First Semestral Assessment for 2016
SCIENCE
Primary 4

Name: _____ Total Marks: 100

Class: Pr 4 _____ Register No. _____ Duration: 1 h 45 min

Date: 11th May 2016 Parent's Signature: _____

Booklet A

Instructions to Pupils:

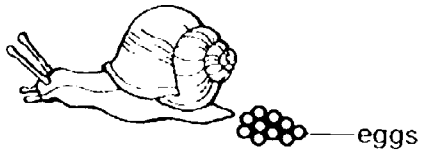
1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 28 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 29 to 42, give your answers in the spaces given in Booklet B.

* This booklet consists of 17 pages (including the 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). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

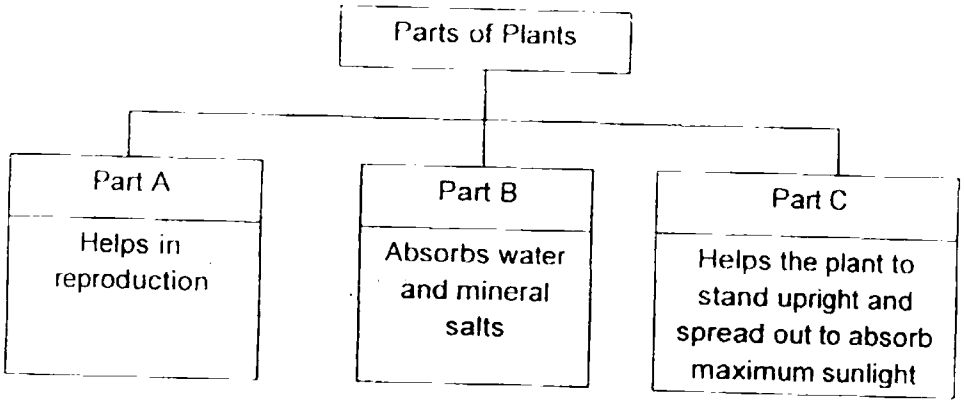
(56 marks)

1 During her walk at Bishan Park, Alice noticed that the snail lays many eggs at one time. Why does the snail lay many eggs during reproduction?



(1) To camouflage from their predators.
(2) To only reproduce once in their lifetime.
(3) To attract more birds to eat their young.
(4) To increase the survival of its own kind.

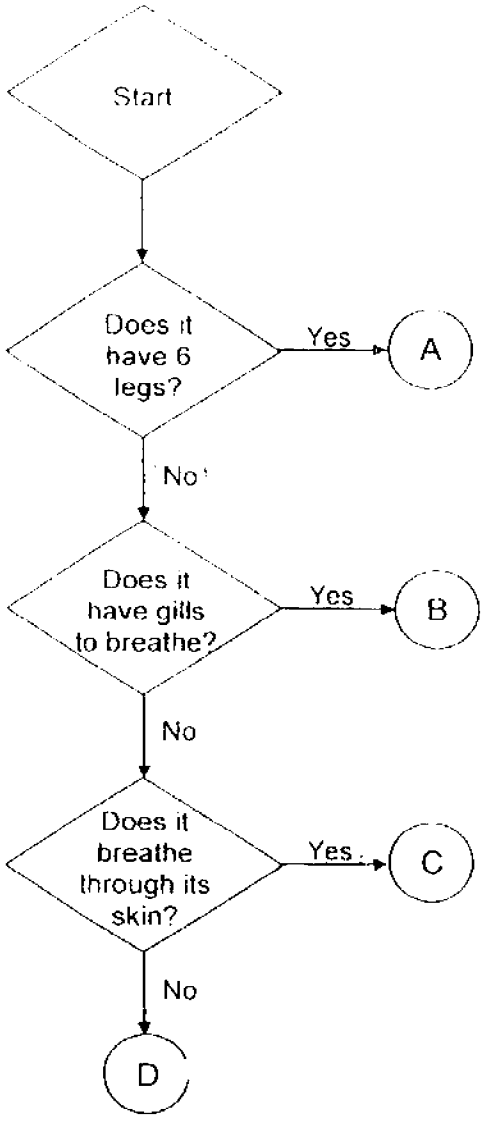
2. Study the classification chart below.



What are plant parts A, B and C likely to be?

	A	B	C
(1)	Fruits	Stem	Leaves
(2)	Roots	Flowers	Stem
(3)	Flowers	Roots	Stem
(4)	Leaves	Roots	Fruits

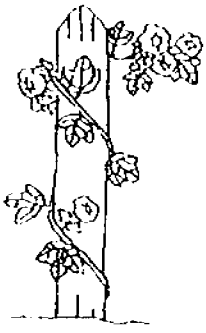
3 Study the flow chart below carefully.



Which group would a frog most likely be in?

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

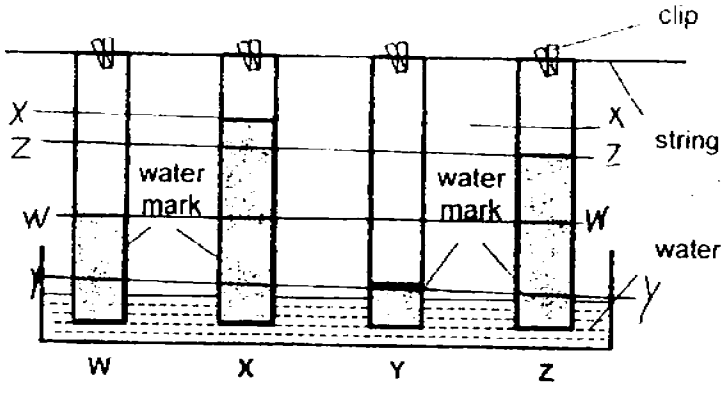
4 The diagram below shows Plant X growing in a garden



Based on the diagram above, which one of the following statements about Plant X is correct?

(1) It has no roots.
(2) It reproduces by spores.
(3) It needs a support to grow.
(4) It does not make its own food.

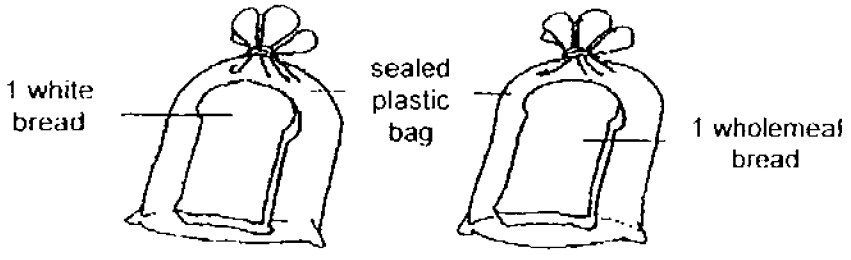
5 Materials W, X, Y and Z were hung in a container of water as shown below. The strips were of equal length. After 1 minute, the results below show the water mark on each piece of material.



Based on the result, which one of the materials is suitable to make a towel?

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

6. Bala wanted to find out if moisture was needed for mould to grow. He placed one piece of bread each into a plastic bag as shown below



Set-up M Set-up N

The table below shows the variables in Bala's experiment

Variable	Set-up M	Set-up N
Type of bread	White bread	Wholemeal bread
Type of plastic bag	Transparent	Transparent
Amount of water	0 ml	10 ml
Location	Dark cupboard	Dark cupboard

His teacher said that one of the variables was incorrect for a fair test to be done. Which of the following variable was incorrect?

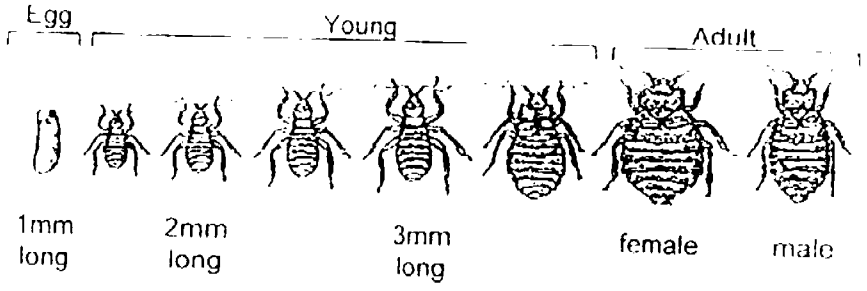
(1) Type of bread
(2) Location
(3) Amount of water
(4) Type of plastic bag

7. Which of the following statements about the life cycles of animals are true?

A : The life cycle repeats itself.
B : All the life cycles begin with a seed.
C : There are 4 stages in their life cycles.
D : Each life cycle takes different time to complete.

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

8 The diagram below shows the development of a bed bug from an egg to an adult



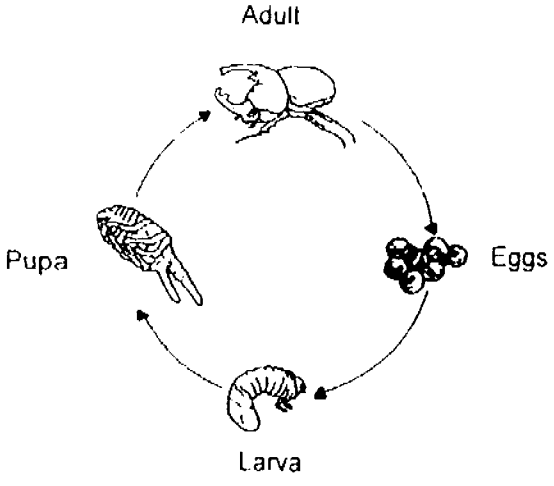
Based on the development shown above, what can you infer about the number of stages in the life cycle of a bed bug?

(1) 7
(2) 8
(3) 3
(4) 4

9. Which of the following comparisons between the life cycles of a grasshopper and the butterfly is correct?

		Grasshopper	Butterfly
(1)	Its young has wings	No	Yes
(2)	Its young is harmful to plants.	No	No
(3)	The young looks like the adult.	Yes	No
(4)	There are 4 stages in its life cycle.	Yes	Yes

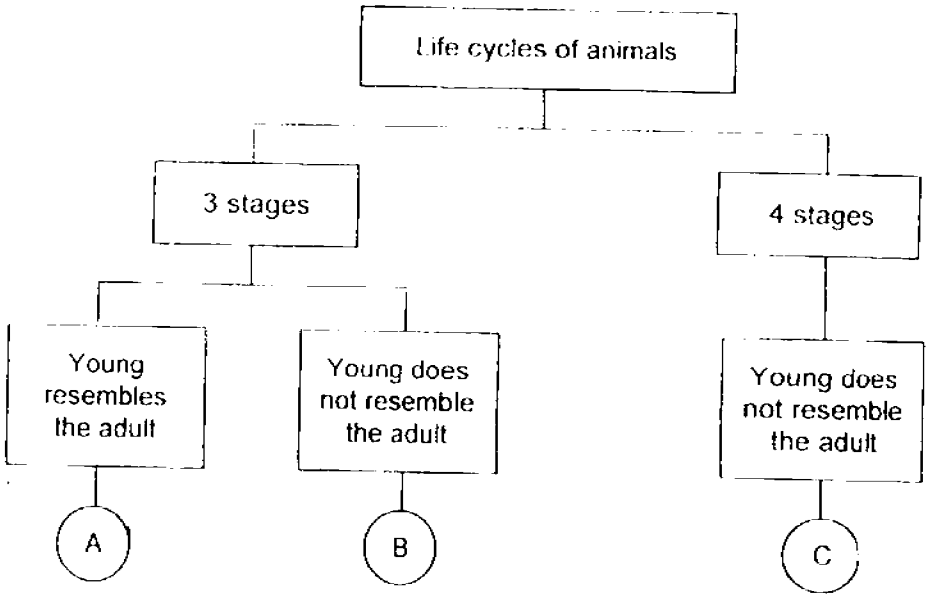
10 The diagram below shows the life cycle of an insect.



At which two stages of the life cycle of the insect does it not need to find and eat any food?

(1) larva and pupa
(2) egg and pupa
(3) larva and adult
(4) egg and adult

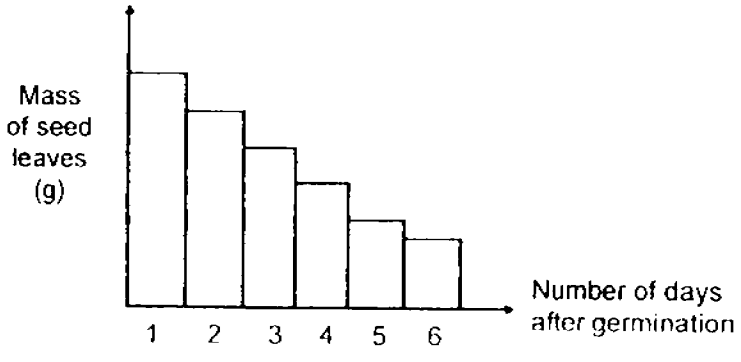
11 Study the classification chart below carefully



Based on the chart above, which of the following best describes A, B and C?

	A	B	C
(1)	frog	grasshopper	butterfly
(2)	grasshopper	frog	mealworm beetle
(3)	cockroach	grasshopper	frog
(4)	grasshopper	mealworm beetle	butterfly

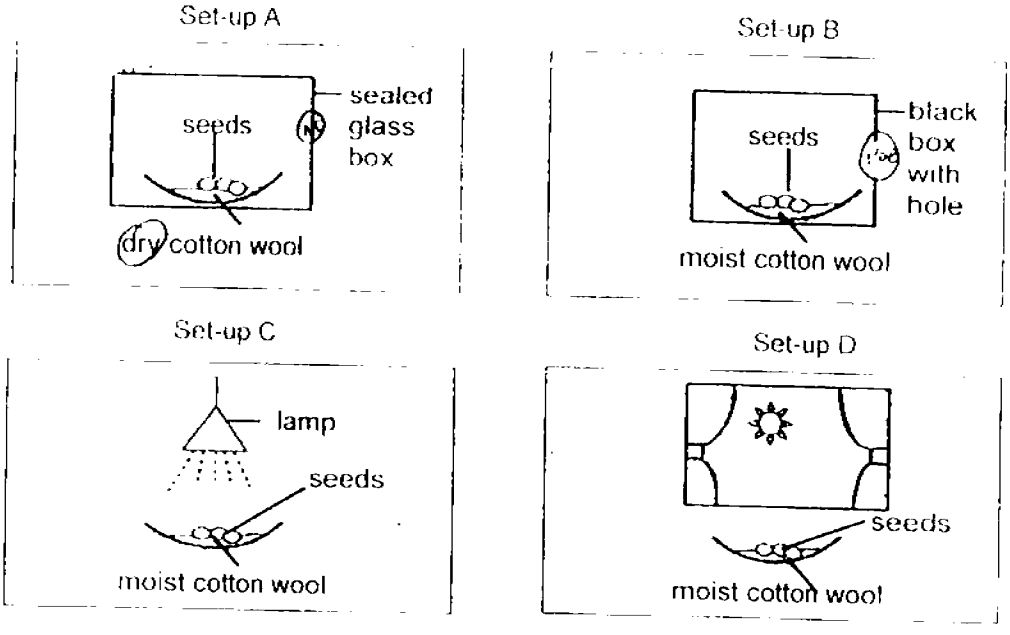
12 Study the graph below



What is the relationship between the numbers of days after germination and the mass of seed leaves?

(1) As the number of days after germination increases, the mass of the seed leaves increases.
(2) As the number of days after germination increases, the mass of the seed leaves decreases.
(3) As the number of days after germination remains the same, the mass of the seed leaves decreases.
(4) As the number of days after germination remains the same, the mass of the seed leaves increases.

13 Look at the set-ups below. They are all placed at room temperature.



Which of the following seeds will germinate?

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

14 Devi wanted to find out if the location of the pots of plants, X, Y and Z, affects the growth of plants.

	Variables	X	Y	Z
(1)	Width of pot	10cm	15cm	20cm
(2)	Location of pot	Garden	Open field	Dark room
(3)	Duration of experiment	7 days	7 days	7 days
(4)	Number of plants in each pot	4	4	4

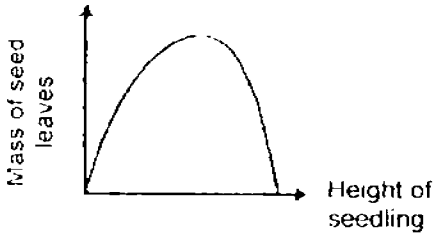
Devi's teacher said that she did not conduct a fair experiment. What change must she make to the set-ups to make it a fair experiment?

(1) Use pots of the same width.
(2) Conduct the experiment for 10 days.
(3) Put all the pots in the same location.
(4) Use a different number of plants for each pot.

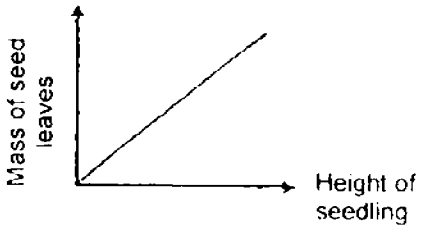
15 Sam had grown some beans. He found out that as the height of the seedling increases, the mass of the seed leaves decreases.

Which graph below shows Sam's result?

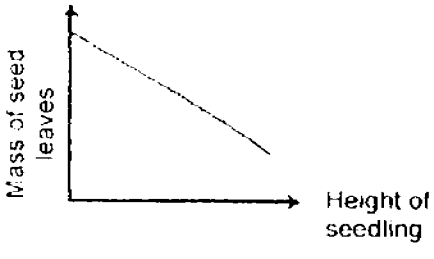
(1)



(2)



(3)



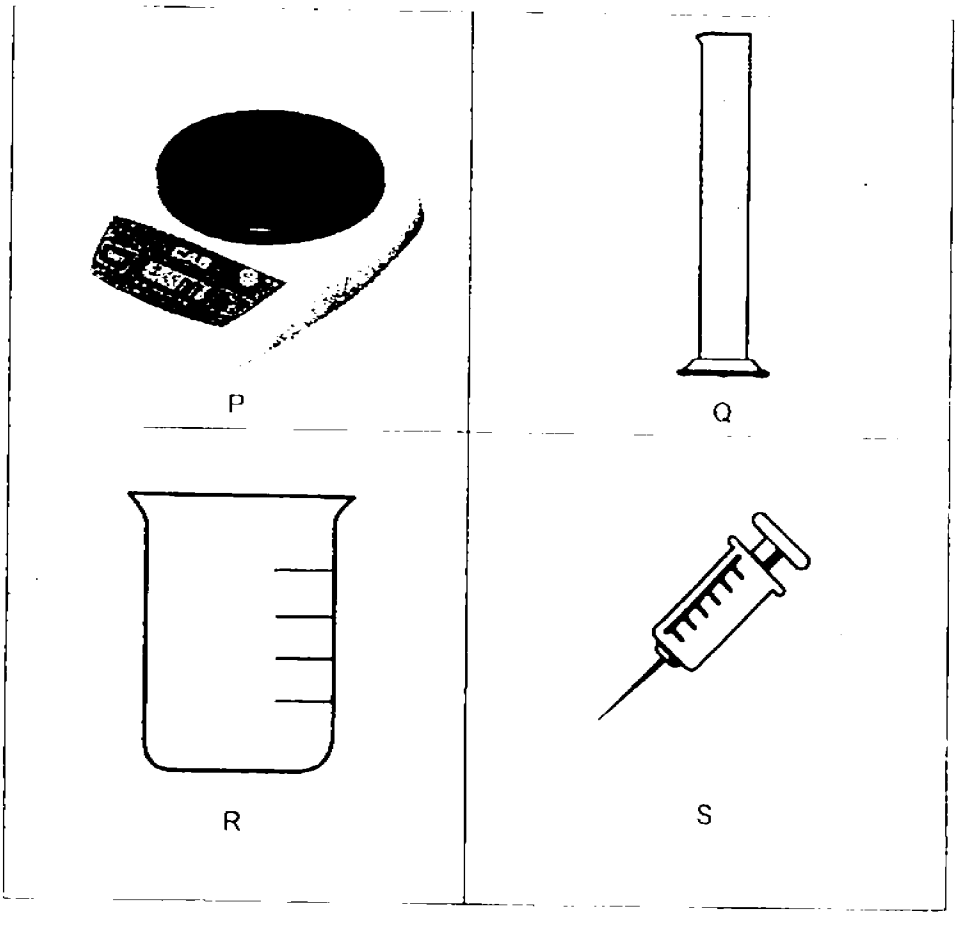
(4)

16. Which one of the following are not matter?

A Clouds
B Ice cubes
C Heat from sun
D Shadow of a boy X

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

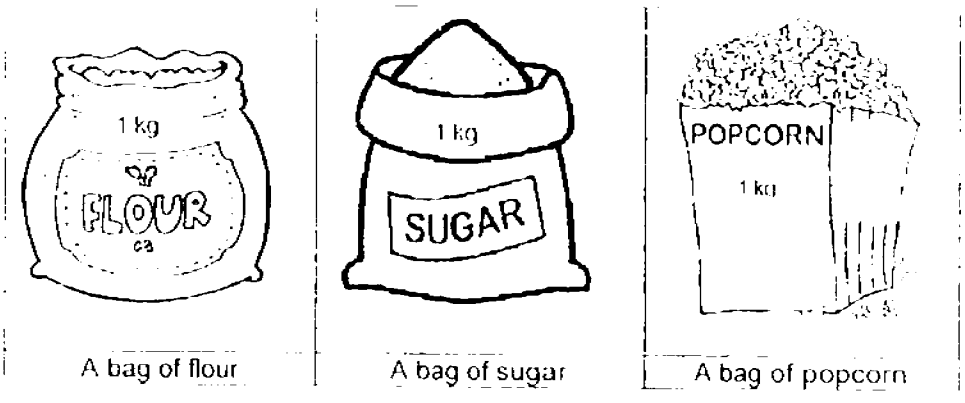
17. The diagrams below show some apparatus.



Which apparatus should be used to measure the mass of an object?

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

18 Four boys, Andrew, Brandon, Carl and Desmond made the following statements about the three bags shown below



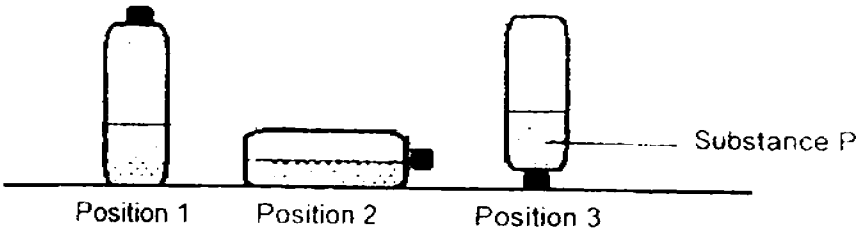
A bag of flour | A bag of sugar | A bag of popcorn

Andrew: The items in the three bags have different mass.
Brandon: The items in the three bags have the same mass
Carl: The three bags of substance have different volume.
Desmond: The three bags of substances have the same volume

Whose statements are correct?

(1) Andrew and Carl only
(2) Brandon and Carl only
(3) Andrew and Desmond only
(4) Brandon and Desmond only

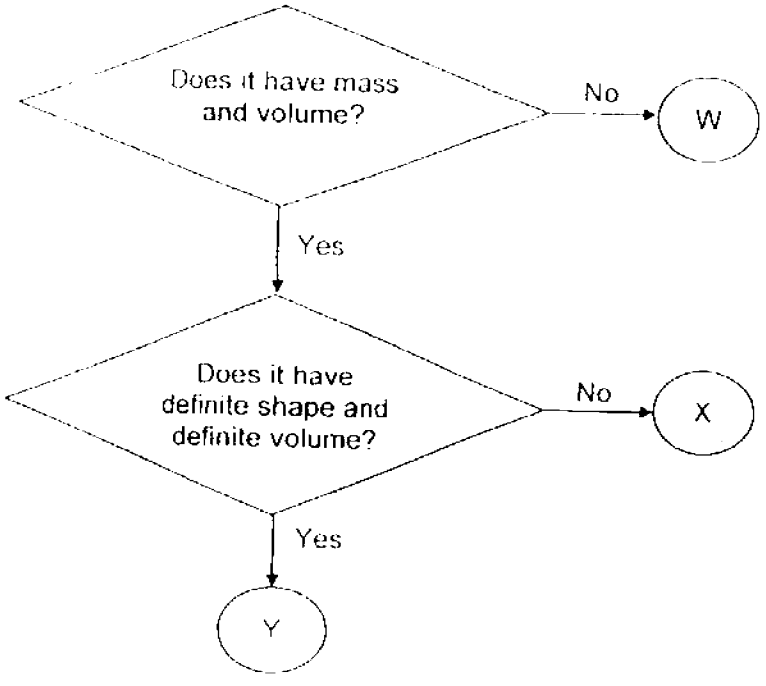
19 A bottle was filled with substance P. The bottle was placed into 3 different positions



Based on the observation in the diagram, what can you conclude about substance P?

(1) It has no mass.
(2) It can be compressed.
(3) It has no fixed volume.
(4) It has no definite shape.

Refer to the flowchart below to answer Questions 20, 21 and 22



20 Which one of the following is likely to be W?

(1) Rain
(2) Stone
(3) Sound
(4) Oxygen

21 Which one of the following is likely to be Y?

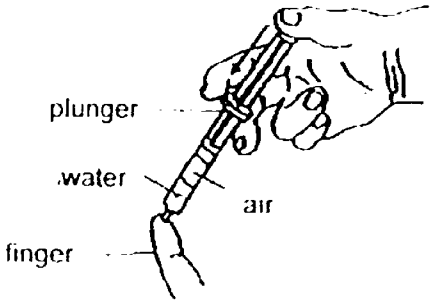
(1) Air
(2) Milk
(3) Light
(4) Marble

22. Which of the following statements are true about X?

A. X is a gas.
B. X has mass.
C. X occupies space
D. X is a liquid.

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

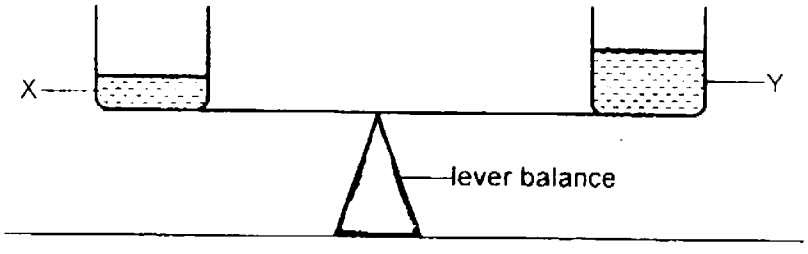
23. Kieran filled the syringe with 5 ml of air and water each. He placed his finger at the end of the syringe tightly as shown below.



Which one of the following is observed when the plunger is pushed in?

	Volume of water / ml	Volume of air / ml
(1)	5	5
(2)	5	0
(3)	5	2
(4)	2	2

24. Study the diagram below carefully. Both containers are of the same size.



Which of the following is true about Liquid X and Liquid Y?

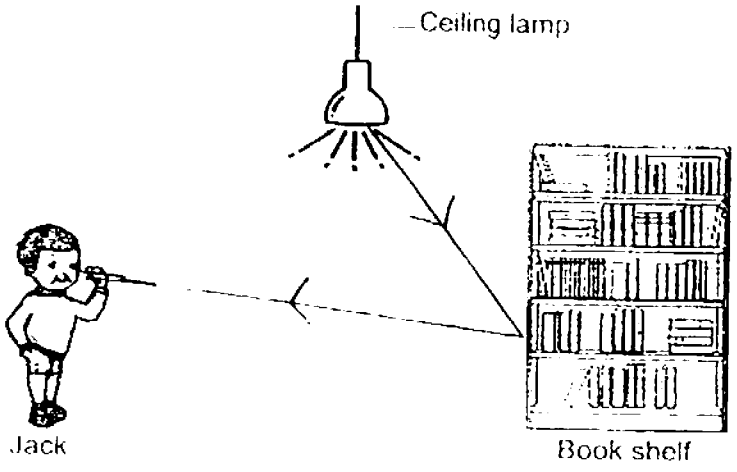
A Liquid X and Liquid Y have the same mass.
B Liquid X has a smaller volume than Liquid Y.
C Liquid X occupies the same amount of space as Liquid Y.
D Liquid X can be compressed while Liquid Y cannot be compressed

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

25 Which of the following is a source of light?

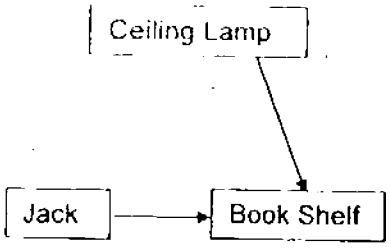
(1) Moon
(2) Apple
(3) Firefly
(4) Flower

26 Jack entered his room and switched on the ceiling lamp. He could see the ceiling lamp and the book shelf

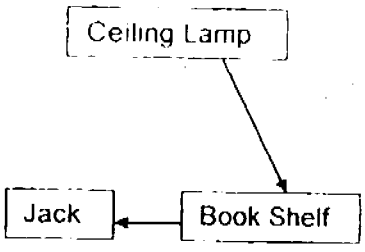


Which of the following diagrams shows the path of light which enables Jack to see the book shelf?

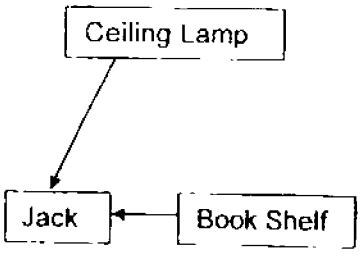
(1)



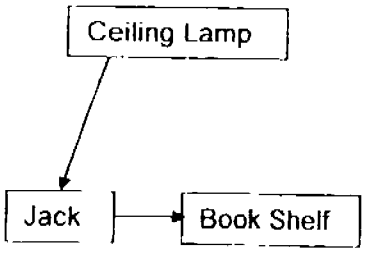
(2)



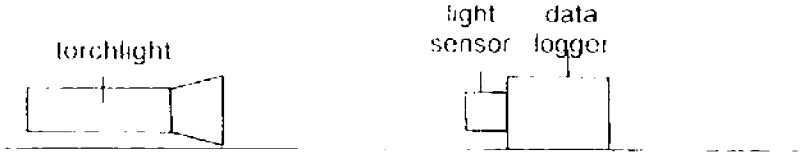
(3)



(4)

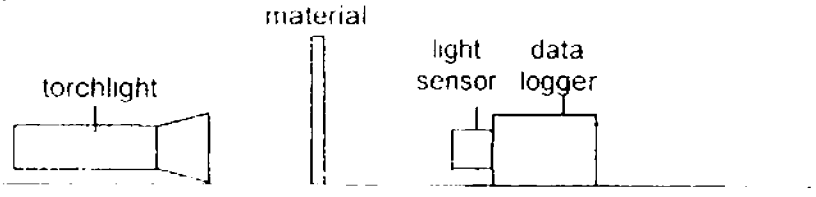


27 Nicholas sets up an experiment as shown below.



The amount of light detected by the sensor was 1200 lux.

He repeated the experiment by placing a material between the torchlight and light sensor.



He placed four different materials in between the light source and the light sensor. The four different materials are clear glass, tracing paper, cardboard and green plastic. He recorded the amount of light passing through the different materials in the table below.

	Amount of light passing through the material (lux)
(1)	0
(2)	50
(3)	900
(4)	1100

Which of the above shows the amount of light passing through a cardboard?

28. Ian and his black dog were in a dimly lit room. Which of the following statements correctly explains why Ian could only see the dog's eyes clearly?

(1) Ian's eyes were sources of light.
(2) The dog's eyes were sources of light.
(3) Light was reflected from Ian's eyes to the dog's eyes.
(4) Light was reflected from the dog's eyes to Ian's eyes.

End of Part 1

First Semestral Assessment for 2016
SCIENCE
Primary 4

Total Marks: / 100

Name: _____

Class: Pr 4 _____ Register No. _____ Duration: 1 h 45 min

Date: 11th May 2016 Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 29 to 42, give your answers in the spaces given in this Booklet B.

	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

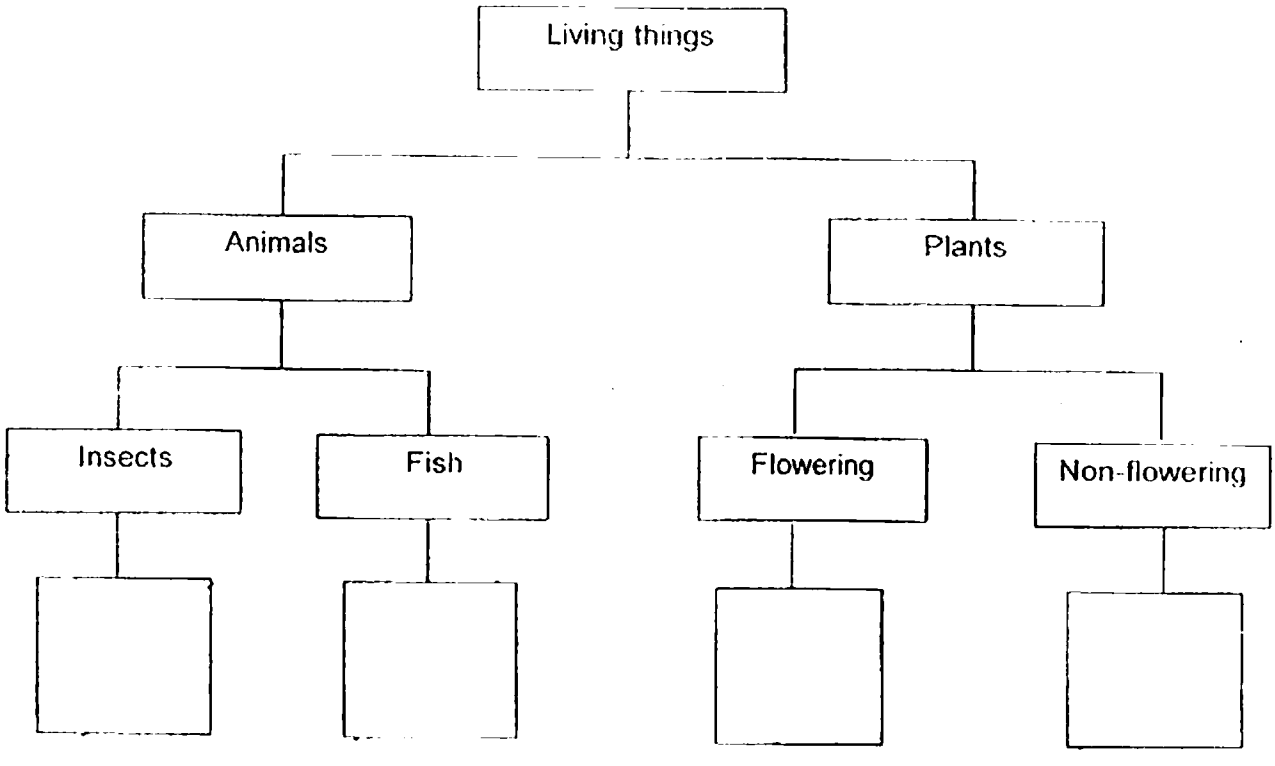
* This booklet consists of 14 pages (including the cover page).

For questions 29 to 42, write your answers in this booklet. (44 marks)

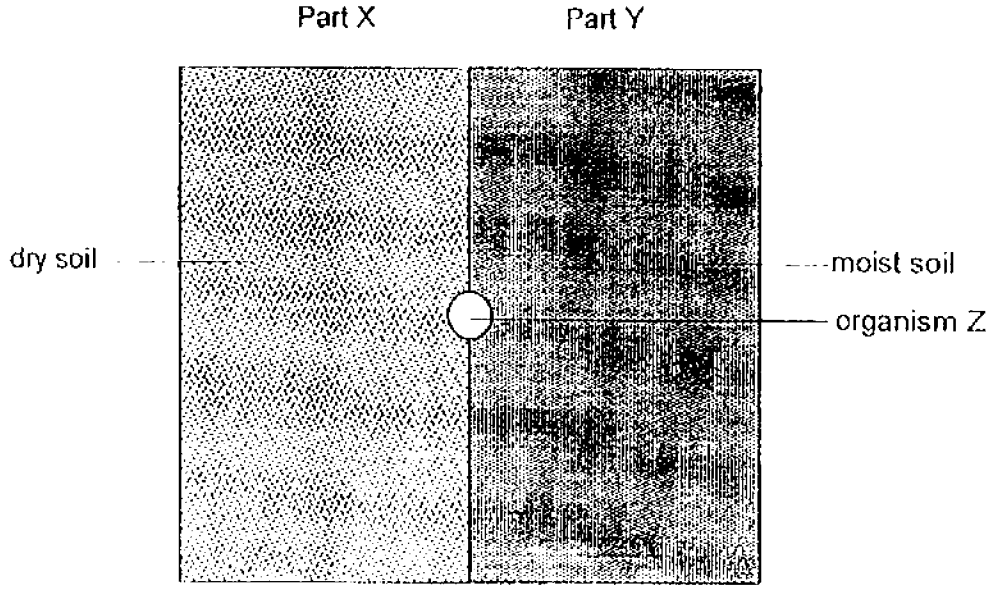
29. The table below lists the characteristics of four different living things, A, B, C and D. A tick (✓) in the box indicates the characteristics which the living thing has.

Characteristics of living things	Living things			
	A	B	C	D
Reproduces by seeds		✓		
Lays eggs	✓		✓	
Can absorb sunlight		✓		✓
Spores can be found on the underside				✓
Has 3 body parts and 6 legs			✓	
Can move from place to place	✓		✓	

Based on the information above, place the living things in the classification chart below by writing the letters A, B, C or D in the boxes provided below. (2m)



30. Amy used a tray consisting of two parts, X and Y. She filled part X with dry soil and part Y with moist soil. She then placed some organism Z in the middle of the tray in the area marked by the circle, to find out which part would organism Z move to.



(a) After 1 hour, Amy observed that most of organism Z were found in one part of the tray. Which part, X or Y, would most of organism Z be found at? (1m)

_____

(b) Give a reason for her observation. (1m)

_____

_____

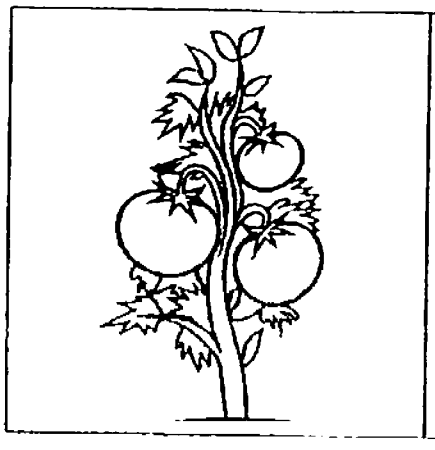
(c) For the above experiment, state the following variables (1m)

(i) Changed variable: _____

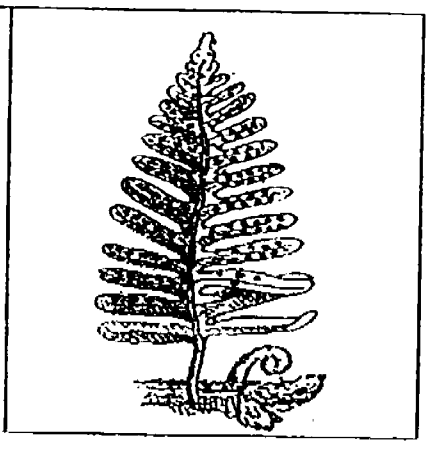
(ii) Measured variable: _____

31. Study the pictures of two different plants as shown below.

Plant A



Plant B



(a) Based on the observations made, state how Plant A and B reproduce. (2m)

(i) Plant A: _____

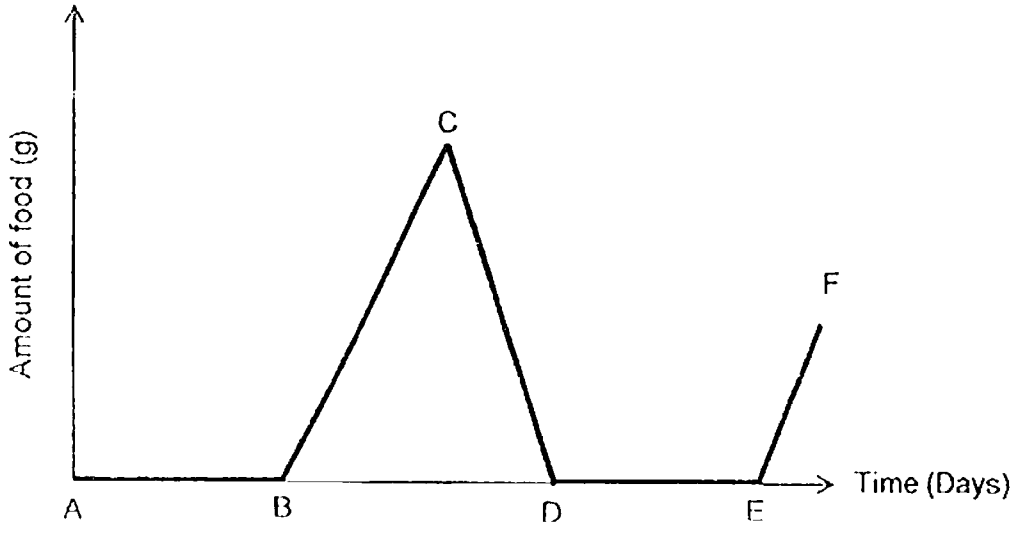
(ii) Plant B: _____

(b) Can the bread mould be grouped together with Plant B? Explain why. (1m)

_____

_____

32. The graph below shows the amount of food eaten by a moth throughout its life cycle.



(a) Which part of the graph AB, BC, CD, DE or EF, represents the pupa stage of the moth? (1m)

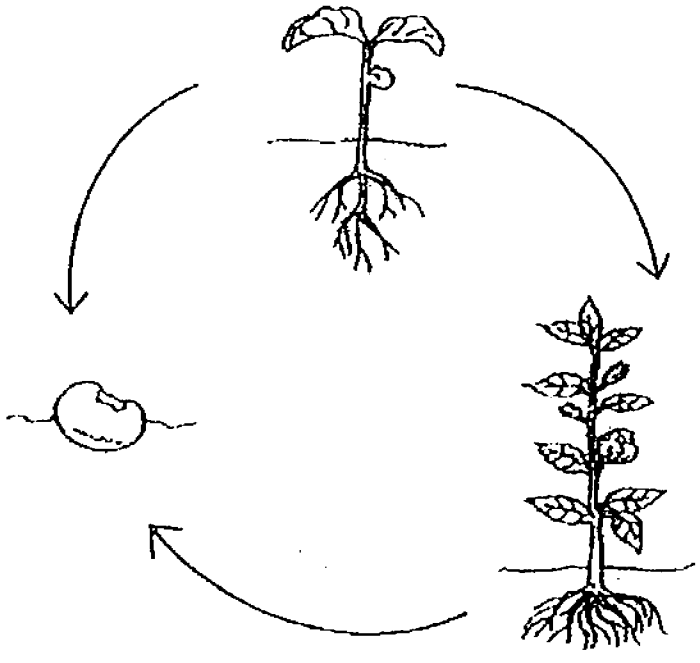
_____

(b) The moth lays its eggs on the leaves. Explain why. (1m)

_____

_____

33. Study the diagram of the life cycle of a plant as shown below.

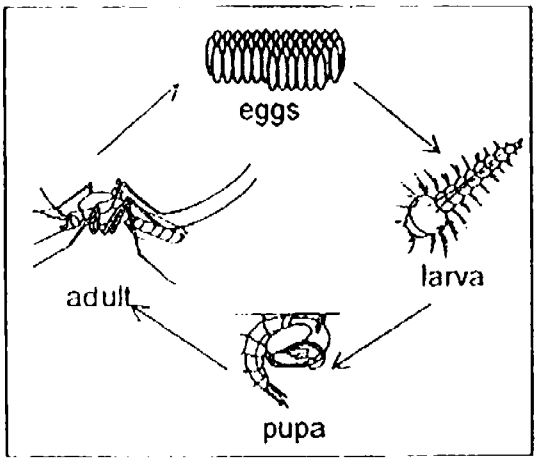


(a) One of the arrows has been wrongly drawn. Circle the incorrect arrow. (1m)

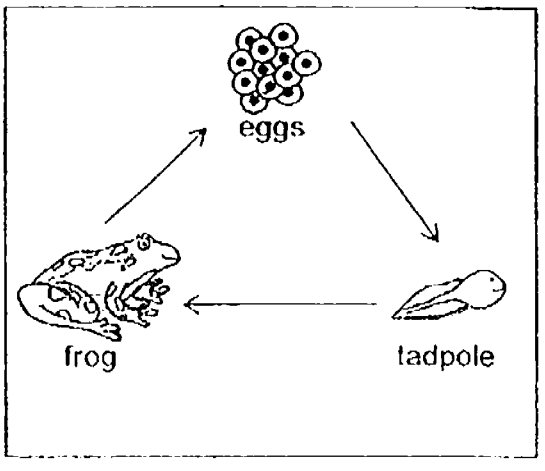
(b) The passage below explains the development of the plant's life cycle. However, some of the information are missing. Fill in the blanks with the correct words. (2m)

When a seed germinates, the _____ grows downward first. Then the first leaves appear. The seedling starts to make its own _____. The seedling gradually grows into a/an _____ plant. The adult plant will bear flowers and then _____ which contains seeds. These seeds will then continue the lifecycle.

34. The diagrams below show the life cycle of the mosquito and frog.



Life cycle of mosquito



Life cycle of frog

(a) Which characteristic of living things are these animals showing through their life cycle? (1m)

_____

(b) State a similarity between the two life cycles. (1m)

_____

_____

(c) State a difference between the two life cycles. (1m)

_____

_____

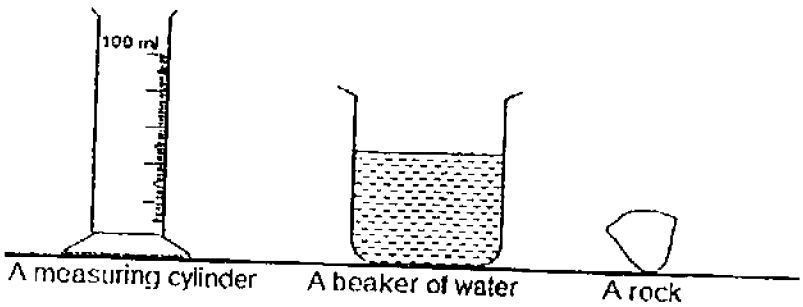
(d) Tadpoles go through a few physical changes as they develop into the adult frogs. Name two ways in which the tadpole is different from the adult frog. (Do not compare the size). (2m)

_____

_____

35. Jessica wants to show that a rock is a matter. She decided to find out if the rock has mass and volume.

(a) To find the volume of the rock, Jessica prepared a measuring cylinder, a beaker of water and the rock. The materials are shown in the diagram below.



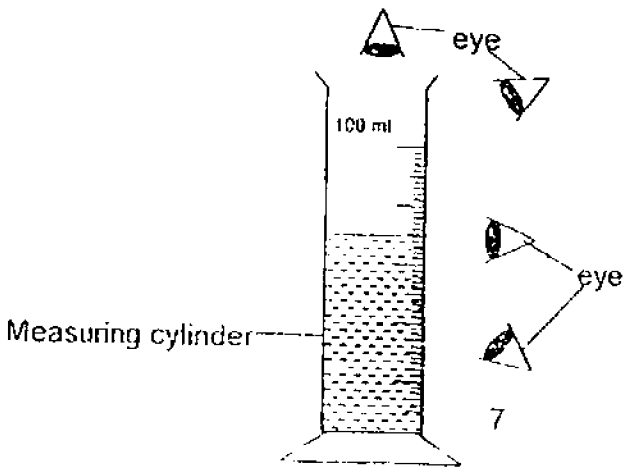
To find the volume of the rock, arrange the following statements in order by indicating 1, 2,3 and 4 in the table below.

(2m)

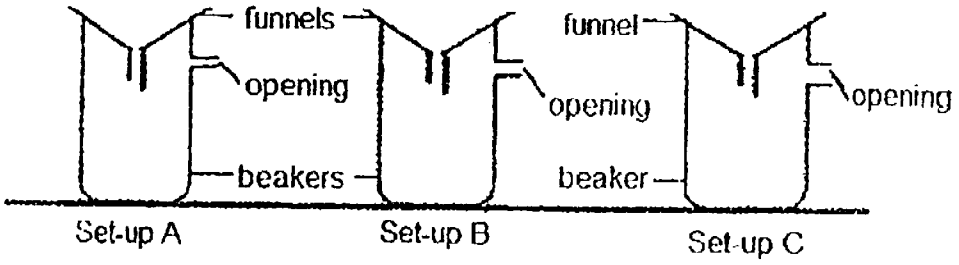
Statements	Steps
Lower the rock gently into the measuring cylinder of water, making sure that the rock is completely underwater.	
Record the volume of water in the measuring cylinder at the beginning.	
Pour some water into the measuring cylinder.	
Record the new volume of water. Then, subtract from it, the volume of water that was in the measuring cylinder at the beginning.	

(b) Circle the correct position of the eye when reading the volume of water in the measuring cylinder.

(1m)



36. The diagram below shows three set-ups, A B and C, each with a beaker of similar volume and shape. Each of the beaker had an opening of different size at its side. Susan placed an identical funnel over the mouth of each beaker.



Next, Susan poured 100 ml of water into the funnel and measured the time taken for all the water to flow into the beaker.

She recorded the results in the table below.

Set-up	Size of opening (mm)	Time taken for all the water to flow into the beaker (seconds)
A	3	34
B	5	30
C	8	19

(a) Complete the table to indicate the different types of variables in the investigation. Use a tick (√) to indicate your answer. (2m)

Variable	To be changed	To be kept the same	To be measured
Size of beaker			
Size of opening			
Volume of water			
Time taken for water to flow into the beaker			

(b) In set-up C, all the water took less time to flow into the beaker compared to set-up A. Explain why.

(2m)

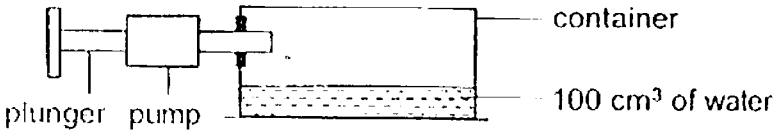
_____

_____

37. Put a tick (√) in the appropriate boxes to indicate if each statement about matter is true or false. (2m)

Statement	True	False
All matter can be seen.		
Air does not have mass.		
All matter cannot be compressed.		
Volume is the amount of space an object occupies.		

38. The diagram below shows a container with a capacity of 400 cm^3. It contains 100 cm^3 of water. A pump is connected to it and when the plunger is pushed all the way into the pump, it allows 50cm^3 of air to enter the container.



(a) What is the volume of air in the container before the pump is connected to it? (1m)

_____

(b) When the pump is connected to the container and the plunger is pushed all the way into the pump, what is the volume of air in the container now? (1m)

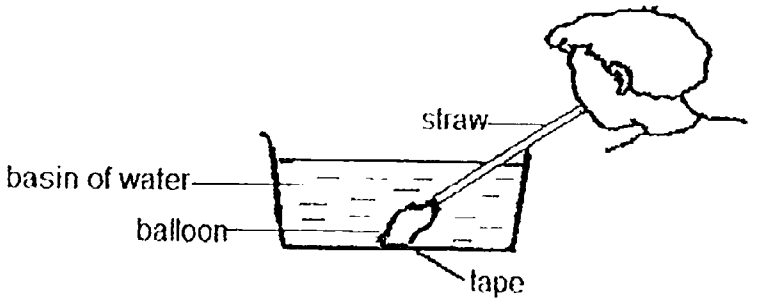
_____

(c) Explain your answer in (b). (1m)

_____

_____

39. Isaac fixed one end of a deflated balloon tightly to a straw using rubber band. He then taped the other end of the balloon to the bottom of a basin which was filled with water. After he had marked the water level in the basin, he blew into the straw, as shown in the diagram below.



(a) State one observation that Isaac would make about the water level in the basin when air was blown into the straw. (1m)

_____

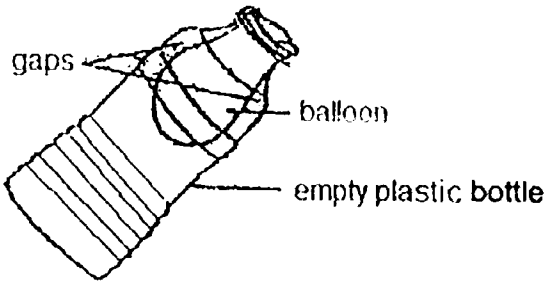
_____

(b) Explain your answer. (1m)

_____

_____

Isaac attached another balloon over the mouth of an empty plastic bottle, as shown in the diagram below.



(c) He tried to blow air into the balloon but realised that it would not inflate at all. Give an explanation for his observation. (1m)

_____

_____

Qn 39(d) continue on page 11

(d) Without removing the balloon from the mouth of the bottle, state a change that Isaac could make to the bottle so that the balloon would be able to inflate when air was blown into it. (1m)

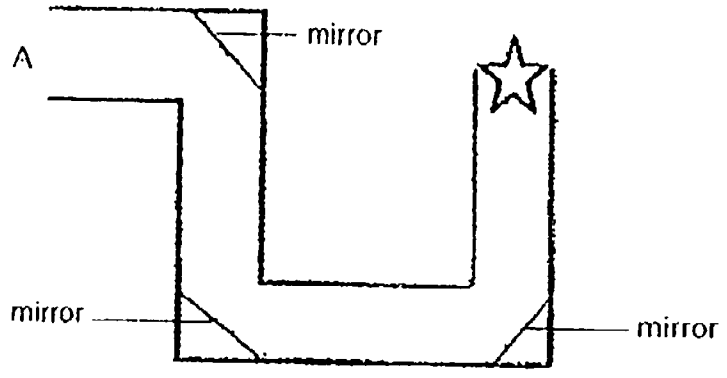
_____

_____

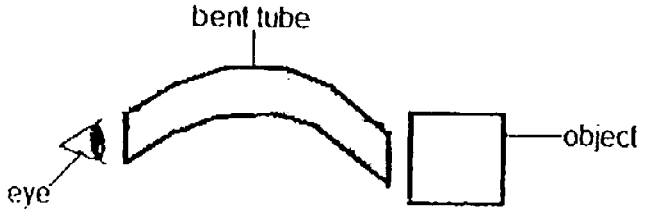
40. The diagram below shows the top view of a corridor. Belle is standing at the position marked A.

With the help of three mirrors, Belle could see the star at the end of the tunnel.

(a) With a pencil and ruler, draw arrows in the diagram below, to show the path of light that makes it possible for Belle to see the star at the end of the tunnel. (2m)



(b) Belle tried to use a bent tube to look at an object. Would she be able to see the object? Explain your answer. (1m)

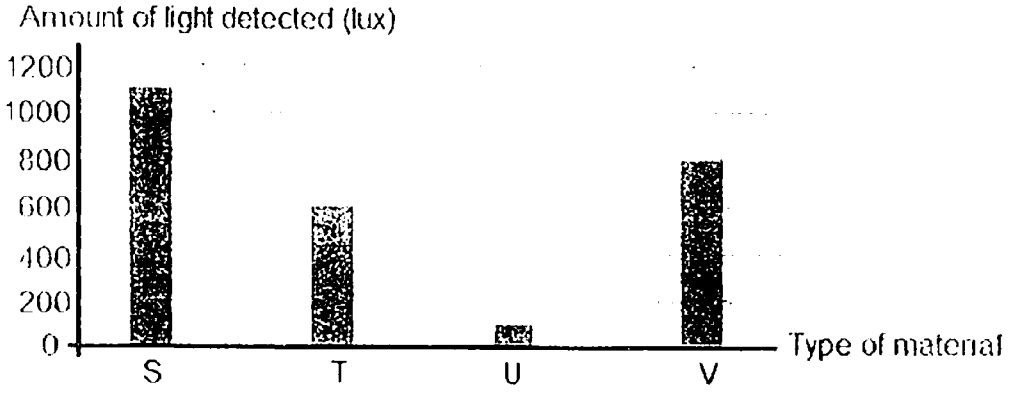


_____

_____

41. Clare was given four materials, S, T, U and V to construct a container that traps sunlight for the plants to photosynthesize. A diagram of the container is shown below.

She then conducted an investigation to find out what is the amount of light passing through the material. The results of the investigation was recorded in a graph as shown below.



(a) Which material S, T, U or V should Clare use to build the structure? (1m)

_____

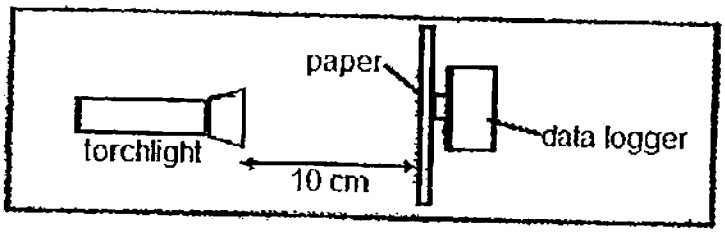
(b) Give a reason for your answer in (a). (1m)

_____

(c) Suggest a possible material for your answer in (a). (1m)

_____

42. Julian set up an experiment in the diagram below.



He wanted to find out if thickness of a paper will affect the amount of light passing through it.

Paper	A	B	C	D
Thickness of paper (mm)	1	2	3	4
Amount of light passing through (lux)	200	100	50	?

(a) Which paper A, B, C or D allows most light to pass through? (1m)

_____

(b) What happens to the amount of light passing through the paper as the thickness of paper increases? (1m)

_____

(c) Predict the amount of light passing through Paper D. (1m)

_____ lux

(d) Explain why the colour of each paper used in the experiment must be the same. (1m)

_____

End of Part II

EXAM PAPER 2016
LEVEL : PRIMARY 4
SCHOOL : ROYSTH SCHOOL
SUBJECT : SCIENCE
TERM : SA1

BOOKLET A

Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q9	Q 10
4	**3**	**3**	**3**	**2**	**1**	**4**	**3**	**3**	**2**
Q 11	Q 12	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20
2	**2**	**4**	**1**	**3**	**4**	**1**	**2**	**4**	**3**
Q 21	Q 22	Q 23	Q 24	Q 25	Q 26	Q 27	Q 28		
4	**3**	**3**	**1**	**3**	**2**	**1**	**4**		

BOOKLET B

Q29. Insects - C
Fish - A
Flowering - B
Non-flowering - D

Q30a) Part Y

b) Organism Y needs water to survive so it went to part Y which had moist soil.

c)(i) Changed variable: Amount of water in the soil
(ii) Measured variable: Number of Organism Y

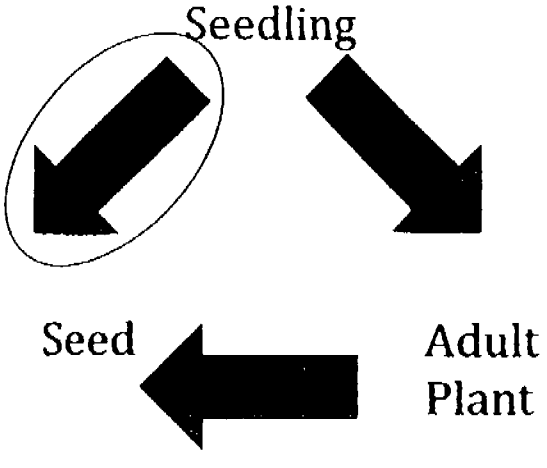
Q31a)(i) Plant A: Reproduce by seeds
(ii) Plant B: Reproduce by spores

b) No. Bread mould does not make food by itself but plant B makes its own food.

Q32a) DE

b) When the eggs hatch, the larva can feed on leaves for food straight away.

Q33a)



b)

When a seed germinates, the **roots** grow downward first. Then the first leaves appear. The seeding start to make its own **food**. The seedling gradually grows into a/ an **adult** plant. The adult plant will bear flowers and then **fruits** which contain seeds. These seeds will then continue the lifecycle.

Q34a) Living things reproduce.

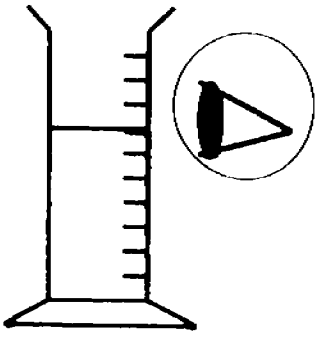
b) Both the life cycle of the mosquito and frog start with the egg.

c) The life cycle of mosquitoes has 4 stages but the life cycle of [illegible] stages.

d) Tadpoles have tails but adults frogs do not have tails. Tadpoles [illegible] but adult frog has legs.

35a)

Statements
Lower the rock gently into the measuring cylinder of water, masking sure that the rock is completely underwater.
Record the volume of water in the measuring cylinder at the beginning.
Pour some water into the measuring cylinder.
Record the new volume of water. Then, subtract from it, the volume of water that was in the measuring cylinder at the beginning.



Q36a) Size of beaker - To be kept the same
Size of opening - To be changed
Volume of water - To be kept the same
Time taken for water to flow into the beaker - To be measured

b) When the opening is bigger, it allows air to escape faster so when this happens, water can occupy space in the beaker in a faster manner.

Q37. All matter can be seen - False
Air does not have mass - False
All matter cannot be compressed - False
Volume is the amount of space an object occupies - True

Q38a) 300cm3

b) 300cm3

c) Even if there is no more space in the container, air can still be compressed so it can occupy any amount of space. And if there is enough space, air will expand.

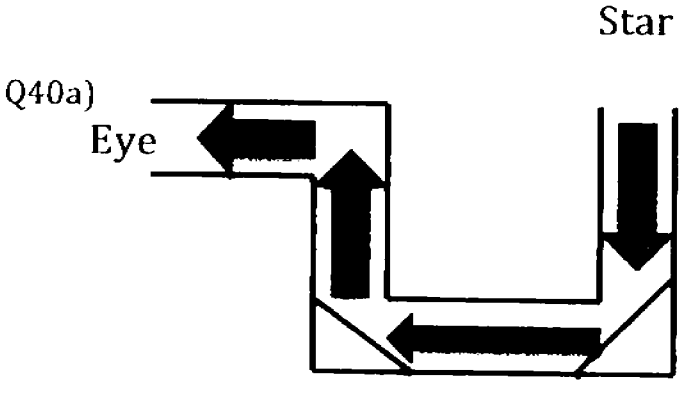
Q39a) The water level would rise.

b) Air occupies space so air would occupy some space and hence, the water level will decrease.

c) Air is taking up space in the bottle.

d) He could add holes in the bottle.

Q40a)



b) No, because light travels in straight lines so if the tube is bent, the eye

would not be able to see the object.

Q41a) S.

b) S allows most light to pass through.

c) Clear plastic.

Q42a) A.

b) As the thickness of the paper increases, the amount of light passing through decreases.

c) 0 lux.

d) So that it would be a fair test and the results will be reliable.