

Semestral Assessment 1

Primary Four

2016

SCIENCE
(Booklet A)

Name: _____ ()

Class: Primary 4 _____

Date: 10 May 2016

Parent's Signature: _____

56 Marks

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

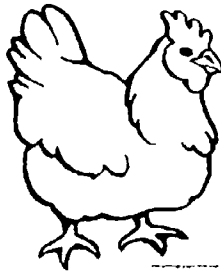
INSTRUCTIONS TO CANDIDATES

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

For questions 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 on the Optical Answer Sheet (OAS).

(56m)

1. Study the three animals shown below carefully.



chicken



frog



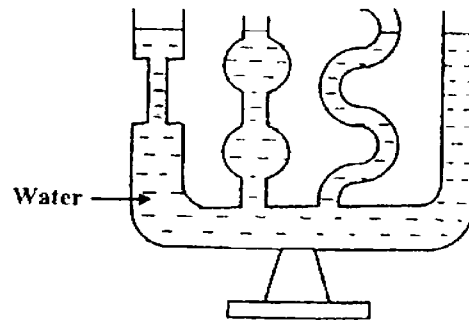
cockroach

Which of the following statements about the life cycles of the animals above is/are true?

- A: They lay eggs.
- B: Their young have wings.
- C: They have a 4-stage life cycle.
- D: Their young do not resemble the adult.

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

2. Ella poured some water into a container as shown below.



From her observation, what can she conclude about the property of liquid?

- (1) Liquid has mass.
- (2) Liquid has no fixed shape.
- (3) Liquid cannot be compressed
- (4) Liquid does not have a fixed volume.

3. Which one of the following is/are true about water and a stone?

- A: They have mass.
- B: They take up space.
- C: They have a fixed shape.
- D: They have a fixed volume.

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

4. The following set-ups show the observations when Object P and Object Q are placed into a measuring cylinder containing 100ml of water.



Set-up A



Set-up B



Set-up C



Set-up D

Which of the following statements is/are true of the experiment?

- A: Object Q sinks in water.
- B: Object P floats in water.
- C: The set-ups cannot be used to find the volume of Object P.
- D: The set-ups can be used to find the volume of Object P and Q.

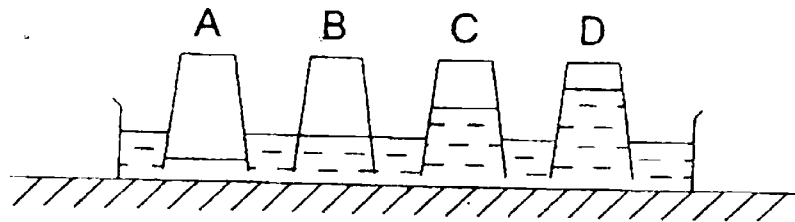
- (1) A and B only.
- (2) C and D only.
- (3) A, B and D only.
- (4) B, C and D only.

5. Which part of the digestive system can digestive juices be produced?

- A: gullet
- B: stomach
- C: small intestine
- D: large intestine

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

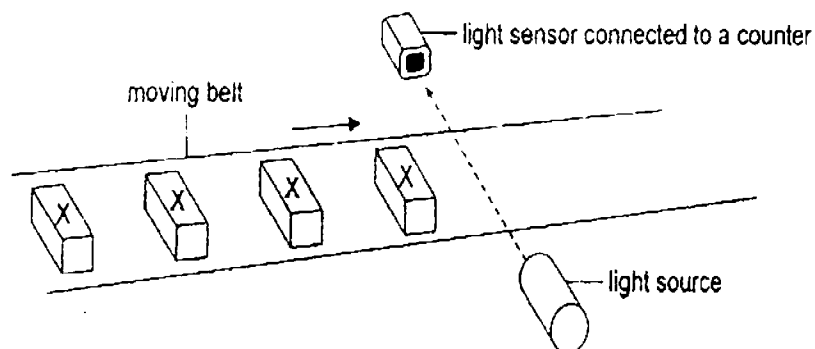
6. 4 similar glasses were inverted and pushed into a basin of water.



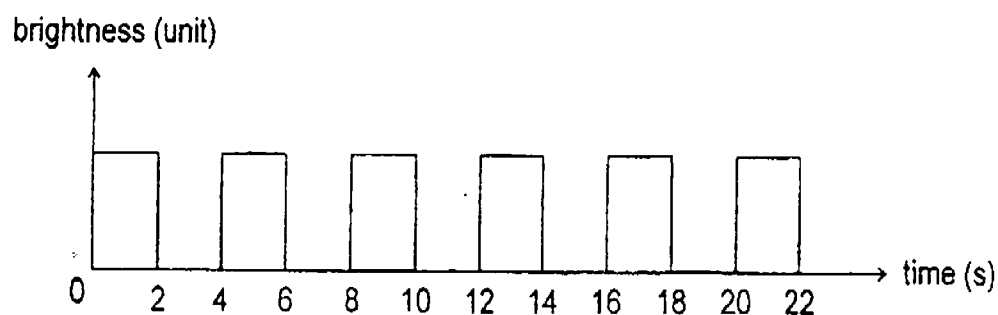
Which glass shows the correct water level in it?

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

7. At a factory, a light sensor is used to count the number of object X on a moving belt.



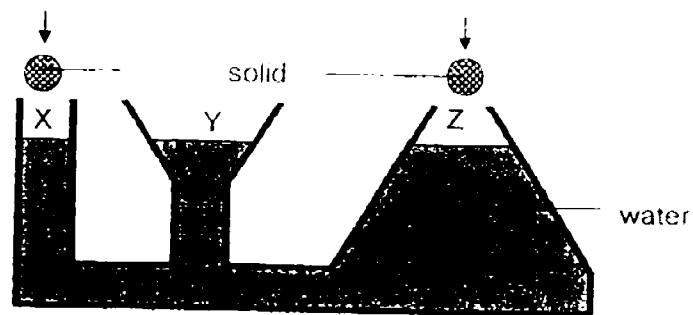
When object X moves between the light source and the sensor, it blocks the light from reaching the sensor. The data recorded over a short period is shown in the graph below.



Based on the above graph, how many object X passed the sensor within a period of 22 seconds?

- (1) 5
- (2) 6
- (3) 11
- (4) 22

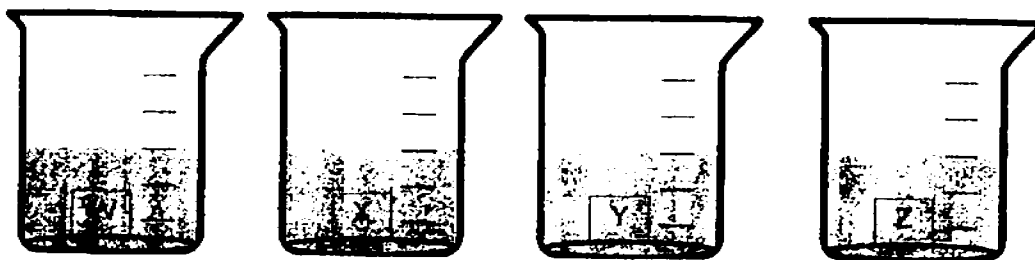
8. A container with 3 openings labelled X, Y and Z is shown in the diagram below



Two solids are dropped slowly into the container as shown. What will happen to the water level at X, Y and Z?

	X	Y	Z
(1)	Increase	Decrease	Increase
(2)	Increase	Remain the same	Increase
(3)	Increase	Increase	Increase
(4)	Remain the same	Increase	Remain the same

9. Li Xuan recorded the mass of individual materials, W, X, Y and Z of similar sizes. Then, she put each of them into 4 beakers containing equal amounts of water as shown below.



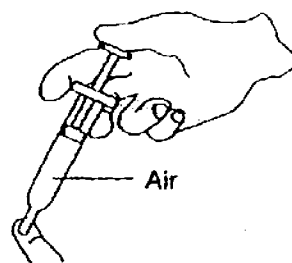
She measured the mass of each material again after 15 minutes and recorded the masses in the table below.

Material	Mass at the beginning (g)	Mass after 15 minute (g)
W	7	14
X	5	14
Y	13	15
Z	10	12

Based on the table above, which material is the most absorbent?

- (1) W
- (2) X
- (3) Y
- (4) Z

10. Study the diagram below carefully.



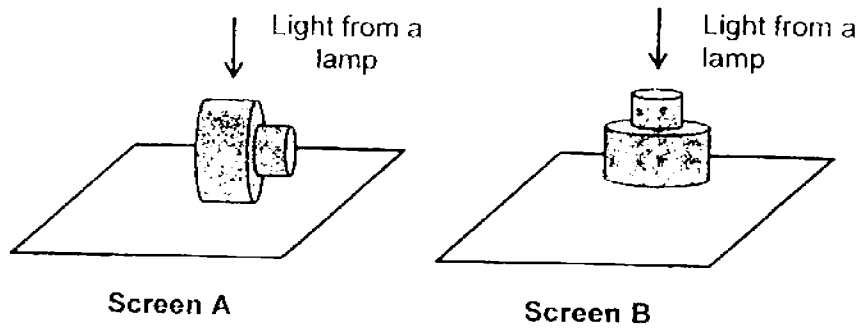
What will happen to the volume and mass of the air inside the syringe when the plunger is pushed in?

	Mass	Volume
(1)	remains unchanged	remains unchanged
(2)	remains unchanged	decrease
(3)	decrease	decrease
(4)	increase	decrease

11. Which of the following organs is not part of the digestive system?

- (1) Gullet
- (2) Heart
- (3) Stomach
- (4) Large intestine

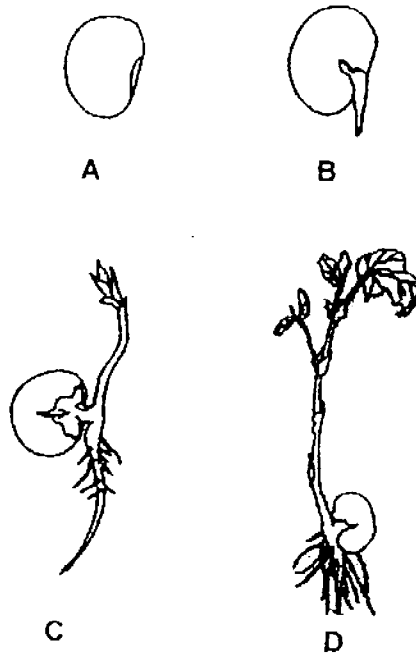
12. Hamid investigated the shapes of shadows formed by two identical wooden objects. He placed them in two different positions under two identical light sources.



Which one of the following shadows would be observed on each screen?

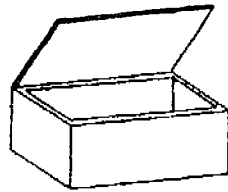
	Screen A	Screen B
(1)		
(2)		
(3)		
(4)		

13. Which of the following shows the correct sequence of the stages in a plant's life cycle?

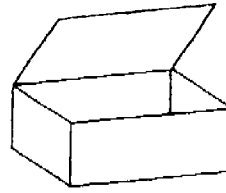


- (1) $C \rightarrow D \rightarrow A \rightarrow B$
- (2) $D \rightarrow C \rightarrow B \rightarrow A$
- (3) $A \rightarrow C \rightarrow B \rightarrow D$
- (4) $B \rightarrow A \rightarrow C \rightarrow D$

14. Box A and box B are made of cardboard of different thickness. Ethel used box A to send a heavy parcel.



Box A



Box B

Which of the following is the best reason for Ethel to use box A?

- (1) Box A is bigger.
- (2) Box A is stronger.
- (3) Box A is heavier.
- (4) Box A is more flexible.

15. Bryan was standing behind a wall in a brightly lit room and he could not see the cat.



Bryan

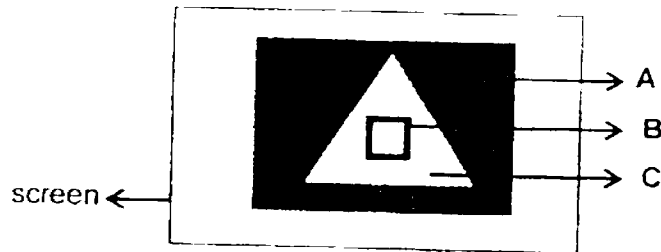


cat

Which one of the following explains why Bryan could not see the cat?

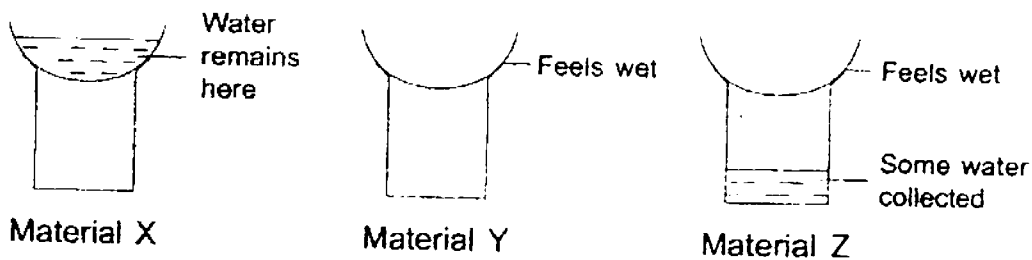
- (1) The cat is a living thing.
- (2) The cat is not a light source.
- (3) The wall did not allow light to pass through.
- (4) The cat did not allow light to pass through.

16. Gwyneth carried out an experiment to observe the shadow of an object. The diagram below shows the shadow cast on a screen.



Based on the shadow observed above, what conclusion could be drawn?

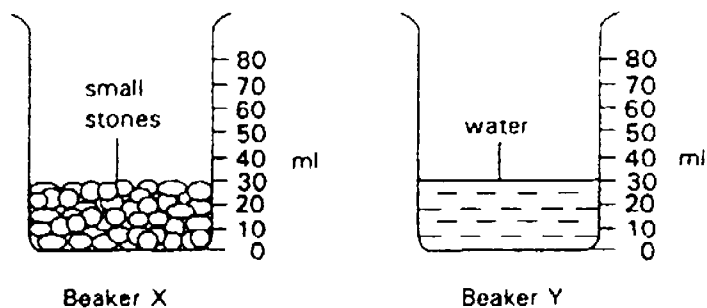
- (1) Part A allowed most light to pass through.
 - (2) The whole object is made of opaque materials.
 - (3) Part C and part B are made of the same material.
 - (4) The object is made of at least two different materials.
17. Aloysius sets up an experiment to find out which of the three materials absorbs the most amount of water. He pours equal amount of water on each material and the diagrams below show what happened after an hour.



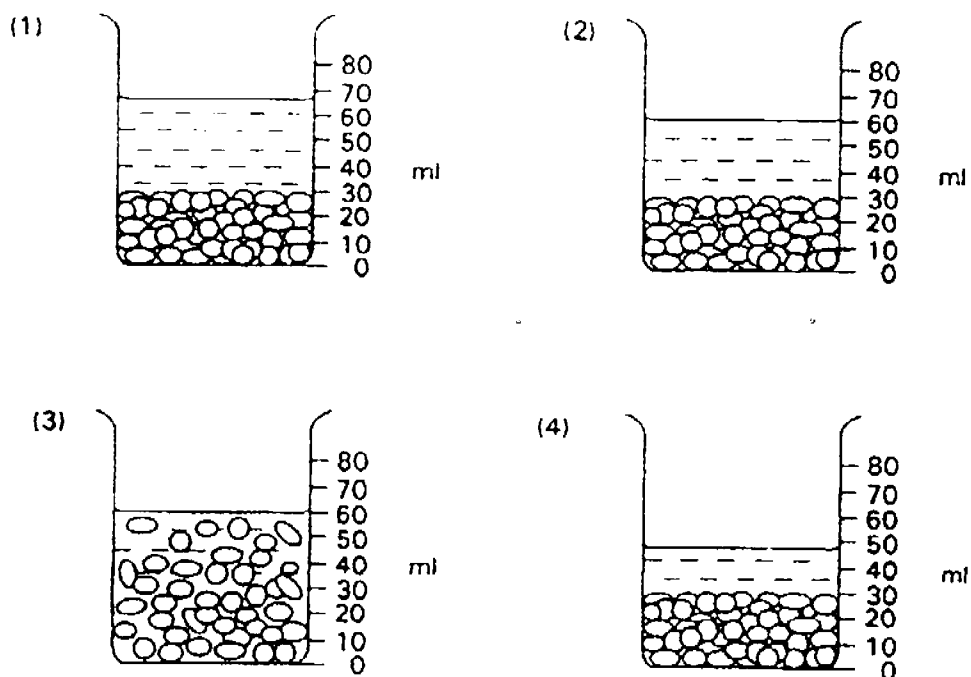
Which material(s) would he choose for making a raincoat?

- (1) X only.
- (2) Y only.
- (3) Z only.
- (4) Y and Z only.

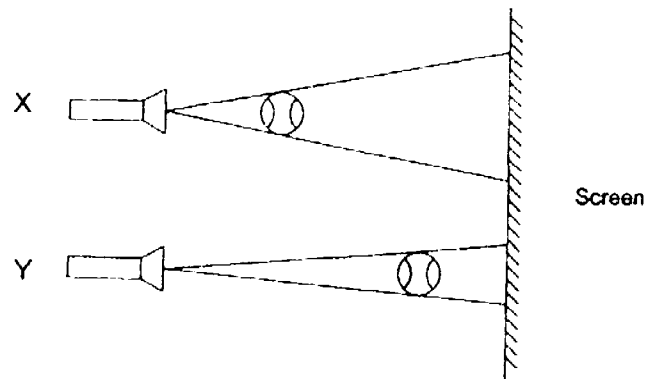
18. The diagram shows two beakers X and Y. Beaker X contains small stones and Beaker Y contains 30ml of water.



The water in Beaker Y is then poured into Beaker X. Which drawing shows Beaker X after the water from beaker Y has been poured into it?



19. Study the diagrams below carefully.



Which of the following best describes the shadows cast on the screen?

- (1) X will cast a bigger shadow.
- (2) Y will cast a bigger shadow.
- (3) No shadow will be cast on the screen.
- (4) The size of the shadows cast will be the same.

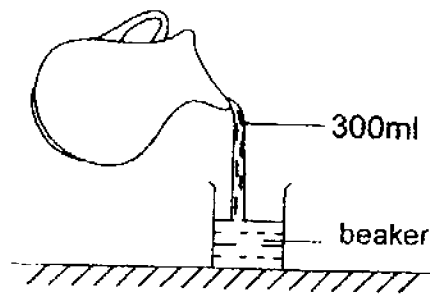
20. The table below shows some materials classified under three different groups.

Group A	Group B	Group C
rubber	leather	steel
cotton	silk	iron
	X	

Which of the following could X be?

- (1) Wood
- (2) Paper
- (3) Wool
- (4) Plastic

21. Shayna poured 300ml of water from a jug into a beaker with some water. The capacity of the beaker is 200ml.

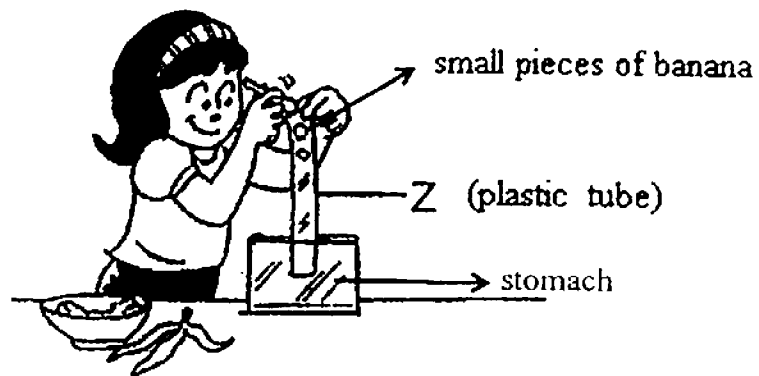


Shayna made the following statements based on her observations. Which statement(s) is/are correct?

- A: Water can be compressed.
- B: Water in the beaker will overflow.
- C: Water does not have a fixed shape.

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

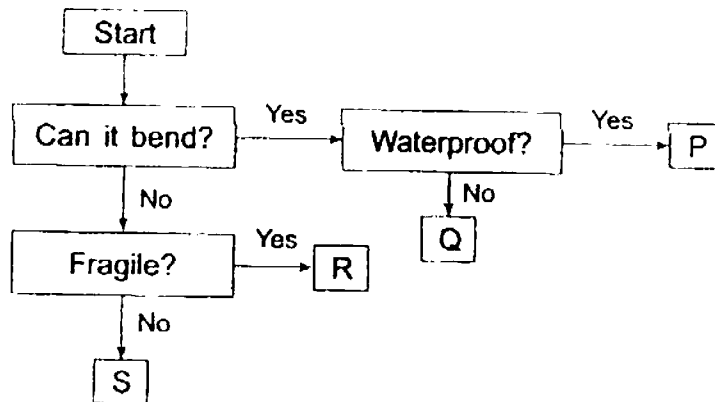
22. Emilie set up the following to simulate part of the digestive system.



She used a plastic tube to represent part Z of the digestive system.
What does Z represent?

- (1) gullet
- (2) windpipe
- (3) large intestine
- (4) small intestine

23. Study the flow chart below carefully.



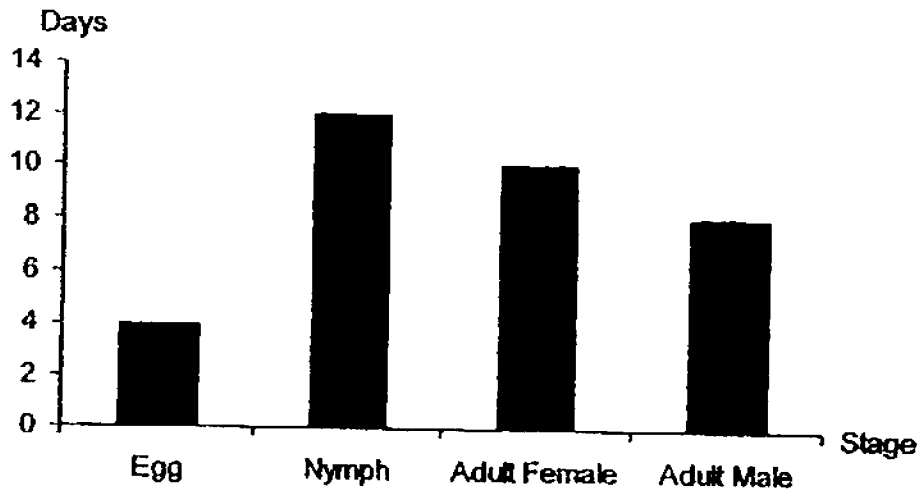
Jessie packed one of the objects in the flow chart into a box labelled "handle with care". Which object, P, Q, R and S, is it likely to be?

- (1) P
- (2) Q
- (3) R
- (4) S

24. Which of the following statements about fungi is not true?

- (1) Mushroom is a fungi.
- (2) Fungi reproduce by spores.
- (3) Fungi can make its own food.
- (4) Some fungi feed on dead organisms.

25. The graph below shows the number of days of each stage in the life cycle of insect X.



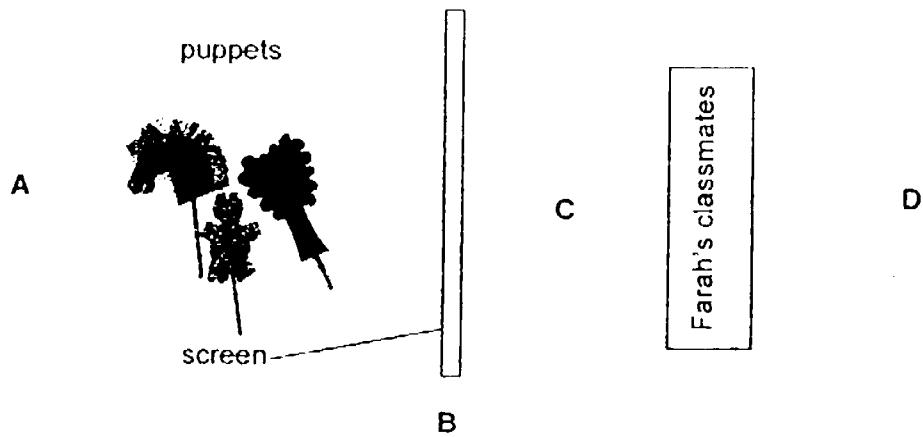
Based on the graph above, which of the following statements about insect X is correct?

- (1) Insect X has 4 stages in its life cycle.
- (2) Insect X is likely to be a mealworm beetle.
- (3) After the egg is laid, it takes 16 days to become an adult.
- (4) The adult male has a longer life span than the adult female.

26. Which of the following sentence is true about light?

- (1) Light is a matter.
- (2) Light has fixed shape.
- (3) Most light passes through opaque materials.
- (4) Some light passes through translucent materials.

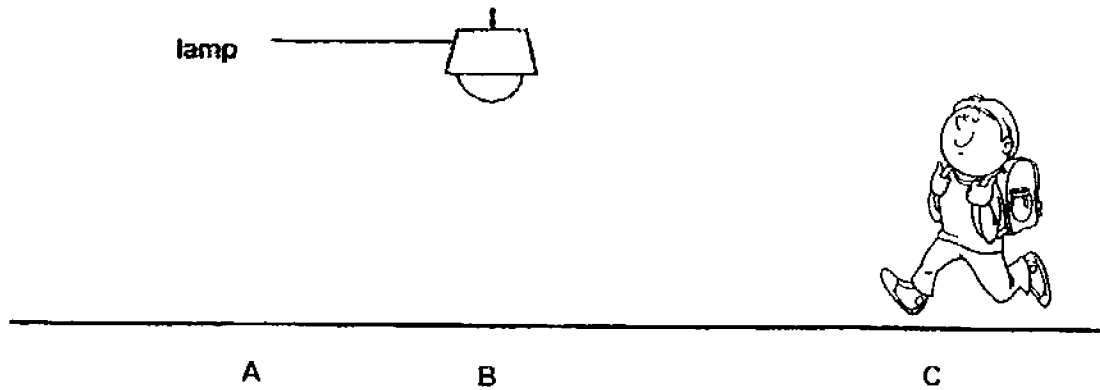
27. Farah and her friends wanted to put up a shadow puppet performance for their classmates. Their classmates should only see the shadows of the puppets on the screen and not the actual puppets.



At which position, A, B, C or D, should Farah and her friends place a light source so that their classmates are able to see the shadows on the screen?

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

28. Keith is walking from point C to point A.



Which of the following shows the correct order of the lengths of Keith's shadow?

	Longest	←→	Shortest
(1)	A	B	C
(2)	C	A	B
(3)	B	A	C
(4)	C	B	A

End of booklet A

Semestral Assessment 1

Primary Four

2016

**SCIENCE
(Booklet B)**

Name: _____ ()

Class: Primary 4 _____

Date: 10 May 2016

Parent's Signature: _____

44 Marks

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

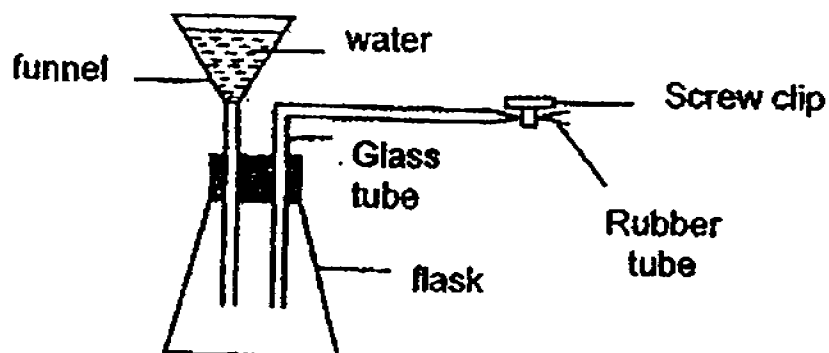
INSTRUCTIONS TO CANDIDATES

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write your answers in this booklet.

Paper	Marks	Scores
Booklet A	56	
Booklet B	44	
Total	100	

Write the answers to questions 29 to 41 in this booklet.
The number of marks allocated is shown in the brackets [] at the end of
each question.
(44 marks)

29. Farid set up an experiment as shown below.



- a. Explain why the water in the funnel did not flow into the flask. [1]

- b. What do you think Farid will observe when he removed the screw clip? [1]

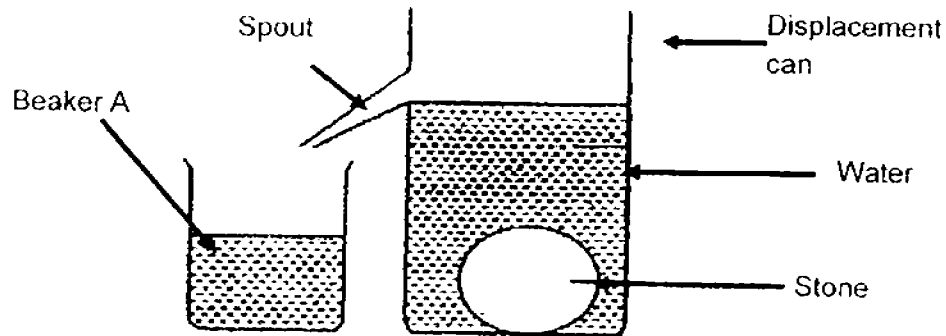
- c. What can Farid conclude about his experiment?

Read the statements in the table below and put a tick (✓) in the correct column. [2]

	Statement	True	False
a.	Air occupies space.		
b.	Air has mass.		

Score	4
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- 30a. Jenny filled a displacement can with water just below the spout. Then, she dropped a stone into it and collected the amount of water that flowed out through the spout into Beaker A as shown in the diagram below.

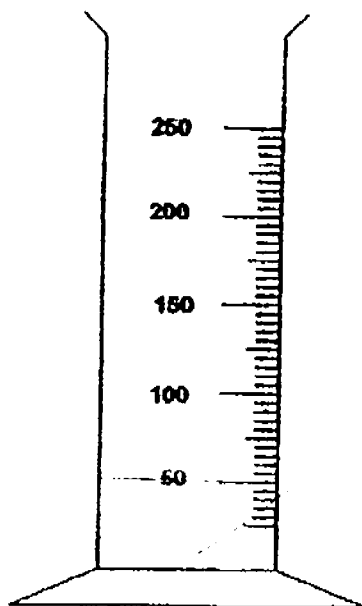


- i. Explain why the water flowed out of the displacement can. [1]
- _____
- _____
- ii. Based on the above experiment, state a difference in property between the solid and liquid. [1]
- _____
- _____

Score	2
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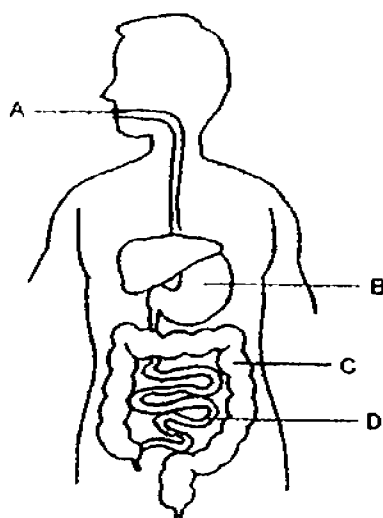
- b. Jenny noted that the volume of water in beaker A is 50cm^3 . She then poured the water from beaker A into a measuring cylinder.

Draw the water level in the measuring cylinder. [1]



Score	<div style="border: 1px solid black; width: 100px; height: 50px; position: relative;"><div style="position: absolute; top: 0; right: 0; bottom: 0; left: 0;">1</div></div>
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31a. The diagram below shows a digestive system.

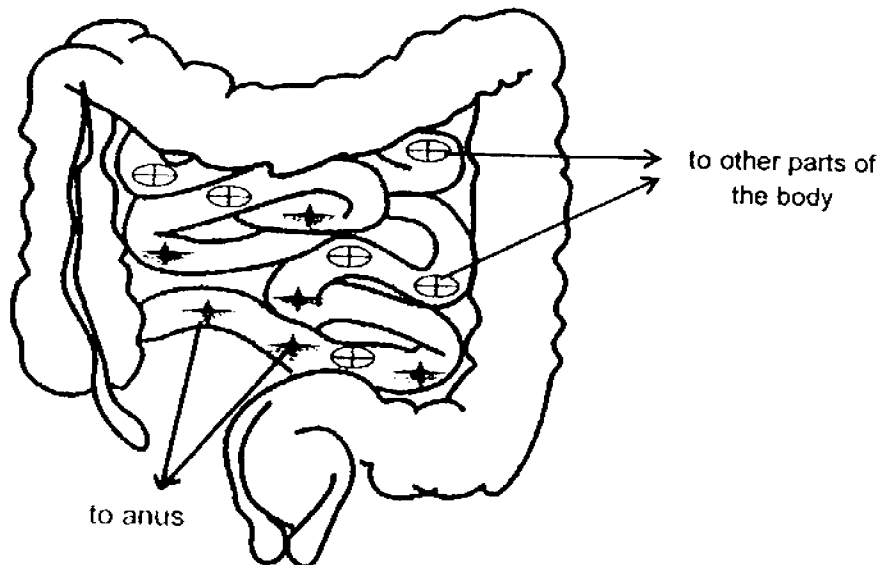


- i. Josiah had just eaten his lunch. At which part (A, B, C or D) does digestion first takes place? [1]

- ii. State the function of part B in the digestive system. [1]

Score	2
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- 31b. The diagram below shows what happens in Josiah's small intestine and large intestine several hours after lunch. The symbols represent substances involved in the digestion process.



- i. Study carefully the movement of the substances represented by ★ and ⊕. [2]

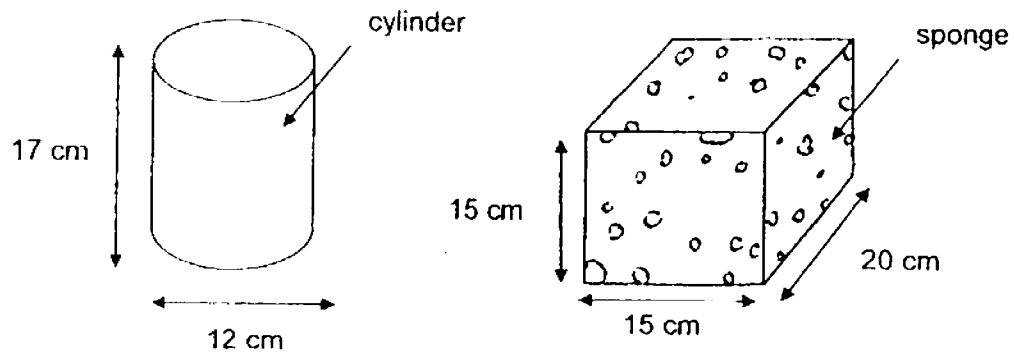
Identify the substances:

★ represents _____

⊕ represents _____

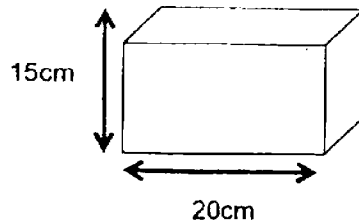
Score	2
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32. Ahmad was given a sponge and a cylindrical container as shown in the diagram below. He was able to squeeze the whole sponge into the cylindrical container.



- a. Explain how Ahmad was able to squeeze the sponge into the cylindrical container. [2]

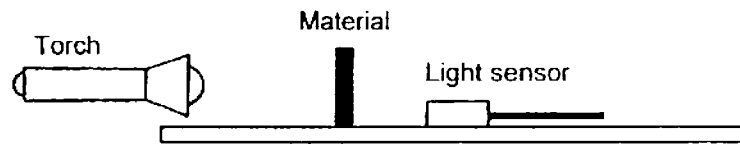
Ahmad found another cube of different material which is of the same size as the sponge.



- b. Why Ahmad could not squeeze the cube into the cylindrical container? [1]

Score	3
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33. Crystal conducted an experiment to find out the amount of light that would pass through 4 different materials, P, Q, R and S. She used a light sensor to detect the amount of light that passed through each material as shown below.



When no material was placed between the torch and light sensor, the amount of light detected was 500 units. The following table below shows her results when different materials were placed between the torch and light sensor.

Material	Amount of light detected (units)
P	497
Q	390
R	180
S	0

- a. Based on her experiment, which one of the materials, P, Q, R or S will be most suitable to make part Y of the spectacles below which is used for reading? Give a reason for your answer. [2]



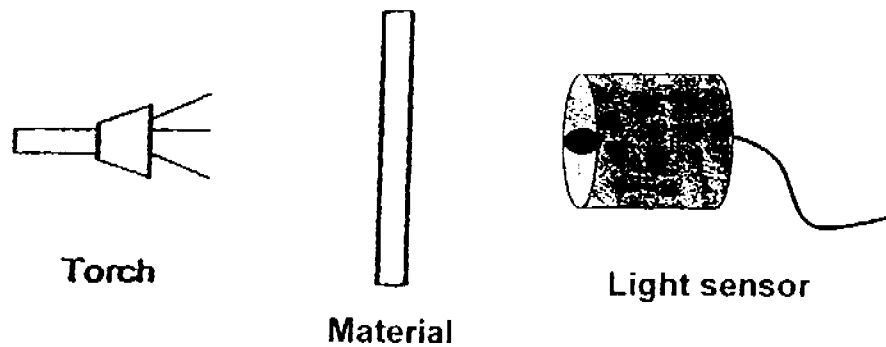
- b. Other than the positions of the torch and light sensor, state 2 other variables that have to be kept constant for a fair test. [2]

i : _____

ii : _____

Score	4
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34. Hui Lin set-up an experiment as shown below.



She observed that the light sensor reads 100 units when no material was placed in between the torch and the light sensor.

She then placed different types of materials in between the torch and light sensor and recorded the results in the table below.

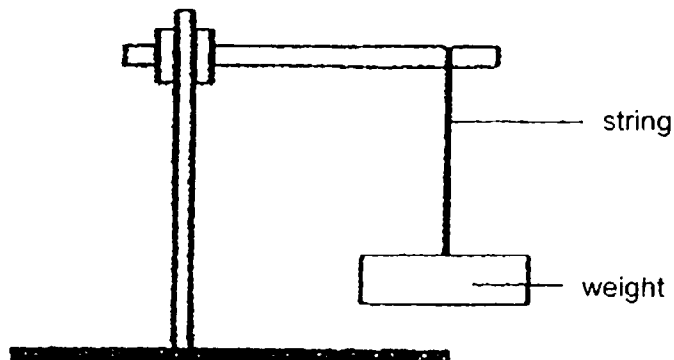
Material	Amount of light detected (units)
A	15
B	30
C	90
D	65

Hui Lin made some conclusions in the table below. Put a tick (✓) in the appropriate boxes. [4]

	Paul's conclusions	True	False	Not possible to tell
a.	Material D could be a piece of frosted glass.			
b.	Material A will <u>not</u> cast the darkest shadow.			
c.	No shadow will be formed by material B.			
d.	Material C will form the longest shadow.			

Score	4
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35. Mr Lee conducted an experiment as shown below to study a certain property of material.



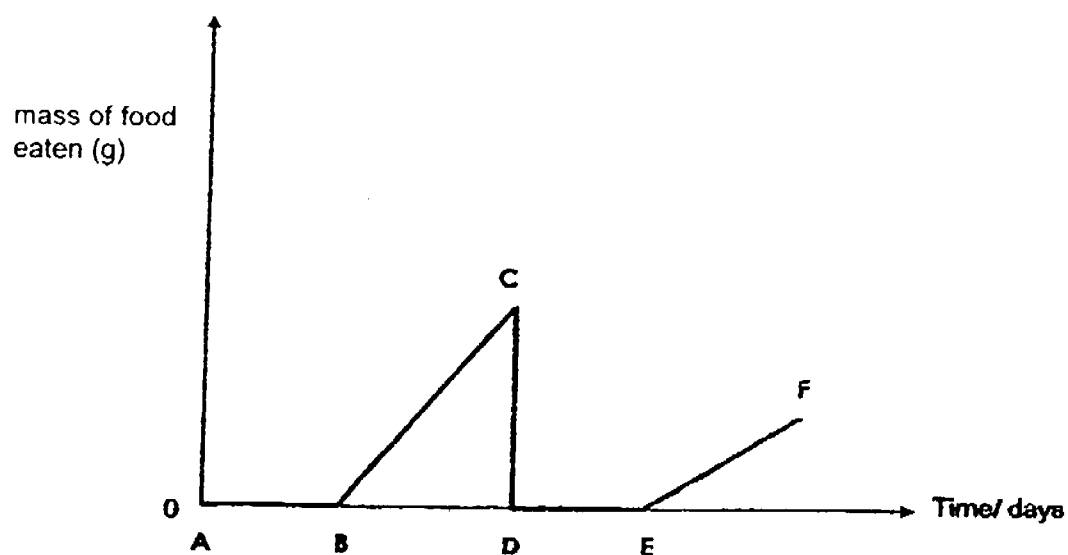
In his study, he used 3 different strings, X, Y and Z. He tied weights to the string, one at a time until it broke. The results are shown below.

String	Number of weights before the string broke
X	1
Y	8
Z	4

- a. State the property of material that Mr Lee tested. [1]
- _____
- b. Based on his results, which string, X, Y or Z, would be more suitable for making the string of a kite? [1]
- _____
- c. Besides using strings of the same length, what else should Mr ^{Lee} ~~Tan~~ do to the strings to ensure that his experiment is a fair one? [1]
- _____

Score	3
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- 36a. Linus drew a graph below to show the mass of food eaten by a butterfly throughout the stages of its life cycle.



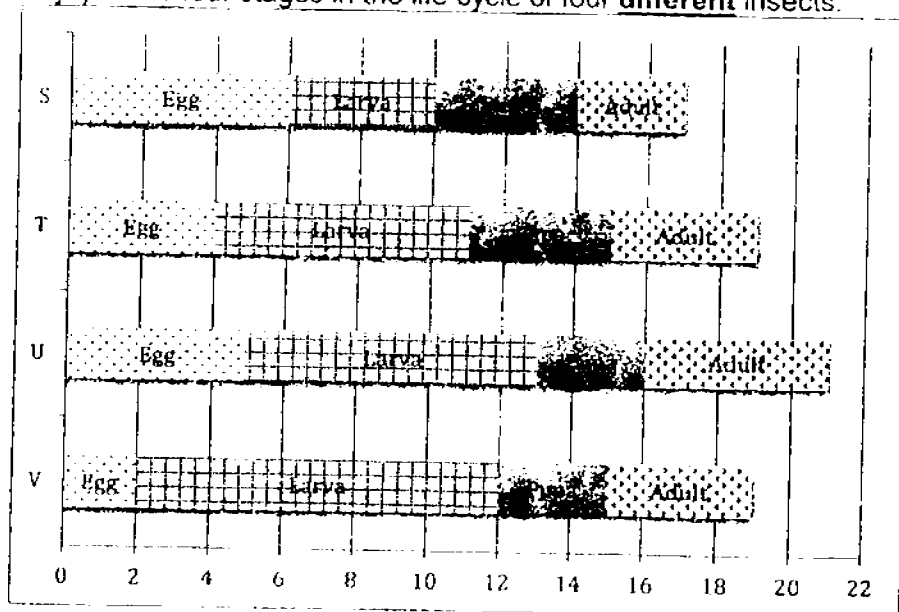
- i. Which part of the graph represents the butterfly in its larva stage?
Put a tick (✓) in the correct column. [1]

Part BC	
Part CD	
Part DE	
Part EF	

- ii. Explain why the mass of food eaten by the butterfly at part DE is as shown in the graph. [1]

Score	2
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- 36b. A week later, Linus drew up another graph to show the length (number of days) of the four stages in the life cycle of four **different** insects.



- i. Which insect has the shortest life cycle? [1]
- _____
- ii. Linus studied the effect of surrounding temperature on the life cycle of insect S. His findings are shown below

Temperature (°C)	Number of days for one complete life cycle
40	19
25	25
15	40

From Linus' findings, how would temperature affect the length of one complete life cycle of insect S? [1]

Score	2
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37a. Dash conducted an experiment using the set-up in Diagram 1.

Diagram 1

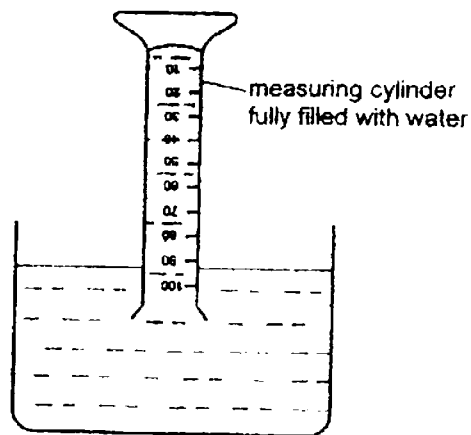
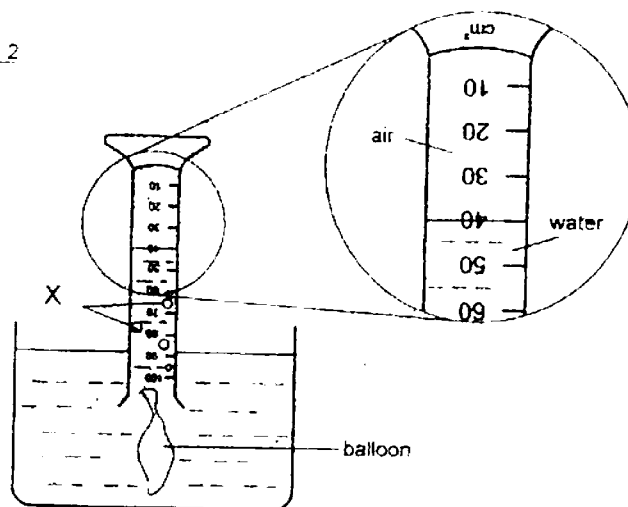


Diagram 2 showed what happened when he released air from the balloon into the measuring cylinder.

Diagram 2



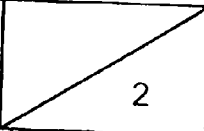
i. What could substance X be? [1]

Score	1
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b. He noticed that substance X rose up the measuring cylinder while the water moved out of the measuring cylinder.

i. Why do you think this had occurred? [1]

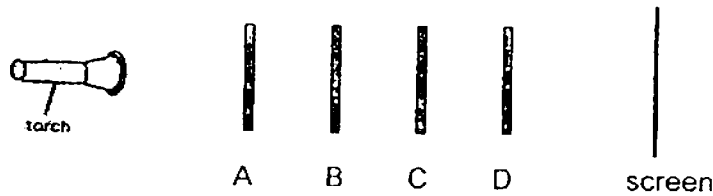
ii. Based on Diagram 2, what is the volume of air in the measuring cylinder? [1]

Score	
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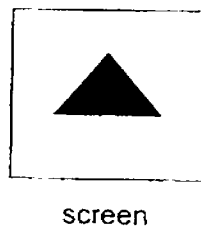
38. The diagram below shows four different shapes cut from sheets made of different materials.



The shapes were then arranged in a straight line as shown and a torch was then shone on them and a shadow was observed on the screen.



The diagram below shows the shadow of the objects on the screen.



- a. Based on the shadow formed, state whether the materials of the shapes are opaque or transparent. [2]

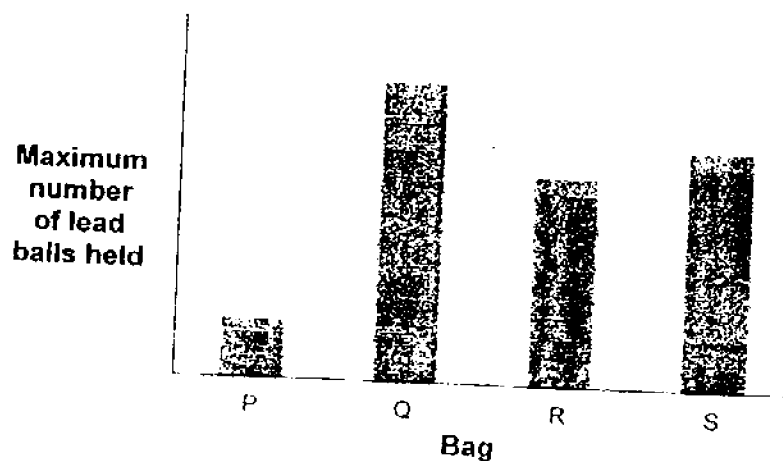
A: _____ B: _____

C: _____ D: _____

- b. If the position of the B (square) and C (triangle) was swapped, would a triangular shadow be observed? Explain your answer. [1]

Score	3
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39. Janice had four shopping bags made of different materials. She put metal balls into the bags until they were torn. She then recorded the maximum number of metal balls each bag could hold in the graph below.



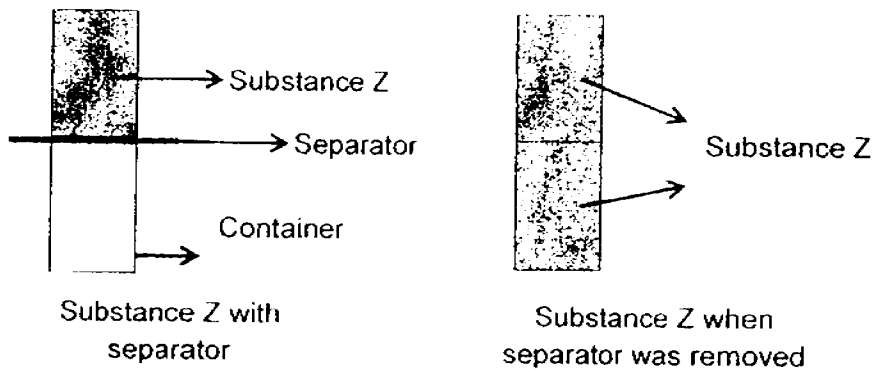
- a. Arrange the bags according to their strength, beginning with the strongest bag. [2]

Strongest _____ Weakest

- b. What is the relationship between the strength of the shopping bags and the maximum number of metal balls they could hold? [1]

Score	3
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40. Roy filled a container with substance Z as shown below.



- a. Based on the experiment, state two properties that can be concluded about Substance Z. [2]

i : _____

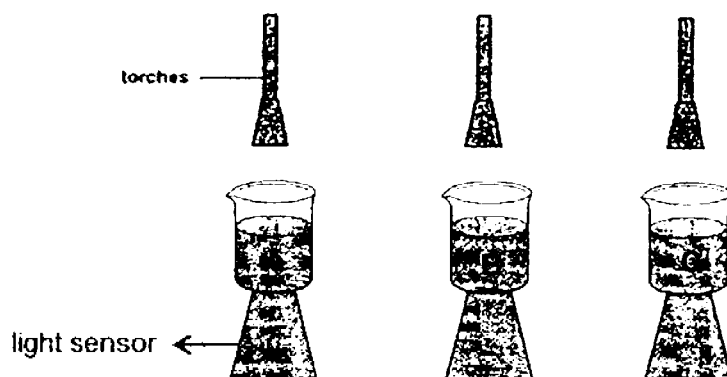
ii : _____

- b. Which of the following could Substance Z be?
Put a tick (✓) next to your choice(s). [1]

No.	Substance	Tick
i.	Oil	
ii.	Ice cubes	
iii.	Brownish Gas	
iv.	Plasticine	

Score	3
-------	---

41. Elliot set up the following experiment with 100cm³ of three different kinds of liquid.



Beakers	Type of liquid	Amount of light detected (units)
A	Tap water	250
B	Coffee	120
C	Cooking oil	200

- a. What will happen to the reading on the light sensor if he added a spoonful of milk powder to beaker A? [1]
- _____
- b. Why did the light sensor detect more light for beaker C than beaker B? [1]
- _____
- c. What could be the aim of Elliot's experiment? [1]
- _____

Score	3
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End of Booklet B

YEAR : 2016
 LEVEL : PRIMARY 4
 SCHOOL : TEMASEK PRIMARY
 SUBJECT : SCIENCE
 TERM : SA1

Booklet A

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

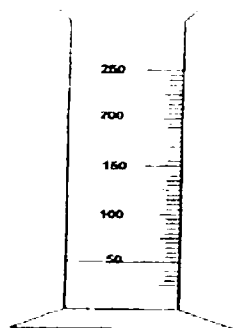
Booklet B

- Q29
- (a) There is air inside the flask.
- (b) Water in the funnel will flow down to the flask.



(c)

	Statement	True	False
a.	Air occupies space.	✓	
b.	Air has mass.		✓

- Q30
- (a)
- The stone occupy the space.
 - Solid has a definite shape but liquid does not have a definite shape.
- (b)



- Q31 (a) i. A
- ii. Break down into simpler substance.

- (b)  represents undigested food.
-  represents digested food.

- Q32 (a) The air in the sponge is compressed thus volume of sponge became smaller.
- (b) The cube has a definite shape.

- Q33 (a) Material P. P allows most of the light to pass through.
- (b) i. The same thickness of the material.
- ii. The position of the material.

Q34

	Hui Lin's	True	False	Not possible to tell
(a)	Material D could be a piece of frosted glass.	✓		
(b)	Material A will not cast the darkest shadow.		✓	
(c)	No shadow will be formed by material B.		✓	
(d)	Material C will form the longest shadow.			✓

- Q35 (a) Strong
- (b) String Y
- (c) Same thickness.

- Q36 (a) i. Part BC ✓
- ii. The butterfly is now at a pupa stage.
- (b) i. Insect S.
- ii. The colder the temperature, the more number of days for one complete life cycle.

- Q37 (a) i. Air bubbles.
- (b) i. Air occupies space in the measuring cylinder.
- ii. 40 cm^3

- Q38 (a) A : Transparent B : Transparent
- C : Opaque D : Transparent
- (b) Yes. B is transparent but C is opaque.

- Q39 (a) Q, S, R, P
- (b) The stronger the shopping bags, the more metal balls it can hold.

- Q40 (a) i. Can be compressed.
- ii. No definite shape.

(b)

No.	Substance	Tick
i.	Oil	
ii.	Ice cubes	
iii.	Brownish Gas	✓
iv.	Plasticine	

- Q41 (a) It will decrease.
- (b) Cooking oil allows more light to pass through as compared to coffee.
- (c) To find out which liquid allow most of the light passing through.

End