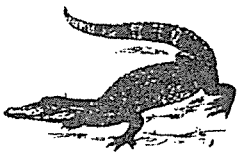
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(56 marks)

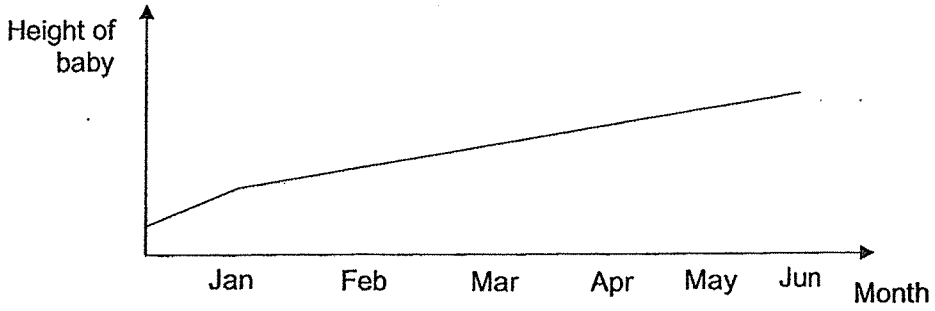
1. The table shows the characteristics of three animals, A, B and C.
A tick (✓) indicates the presence of the characteristic.

Animal	Number of legs		Lay eggs	Has hair
	2	4		
A	✓		✓	
B		✓	✓	
C	✓			✓

Which animals, A, B or C, could be the bat, peacock and crocodile?

	 bat	 peacock	 crocodile
(1)	A	B	C
(2)	C	B	A
(3)	C	A	B
(4)	A	C	B

2. Mrs Leela recorded the height of her new-born baby on the first day of each month in the table as shown.



The table shows that living things _____.

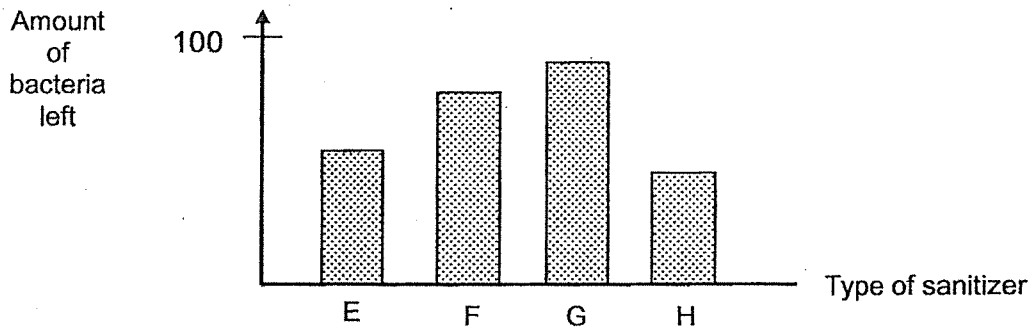
(1) grow

(2) reproduce

(3) need air and water

(4) move by themselves

3. Dr Goh carried out an experiment using sanitizers E, F, G and H. She placed the same amount of sanitizer on 100 units of bacteria for the same period of time. At the end of the experiment, she recorded the amount of bacteria left in the graph.



Which sanitizer is most effective in killing bacteria?

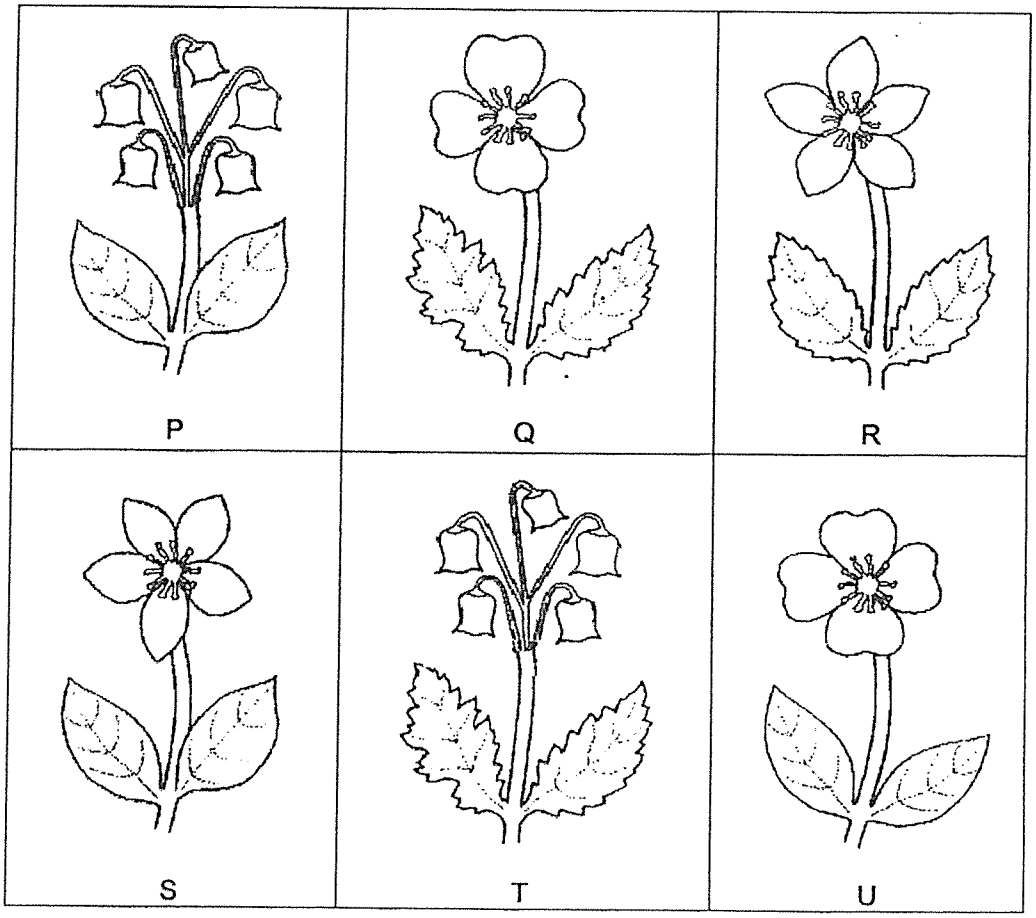
(1) E

(2) F

(3) G

(4) H

4. The diagrams show plants P, Q, R, S, T and U.



Alice classified the plants into three groups.

Group 1	Group 2	Group 3
P, T	Q, U	R, S

The plants were classified according to _____.

(1) the type of leaves

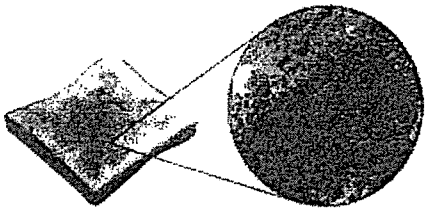
(2) the type of flowers

(3) the number of leaves

(4) the number of flowers

5. Study the pictures.

bracket fungi growing on tree



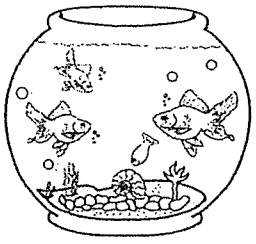
mould growing on bread

What is true about both the bracket fungi and the mould?

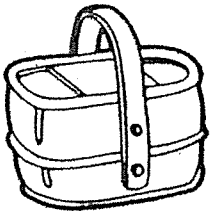
A They are microorganisms.
B They reproduce by spores.
C They are able to make their own food.

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

6. Study the pictures.



aquarium



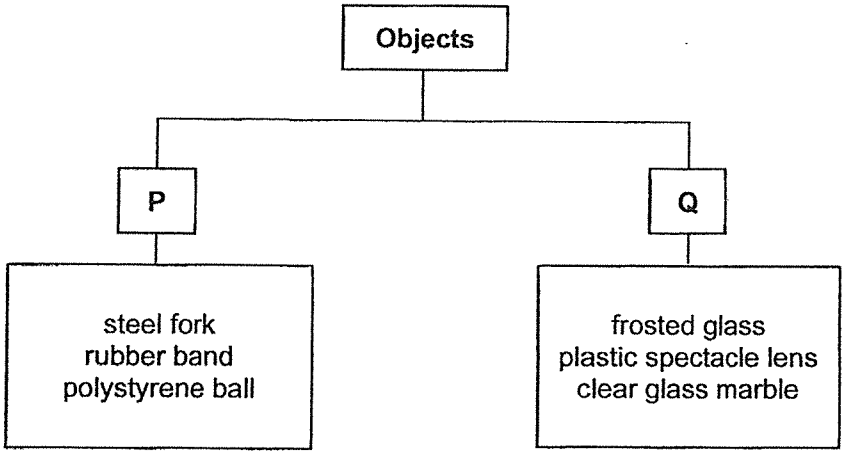
food container

bag

Based on the purpose of the objects, which material could be used to make all three objects?

(1) glass
(2) brass
(3) wood
(4) plastic

7. Ahmad conducted an investigation on six objects. Based on the results, he classified them into two groups, P and Q.



What did he do to each of the six objects during his investigation?

(1) Bend them.

(2) Place weights on them.

(3) Shine a torchlight at them.

(4) Place them in a tank of water.

8. Which of the following shows the correct order in which food moves through the digestive system?

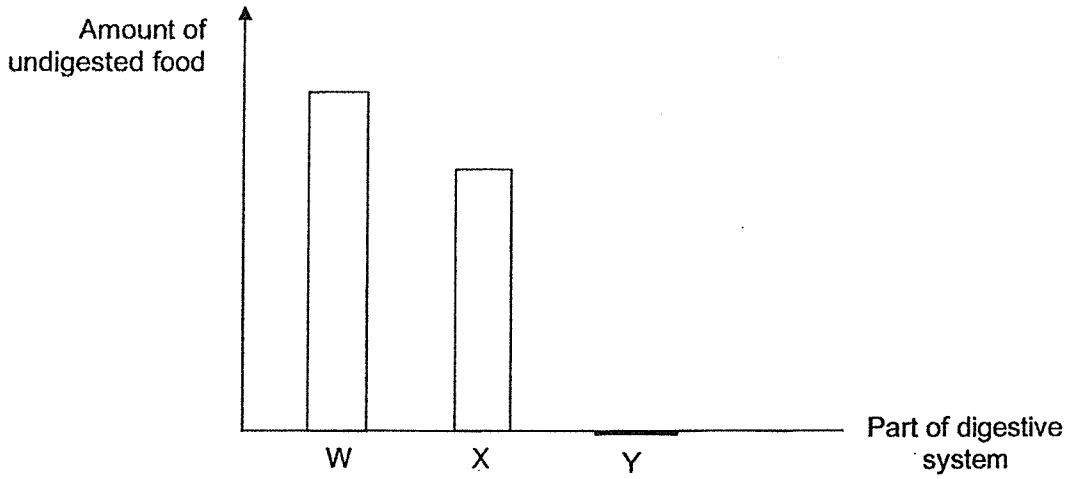
(1) stomach → large intestine → small intestine

(2) large intestine → stomach → small intestine

(3) stomach → small intestine → large intestine

(4) small intestine → large intestine → stomach

9. Gwen had a few slices of bread for breakfast. The graph shows the amount of undigested food in various parts of her digestive system while having her breakfast.



Which parts of the digestive system are W, X, and Y?

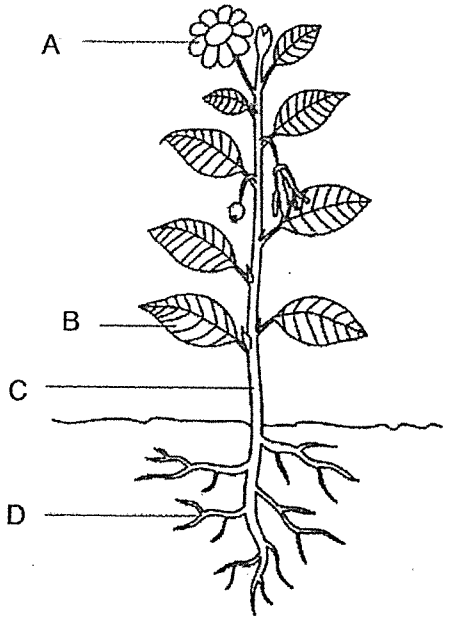
	W	X	Y
(1)	stomach	mouth	large intestine
(2)	mouth	small intestine	stomach
(3)	mouth	stomach	large intestine
(4)	large intestine	mouth	stomach

10. Grace wanted to find out how the amount of digestive juices affects how fast food digests. Which of the following variables should Grace keep constant to ensure a fair test?

A Type of food
B Amount of food
C Amount of digestive juices
D Time taken for the food to be broken down completely

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

11. The diagram shows a plant with parts A, B, C and D.

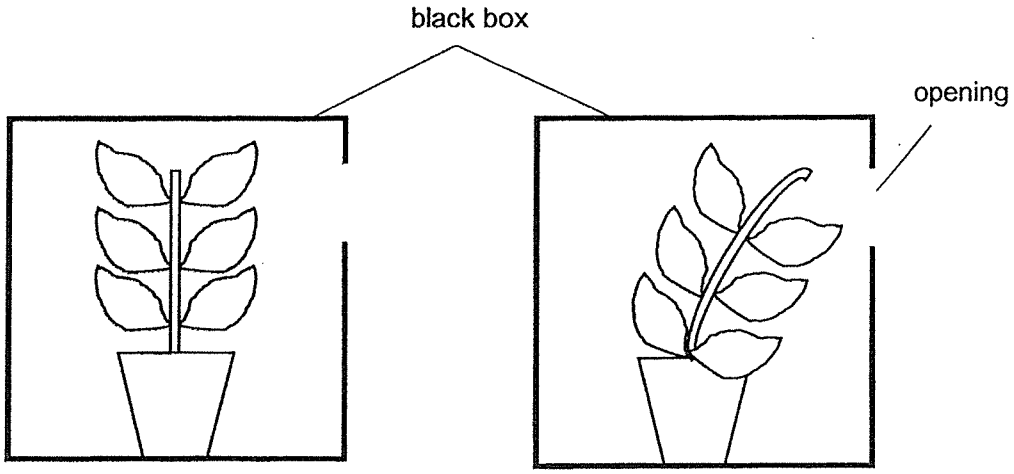


Which of the following statements about the parts are correct?

A Part A will develop into a fruit that contains seeds
B Part B uses sunlight to make food for the plant
C Part C takes in water and mineral salts.
D Part D supports the leaves and stem.

(1) A and B only
(2) C and D only
(3) A, B and D only
(4) All of the above

12. Gideon placed a plant in a black box with an opening and watered it daily. The diagrams show the condition of the plant at the start of the experiment and at the end of one week.



At the start of the experiment

At the end of one week

Which of the following explains the change(s) to the plant?

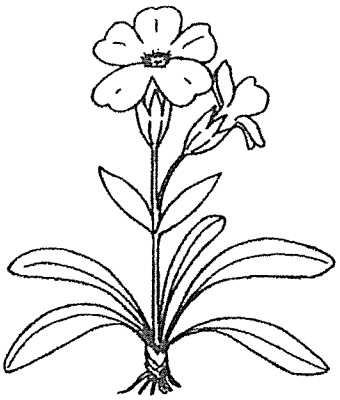
(1) It needs water.

(2) It has a weak stem.

(3) It needs more sunlight.

(4) It was blown by the wind.

13. Observe the plants as shown.



Plant A

Plant B

Based on your observation, which statement is true?

(1) Both are aquatic plants.

(2) Both have similar shaped leaves.

(3) Plant A has a strong stem while Plant B has a weak stem.

(4) Plant A is a non-flowering plant while Plant B is a flowering plant.

14. The table shows the characteristics of three animals X, Y and Z.

Characteristics	X	Y	Z
The adult has wings.	Yes	Yes	Yes
The adult lays its eggs in water.	Yes	No	No
The young resembles the adult.	No	No	Yes

Which animals X, Y and Z are likely to have a four-stage life cycle?

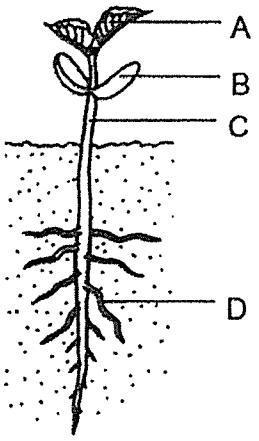
(1) X and Y only

(2) X and Z only

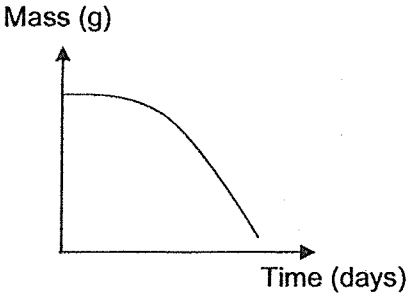
(3) Y and Z only

(4) X, Y and Z

15. The diagram shows a seedling that grew healthily for a few days.



The graph shows the mass of a part of the seedling during its growth.



Which part of the seedling is represented by the graph?

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

16. The table shows how the surrounding temperature affects the life cycle of a mosquito.

Temperature (°C)	Number of days for one complete cycle
12	34
22	22
28	18
32	11

Which is the best temperature to ensure that the mosquitoes cannot breed easily?

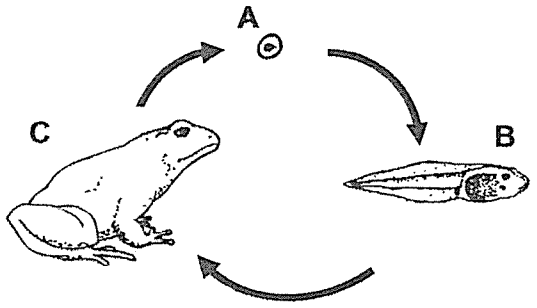
(1) 12°C

(2) 22°C

(3) 28°C

(4) 32°C

17. The diagram shows the life cycle of a frog.



Which of the following descriptions of the stages is **incorrect**?

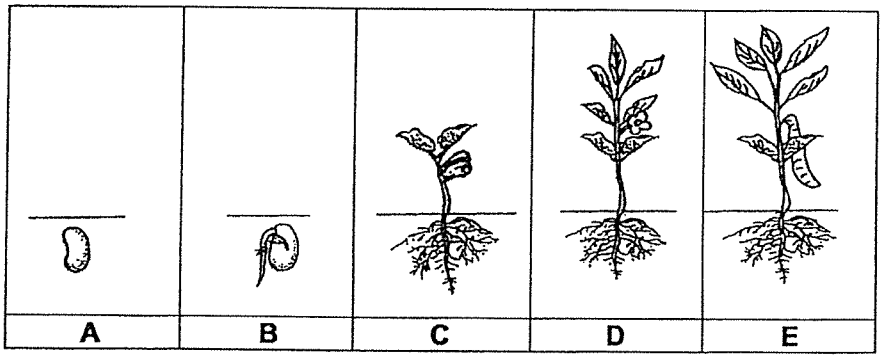
(1) At stage A, it is found on land and in water.

(2) At stage B, it breathes through its gills.

(3) At stage C, it lives both on land and in water.

(4) At stage C, it breathes through its lungs and moist skin.

18. The picture shows the development of a bean seed from A to E.



When is sunlight necessary for it to survive?

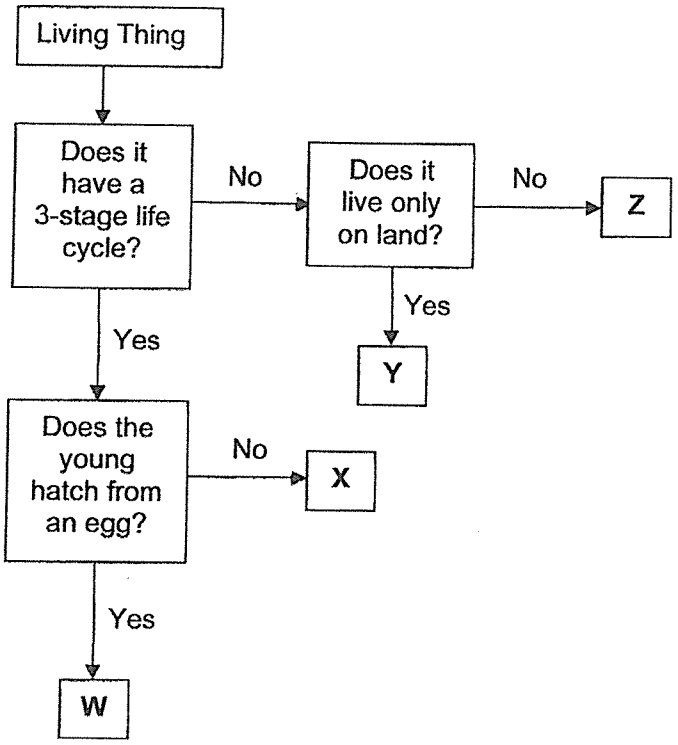
(1) B and E only

(2) A, B and C only

(3) C, D and E only

(4) A, B, C, D and E

19. Study the flow chart.

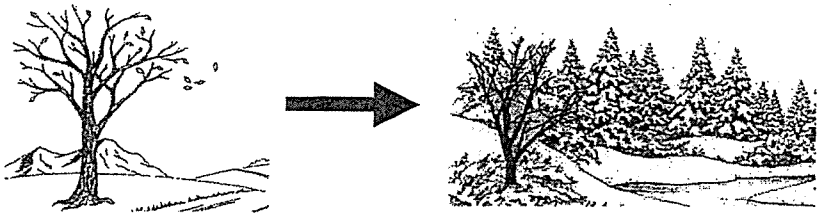


Which of the following could be living thing X and Y?

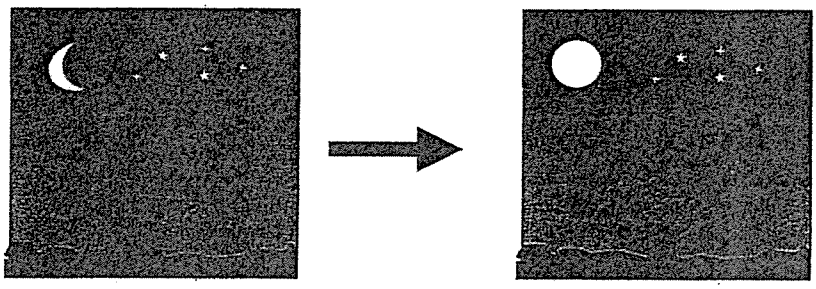
	X	Y
(1)	Grasshopper	Mosquito
(2)	Mosquito	Grasshopper
(3)	Mealworm beetle	Lemon tree
(4)	Lemon tree	Mealworm beetle

20. Which of the following is **not** part of a cycle?

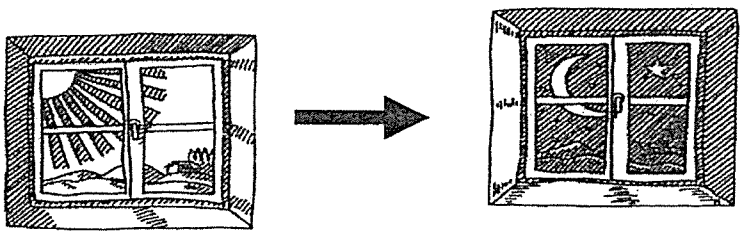
(1) From autumn to winter



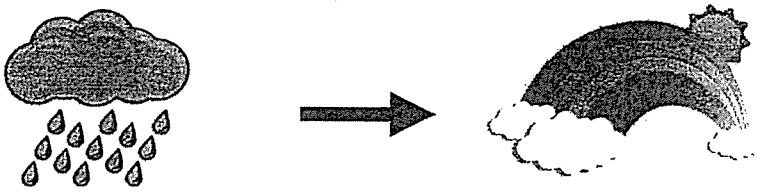
(2) From crescent moon to full moon



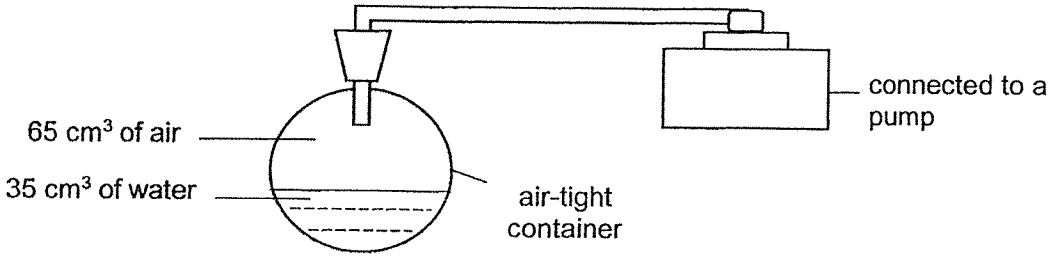
(3) From day time to night time



(4) From rainfall to rainbow



21. Study the set-up. The total volume of the air-tight container is 100 cm^3.



An additional of 20 cm^3 of water and 15 cm^3 of air are added into the container using a pump. What is the final volume of air in the container?

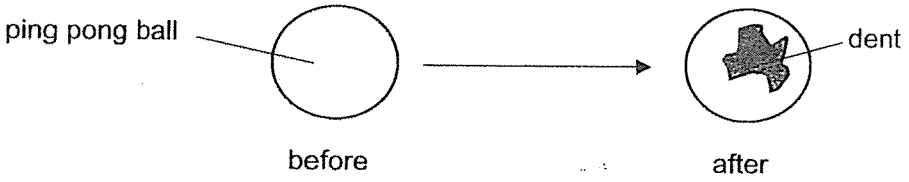
(1) 20 cm^3

(2) 45 cm^3

(3) 65 cm^3

(4) 80 cm^3

22. Tina and her classmate were playing table tennis when she accidentally stepped on the ping pong ball and made a dent as shown.



Which of the following observation is correct?

	Mass of ping pong ball	Volume of air in ping pong ball
(1)	remains the same	Increase
(2)	increases	remains the same
(3)	remains the same	decreases
(4)	decreases	remains the same

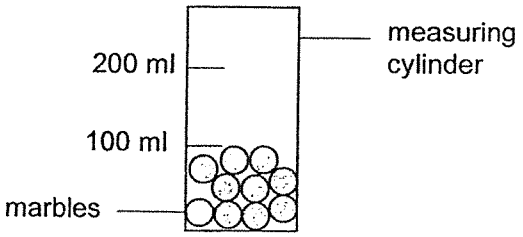
23. The table shows the properties of substances A, B and C. A tick (✓) indicates that the substance has the property.

	Property		
Substance	Has a definite shape	Has a definite volume	Can be compressed
A	✓	✓	
B		✓	
C			✓

Which of the following best represents substances A, B and C?

	A	**B**	**C**
(1)	Stone	Air	Oil
(2)	Oil	Stone	Air
(3)	Stone	Oil	Air
(4)	Air	Oil	Stone

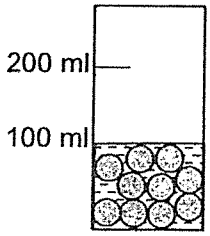
24. Mary filled an empty measuring cylinder up to the 100 ml mark with marbles as shown in the diagram.



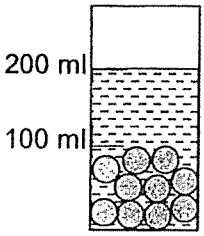
She then poured 100 ml of water into the measuring cylinder containing the marbles.

Which of the following most likely shows the water level in the measuring cylinder?

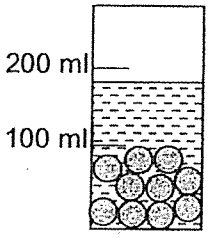
(1)



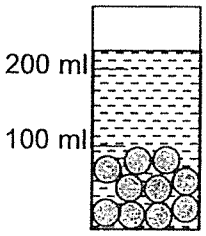
(2)



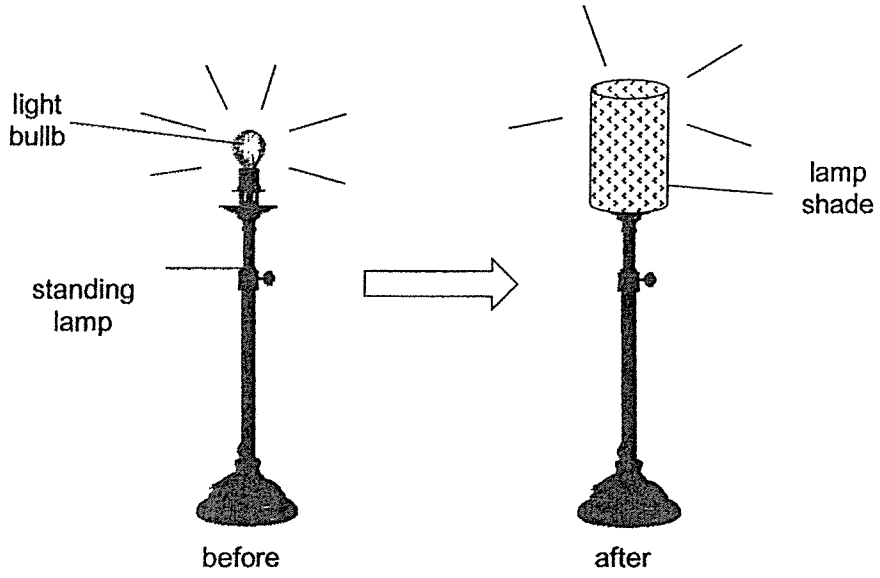
(3)



(4)



25. Mrs Tan walked into a dark room and switched on her standing lamp. Then, she placed a lamp shade on the bulb.



Which of the following explains why the room became less bright after she placed the lamp shade over the light bulb?

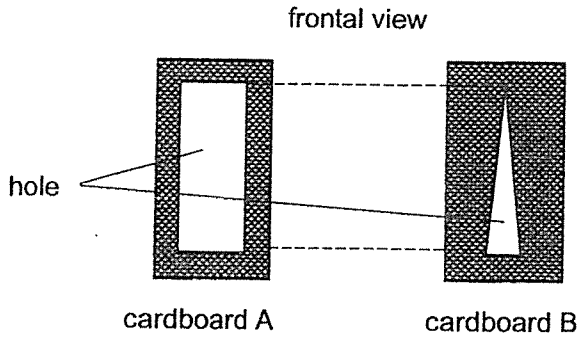
(1) The lamp shade blocks some light from the bulb.

(2) Light from the bulb is reflected to the lamp shade.

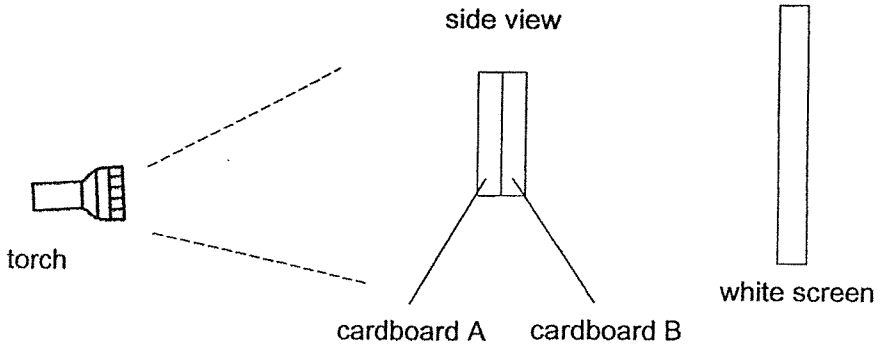
(3) No light is reflected from the bulb into Mrs Tan's eyes.

(4) The shadow of the lamp shade on the floor blocks light.

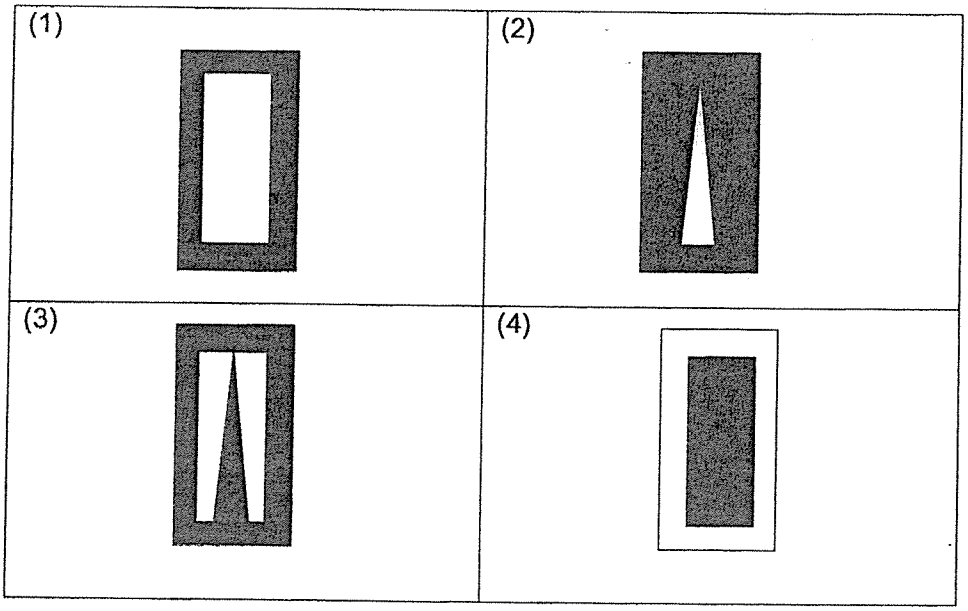
26. Jane wanted to create shadows using two identical cardboards. She cut out a rectangle and a triangle shape from each of the cardboard pieces, leaving behind a hole in the middle as shown.



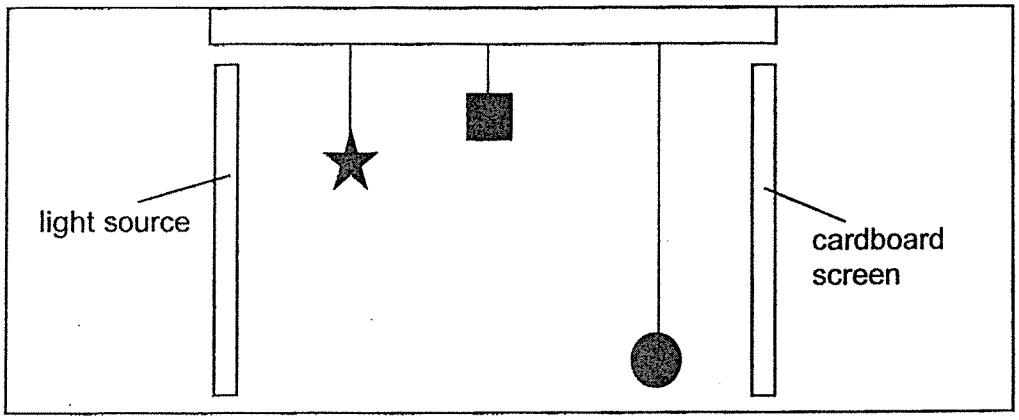
Then, she placed cardboards A and B together in a straight line, between a screen and a lit torchlight.



Which of the following shadows will be formed on the screen?

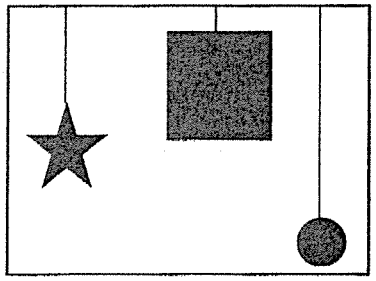


27. Sulin placed three wooden objects in a dark room as shown. All three objects have the same length and breadth and were hung at different heights above the ground.

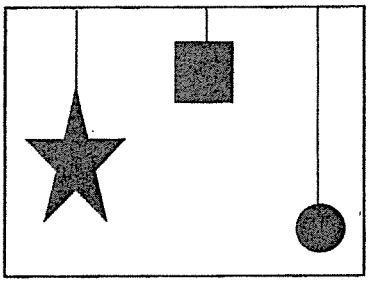


Which of the following shows the correct shadows on the cardboard screen?

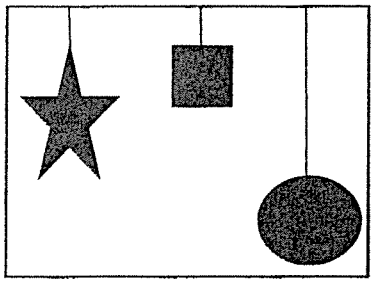
(1)



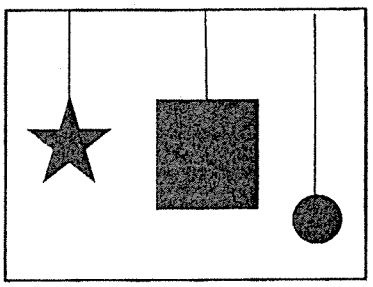
(2)



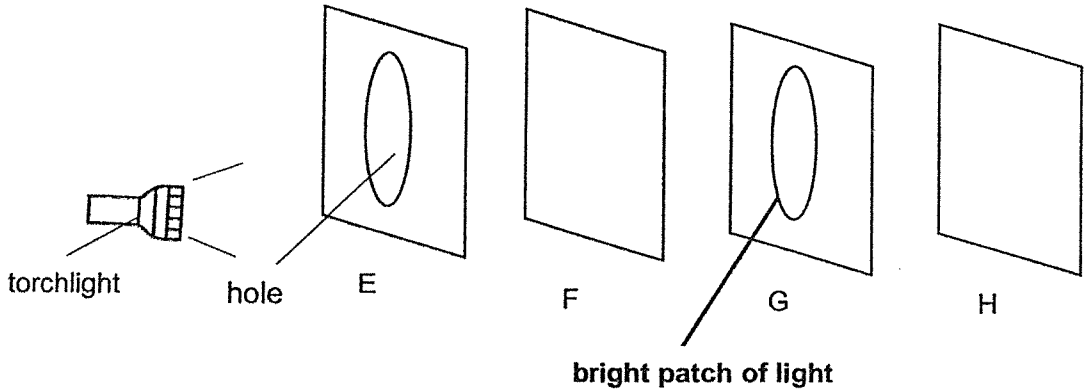
(3)



(4)



28. Cindy set-up the following experiment using four sheets E, F, G and H made of different materials. When the torchlight was switched on, a small bright round patch of light was seen on sheet G only.



Which of the following best describes the properties of the materials, E, F, G, H?

	Does not allow any light to pass through	Allow most light to pass through	Not possible to tell
(1)	G	E and F	H
(2)	E and G	F	H
(3)	F	E	G and H
(4)	E	F	G and H

Anglo-Chinese School (Junior)

SEMESTRAL ASSESSMENT (2022)

PRIMARY 4

SCIENCE

BOOKLET B

Thursday **12 May 2022** **1 hr 45 min**

Name: _____ ( ) Class: 4.( ) Parent's Signature:_____

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4 Answer ALL questions.

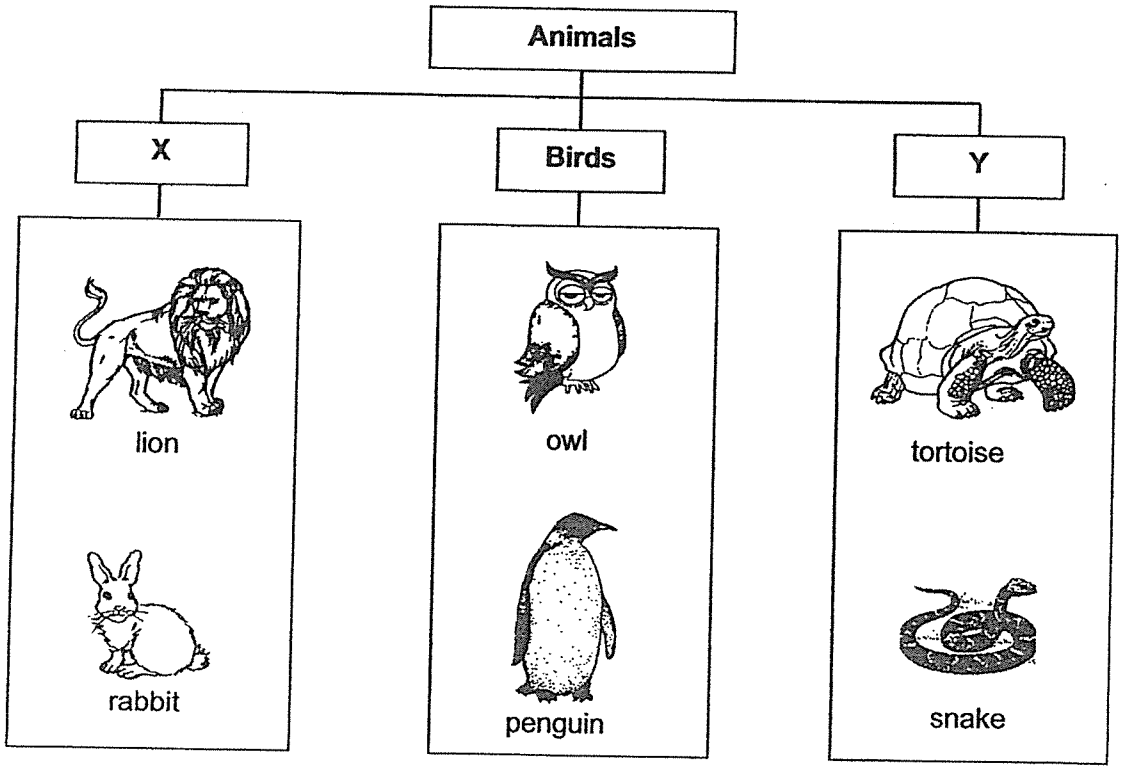
5 The marks are given in the brackets [ ] at the end of each question or part question.

Booklet	Possible Marks	Marks Obtained
A	56	
B	44	
Total	100	

For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in the brackets [ ] at the end of each question or part question.

(44 marks)

29. The diagram shows how some animals are classified into groups.



(a) Give suitable sub-headings for X and Y. [1]

(i) X : _____

(ii) Y : _____

(b) Compare the outer covering of birds and the animals in group Y.

_____

_____

(c) What is similar about the body temperature of birds and the animals in group X? [1]

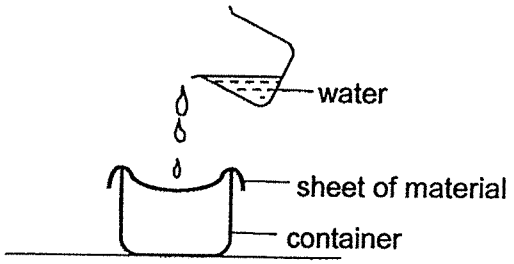
_____

_____

(Go on to the next page)

SCORE	/ 3

30. Teng Hui carried out an experiment using materials P, Q and R. He prepared the set-up shown in the diagram, poured 80 ml of water onto each sheet and measured the amount of water collected in each container after 5 minutes.



He recorded the results in a table.

	Amount of water collected in the container (ml)
Container with material P	5
Container with material Q	0
Container with material R	55

(a) Tick (✓) the variables that must be kept the same to ensure that the experiment is a fair test. [1]

Variable	**Keep the same**
Type of material	
Duration of experiment	
Size of sheet of material	

(b) Based on the results of the experiment, what can Teng Hui conclude about material P and material R? [1]

_____

_____

(c) One of the materials Teng Hui used was aluminium. Which material, P, Q or R was the aluminium? Explain based on the results of the experiment. [1]

_____

_____

(d) Teng Hui said that material R can be used to make into a towel because it is soft, strong and able to soak up water. What is another characteristic that material R must have? [1]

_____

_____

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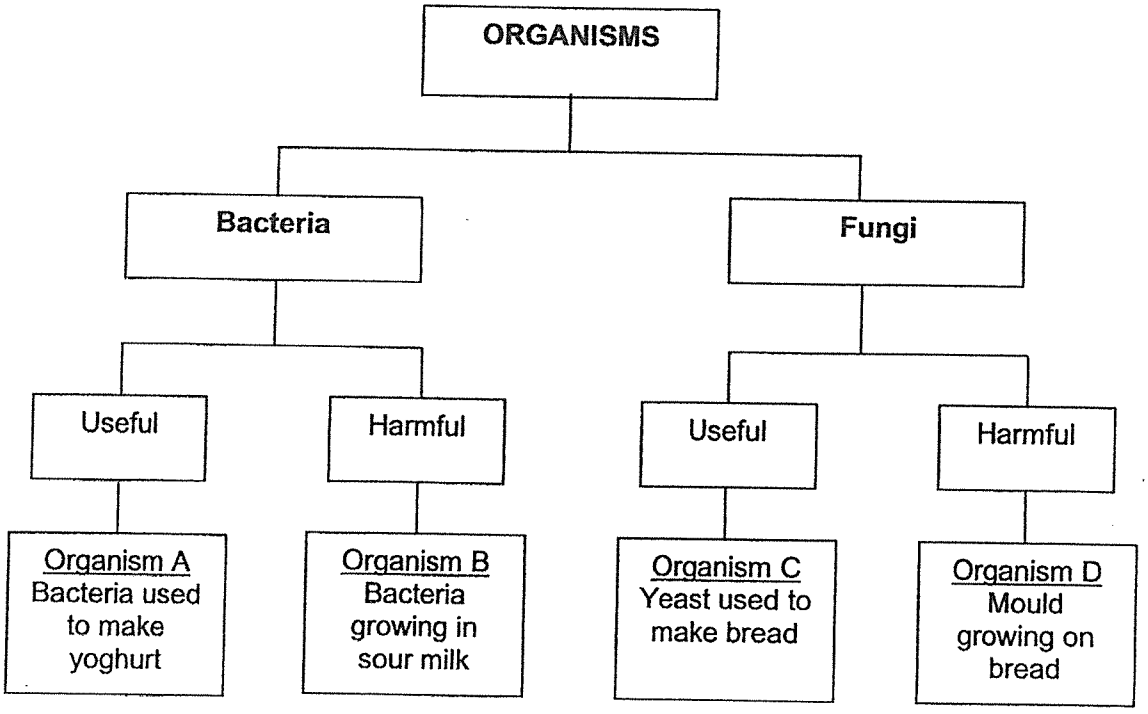
SCORE	/ 4

31. The diagram shows how bacteria, yeast and mould can be classified.



(a) (i) Can organisms A, B, C and D be seen clearly with our naked eye? [½]

_____

(ii) What do we call organisms that cannot be seen clearly with the naked eye? [½]

_____

(b) Based on the diagram, in what way is organism B similar to organism D. [1]

_____

(c) Give another example of how fungi can be useful. [1]

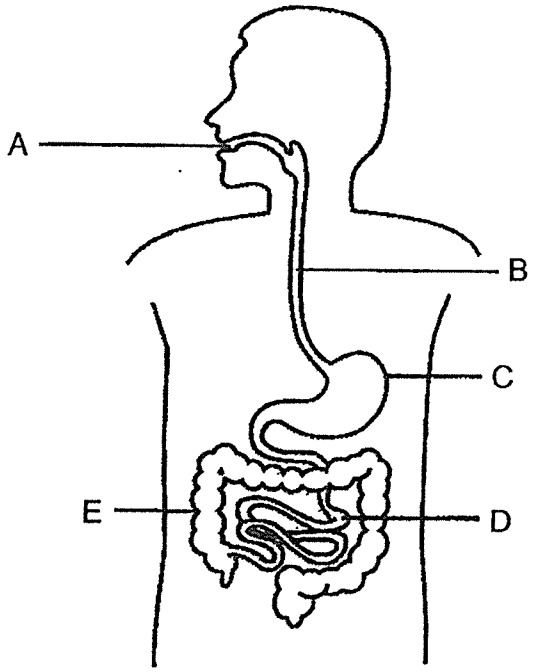
_____

_____

(Go on to the next page)

SCORE	/ 3

32. The diagram shows the human digestive system.



(a) Where, A, B, C, D and/or E, are digestive juices produced? [1]

_____

(b) What happens to the partially digested food at Part C? [1]

_____

_____

(c) At which part(s) of this human system, A, B, C, D and/or E is water removed from the undigested food? Name the part. [1]

_____

_____

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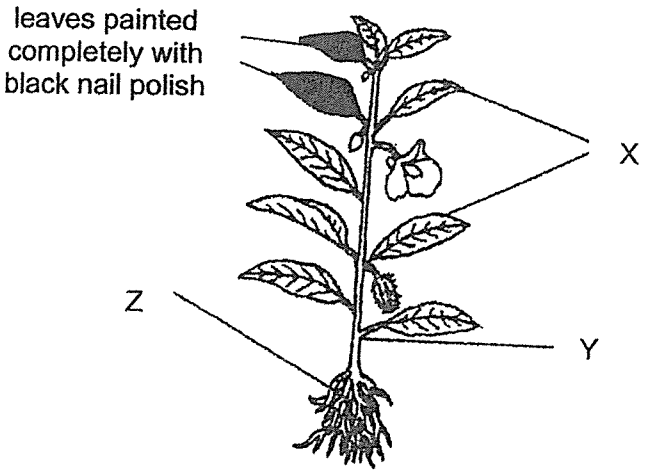
SCORE	/ 3

33. The diagram shows a balsam plant.



(a) What is the function of part Z? [1]

_____

(b) Gerald decides to conduct an experiment on the balsam plant. He paints two of its leaves completely with black nail polish.

What will happen to these two leaves after a week? Explain why. [2]

_____

_____

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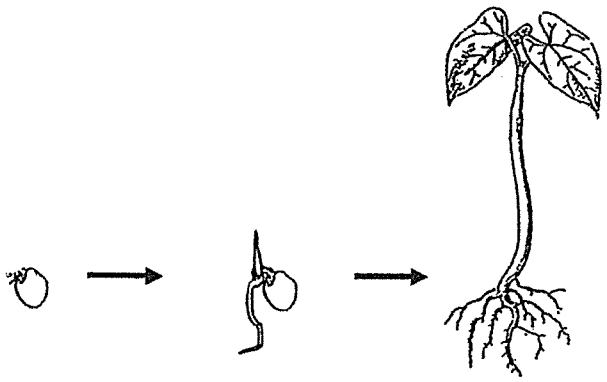
SCORE ___/3

34. The diagram shows the development of a seed to a young plant.



(a) In the diagram, label the part that provides food for the seed to germinate. [1]

(b) Name the part that grows first when the seed germinates. [½]

_____

(c) Name the next stage in the development of the seed shown above. [½]

_____

(d) In what way is the stage mentioned in (c) different from the young plant? (Do not mention about the leaves, stem, branches or roots.) [1]

_____

_____

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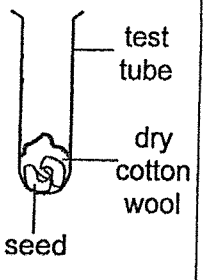
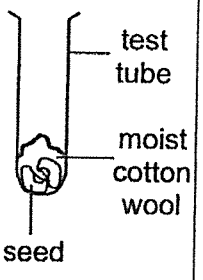
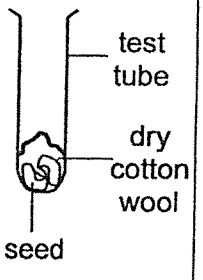
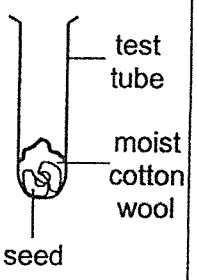
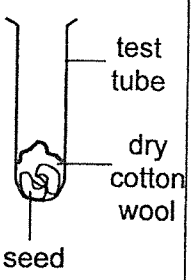
SCORE	/ 3

35. Charlie prepared the following set-ups using similar green bean seeds.

Set-up				
A	**B**	**C**	**D**	**E**
				
Placed next to a window	Placed next to a window	Placed inside a dark cupboard	Placed inside a shoe box	Placed in the refrigerator

(a) In which set-ups would the seeds be able to grow into young plants? [1]

_____

(b) Compare set-ups C and D. What changes must Charlie make to set-ups C and D if he wants to find out if warmth is needed for a seed to grow into a young plant. (Write one change for each set-up.) [2]

Set-up C : _____

Set-up D : _____

(c) Charlie uses set-ups A and B for another experiment. What is the aim of his experiment? [1]

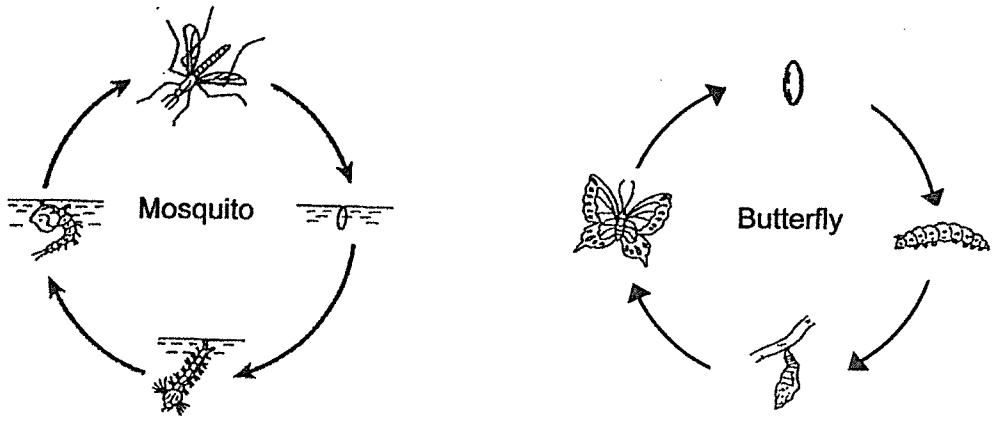
_____

_____

(Go on to the next page)

SCORE	
	4

36. The diagrams show the life cycles of a mosquito and a butterfly.



(a) Compare the larva stage of the mosquito and the butterfly. State one similarity and one difference. [2]

Similarity : _____

_____

Difference : _____

_____

(b) In the diagrams, circle the stage of each animal when it is a pest or cause diseases. [1]

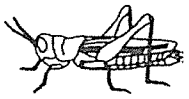
(c) Name another example of an animal with a similar life cycle as the butterfly. [1]

_____

(Go on to the next page)

SCORE	
	4

37. Terry collected and recorded some information on the life cycles of Animals P, Q and R in the table.

	 Animal P	 Animal Q	 Animal R
Number of eggs laid by the female adult each time	1	1200	150
Number of days taken for the egg(s) to hatch	21	14	30
Number of weeks spent as a young	16	12	6

(a) Which animal, P, Q or R takes the shortest time to become an adult after the egg has hatched? [½]

_____

(b) Which animals, P, Q and/or R, have a 3-stage life cycle which takes place completely on land?. [1]

_____

(c) (i) Which animal P, Q or R lays the most eggs each time? [½]

_____

(ii) Explain why some animals lay many eggs each time. [1]

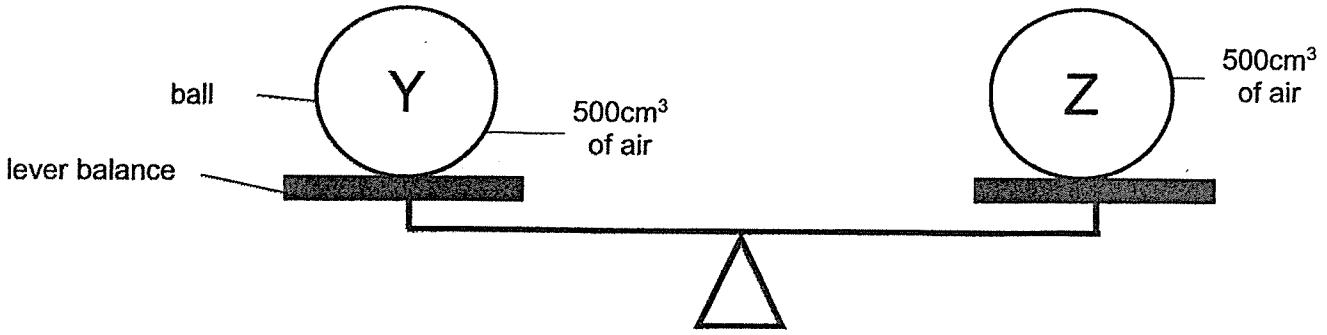
_____

_____

(Go on to the next page)

SCORE	/ 3

38. Gina conducted an experiment using two identical rubber balls, Y and Z, each with a volume of 500cm^3. She placed them on a lever balance as shown.



(a) Gina pumped in another 300cm^3 of air into ball Z. She then placed ball Z onto the same lever balance again.

What would the volume of air in ball Z be after she had pumped in another 300cm^3 of air? Give a reason. [1]

_____

_____

(b) What will happen to the lever balance when the air from ball Z is let out? [1]

_____

_____

(c) What does your answer in (b) show about air? [1]

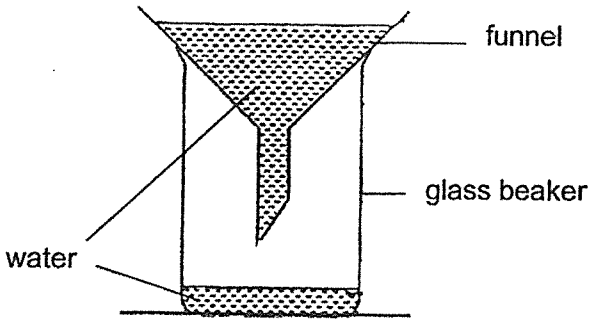
_____

_____

(Go on to the next page)

SCORE	/ 3

39. Gregory placed a funnel on a glass beaker and poured some water into it.



Set-up

He realized that the water flowed very slowly from the funnel into the glass beaker.

(a) Without changing the apparatus or adding anything to the set-up, what can Gregory do, to allow the water in the funnel to flow into the glass beaker faster? [1]

_____

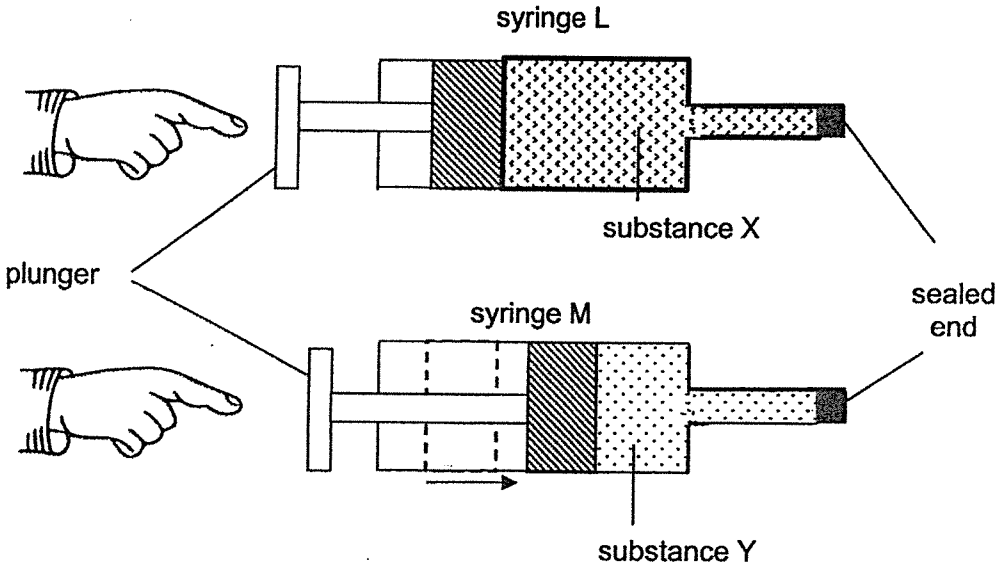
_____

(b) Explain your answer in (a). [2]

_____

_____

(c) Gregory filled two syringes, L and M, with two different substances and sealed the end of each syringe. When he pushed both plungers, only syringe M could be pushed in.



What is most likely to be the state of matter of substances X and Y? [1]

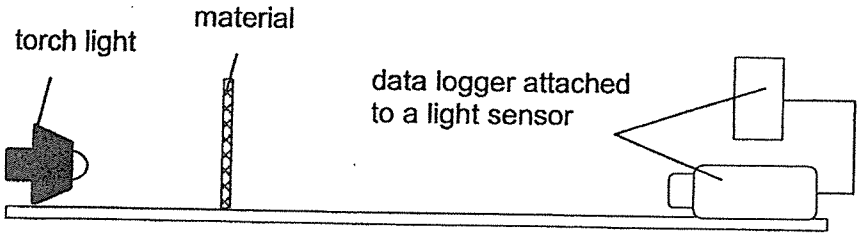
Substance X : _____

Substance Y : _____

(Go on to the next page)

SCORE	/ 4

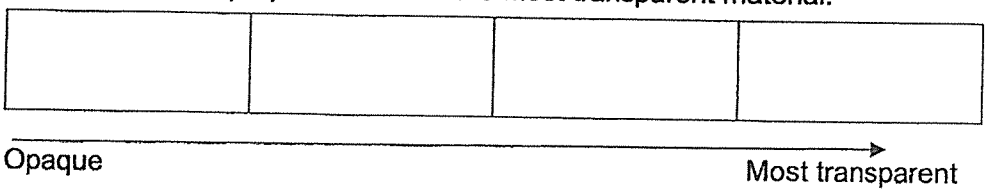
40. Simon wanted to find out the degree of transparency of materials W, X, Y and Z. He prepared the set-up and placed each material in between the torch light and the light sensor as shown.



He recorded the amount of light detected by the light sensor in the table.

Material	Amount of light detected by the light sensor (unit)
W	250
X	800
Y	0
Z	1000

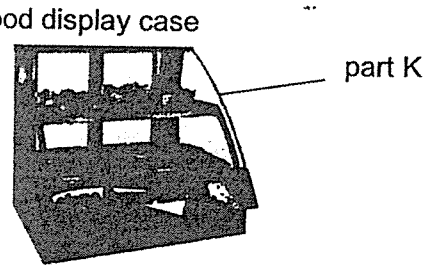
(a) Arrange the materials W, X, Y and Z, in order of their degree of transparency, starting with the opaque material to the most transparent material. [1]



(b) What will happen to the amount of light detected by the light sensor for each material if the torch light was moved further away from the materials? [1]

_____

(c) Simon's dad is a hawker at a food centre. He displayed his cooked dishes in a heated food display case as shown so that his customers are able to see the food they would like to order.



Based on Simon's results in the table, which material, W, X, Y or Z is most suitable for making part K of the food display case? Explain your answer. [1]

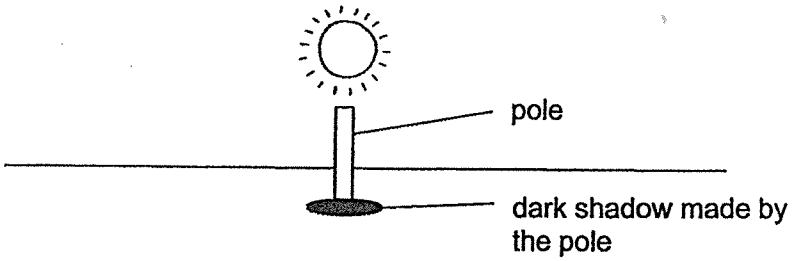
_____

_____

(Go on to the next page)

SCORE	/ 3

41. Joanne wanted to find out how the length of the shadow of a pole changes at different times of the day. She placed a pole in her open school field on a clear sunny day.



She measured and recorded the length of the dark shadow of the pole on the ground every hour in the table.

Time of the day	10am	11am	12noon	1pm	2pm	3pm
Length of the dark shadow (cm)	16	8	?	6	11	17

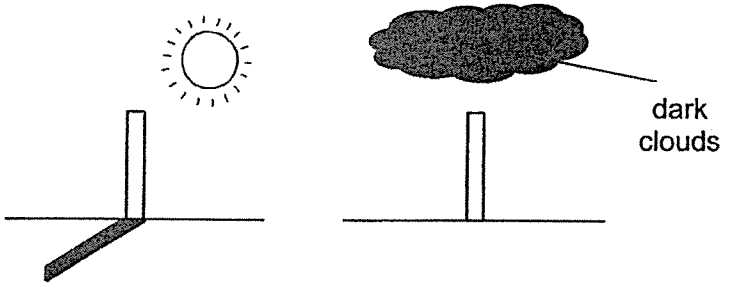
(a) What could be the length of the dark shadow cast by the pole at 12 noon? [1]

_____

(b) What is the property of the pole that enables Joanne to obtain the results? [1]

_____

(c) Joanne noticed that when a huge, dark and thick cloud passed by the school field, the shadow of the pole on the ground disappeared.



Explain why the shadow of the pole disappeared. [2]

_____

_____

End of Paper

SCORE	
	4

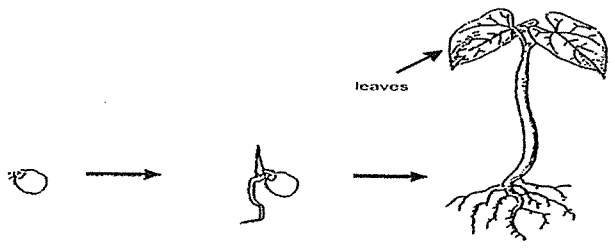
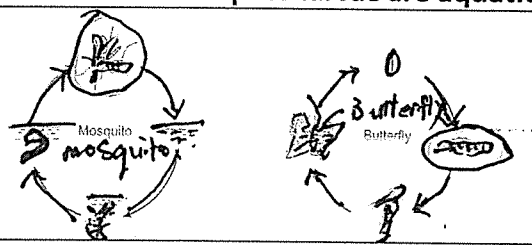
YEAR : 2022
LEVEL : PRIMARY 4
SCHOOL : ANGLO-CHINESE SCHOOL (JUNIOR)
SUBJECT : SCIENCE
TERM : SEMESTRAL ASSESSMENT

(BOOKLET A)

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

(BOOKLET B)

Q29	a)	(i) X : mammals (ii) Y : reptiles
	b)	Birds have feathers as their outer covering but reptiles have scales as their outer covering.
	c)	They are both warm
Q30	a)	Duration of experiment Size of sheet of material
	b)	Material P and R are both not waterproof.
	c)	Q. It is because aluminium is a metal that does not allow water to pass through and Q has 0 water collected.
	d)	Material R must be flexible.
Q31	a)	(i) No (ii) Microorganism
	b)	Organism B and D are both harmful.
	c)	Fungi can be used to make food.
Q32	a)	A, C and D
	b)	The partially digested food will be mixed with digestive juices.
	c)	E. The large intestine
Q33	a)	Part Z absorbs water and mineral salts.
	b)	Those two leaves will wither and die. It is because the two leaves cannot make food for itself.

Q34	a)	
	b)	roots
	c)	adult
	d)	The adult plant grows fruits and flower but the young plant does not grow fruits and flower.
Q35	a)	B and D
	b)	Set-up C : replace moist cotton wool Set-up D : Place in the refrigerator
	d)	Charlie wants to find out if seeds need water to grow into a young plant.
Q36	a)	Similarity : They both have a worm look alike Difference : Mosquito larvae are aquatic but butterfly larvae is on land
	b)	
	c)	mealworm beetle
Q37	a)	R
	b)	P and R
	c)	(i) Q (ii) It is because even if some predators eat some of the eggs, there will spill some eggs which hatch.
Q38	a)	500cm^3. Solid has a definite volume
	b)	Ball Y will go up and ball Z would go down.
	c)	Air has mass

Q39	a)	lift the funnel upwards.
	b)	When you lift the funnel upwards it will allow the air in the beaker into escape to the funnel making the water flow faster.
	c)	Substance X: Liquid Substance Y : Gas
Q40	a)	Y , W, X, Z
	b)	The amount of light detected would be lesser.
	c)	Z. It is because people will need It is because people will need to see the food for Part K and the light also can heat the food.
Q41	a)	4 cm
	b)	It is opaque
	c)	The dark clouds blocked the sun causing the shadow to disappear because if there is no light, there is no shadow.