FIRST SEMESTRAL ASSESSMENT 2017

NAME: _____ ( ) DATE: 3 May 2017

CLASS: PRIMARY 5 SY / C / G / SE / P

Parent's Signature:

SCIENCE

BOOKLET A

28 questions

56 marks

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

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

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Part I (56 marks)

For each question from 1 to 28, 4 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.

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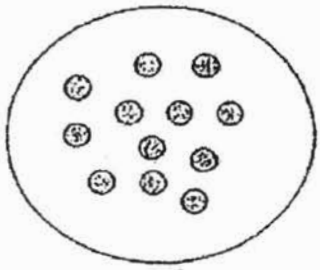
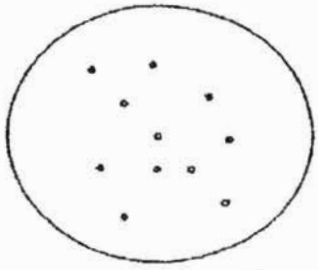
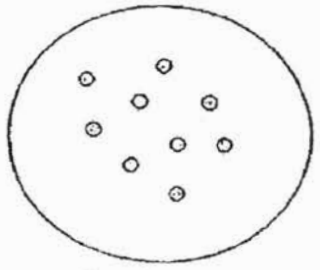
1. Jason drew samples of partially digested food in different parts of a digestive system as shown below.



Food Sample X



Food Sample Y



Food Sample Z

If Food Sample Z is taken from the stomach, which part of the digestive system are Food Samples X and Y taken from respectively?

	Food Sample X	Food Sample Y
(1)	Mouth	Gullet
(2)	Gullet	Small intestine
(3)	Small intestine	Mouth
(4)	Large intestine	Gullet

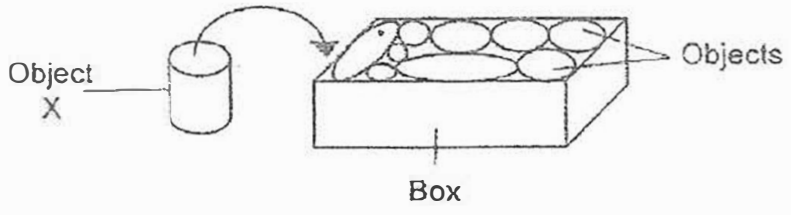
2. Janice wrote her observations about organisms P and S as shown below.

Organism P	Organism S
• It needs sunlight. • It cannot move by itself. • It has flowers.	• It reproduces by laying eggs. • It feeds its young with milk. • It can die.

What are organisms P and S most likely to be?

	Organism P	Organism S
(1)	Rose plant	Python
(2)	Bird's nest fern	Platypus
(3)	Bird's nest fern	Python
(4)	Rose plant	Platypus

3. Ian managed to put only 9 objects into a box. He could not squeeze in 1 more Object X into the box as shown below.



What property of matter does this activity show about Object X?

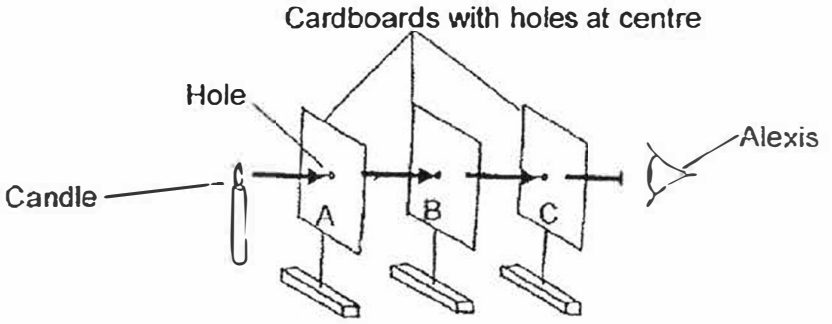
(1) It has mass.

(2) It has a fixed volume.

(3) It can be compressed.

(4) It does not have a definite shape.

4. Alexis set up an experiment as shown below.



She was able to see the candle when she placed the cardboards with the holes in a straight line.

Which one of the following action(s) can Alexis do in order to find out if light only travels in a straight line?

(1) Remove the candle.

(2) Shift cardboard B to the left.

(3) Replace the candle with a pencil.

(4) Replace the cardboards with clear glass.

5. Sue used a saucepan as shown below.

Saucepan

Which one of the following is <u>not</u> a possible shadow formed by the above saucepan?

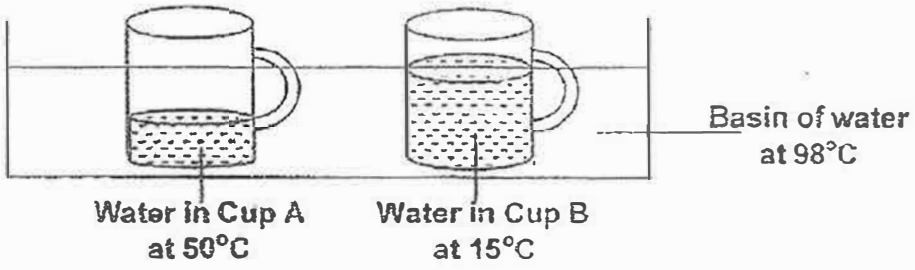
(1)

(3)

(2)

(4)

6. Zena has 2 similar Cups, A and B. Each cup contains a different amount of water and has a different temperature as shown below.



She puts both cups of water in a basin of 98°C water. She concluded based on her experiment that a longer time is needed to heat up a greater volume of water.

Why can't Zena make that conclusion based on her experiment?

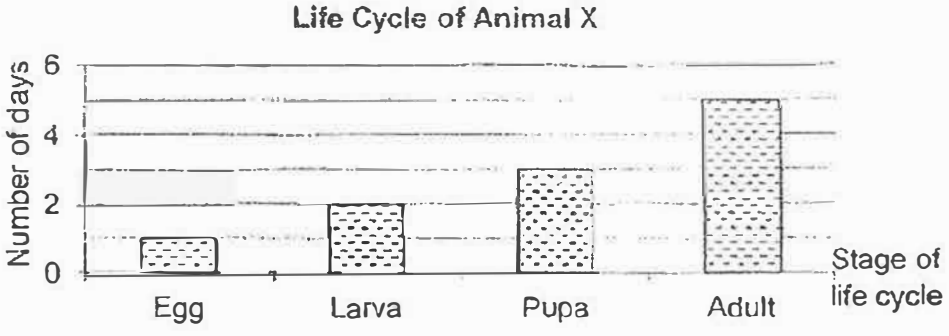
(1) Only the volume of water in both cups was not the same.

(2) The temperature of water in the basin was kept at 98°C.

(3) Cup A has less water but a lower temperature than Cup B.

(4) Cup B has more water but a lower temperature than Cup A.

7. Ciera studied the life cycle of Animal X and recorded its life cycle in the bar graph below.



Based on the information provided in the above bar graph only, which one of the following statements about Animal X is correct?

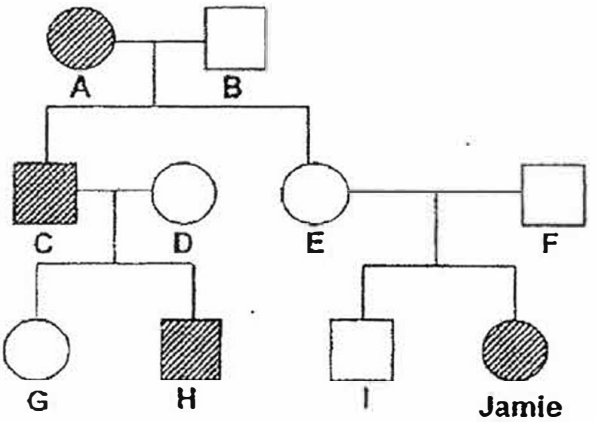
(1) Animal X took 5 days to lay eggs.

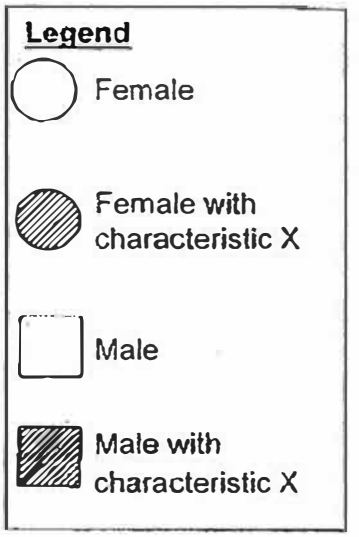
(2) The pupa is bigger than the larva.

(3) The larva and the pupa live in water.

(4) The pupa took 3 days to become an adult.

8. Study Jamie's family tree below.





Based on the family tree above, who did Jamie inherit characteristic X from?

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

9. Felicia conducted an experiment using pieces of Bread, A, B, C and D. The bread had different amounts of water and were placed in different temperatures as shown in Tables 1 and 2 below.

Bread	Temperature of surrounding air		
	0°C	7°C	32°C
A	√		
B		√	
C			√
D			√

Table 1

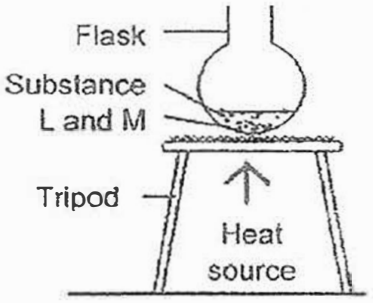
Bread	Amount of water added to each piece of bread		
	0 ml	3 ml	5 ml
A	√		
B		√	
C			√
D		√	

Table 2

On which bread, A, B, C or D, would Felicia observe the least amount of bread mould growth?

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

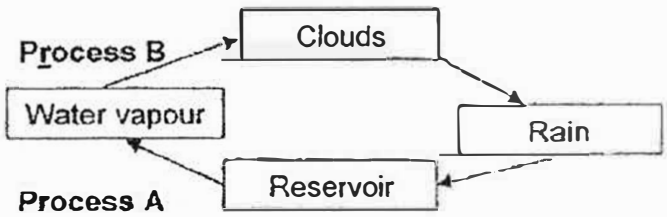
10. Raine set-up an experiment to separate Substances L and M as shown below. Both substances L and M are heated in a flask. After some time, only Substance L remained in the flask.



If the temperature of heat source is constantly at 116°C, which one of the following could most likely represent the boiling points of Substances L and M?

	Boiling point of Substance L	**Boiling point of Substance M**
(1)	86 ^{0}C	156 ^{0}C
(2)	100 ^{0}C	100 ^{0}C
(3)	86 ^{0}C	116 ^{0}C
(4)	156 ^{0}C	86 ^{0}C

11. The diagram below shows the water cycle that takes place in a reservoir. Processes A and B are important processes of the water cycle.

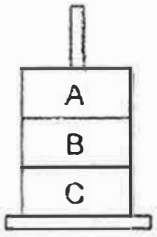


The Water Cycle

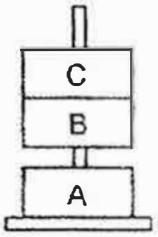
Which one of the following correctly represents Processes A and B?

	Process A	Process B
(1)	Melting	Condensation
(2)	Condensation	Condensation
(3)	Condensation	Evaporation
(4)	Evaporation	Condensation

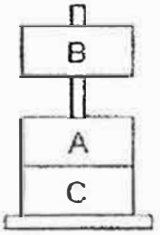
12. Della recorded her observations of 3 objects, A, B and C, as shown below.



Observation 1



Observation 2



Observation 3

Which one of the following statements about Objects A, B and C is true?

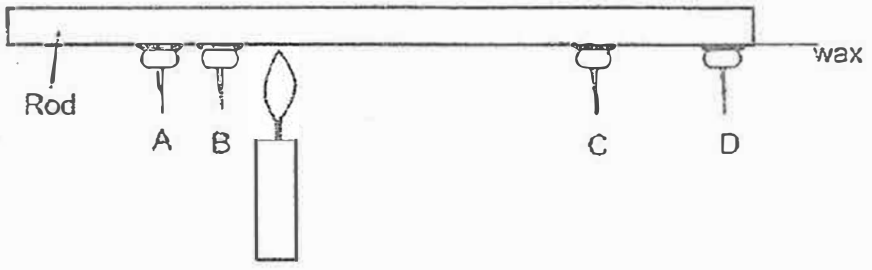
(1) Object A is definitely not a magnet.

(2) Object C is definitely not a magnet.

(3) Object A and B are definitely magnets.

(4) Objects B and C are definitely magnets.

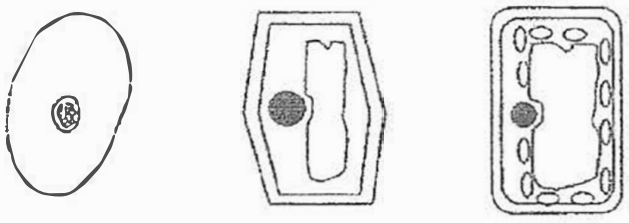
13. Nicole used a rod to conduct an experiment. She placed equal amounts of wax onto 4 identical thumbtacks, A, B, C and D. Next, she placed a candle under the rod as shown below.



In which sequence will the thumbtacks drop?

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

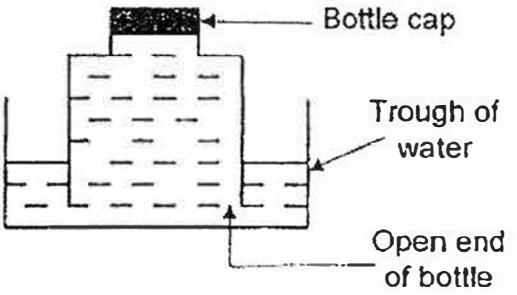
14. Kelly cut some cell samples from a plant and observed them under a microscope.



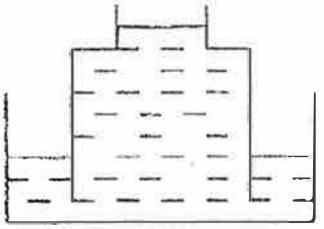
Which of the following cells were taken from the leaves, fruit and roots of the plant?

	Leaves	Fruit	Root
(1)	B	A	C
(2)	B	A	A
(3)	A	B	B
(4)	C	B	B

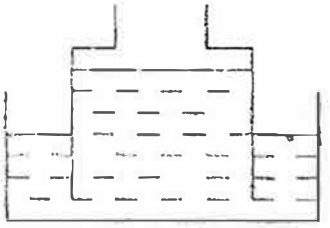
15. The diagram shows a capped bottle with its end open in a trough of water.



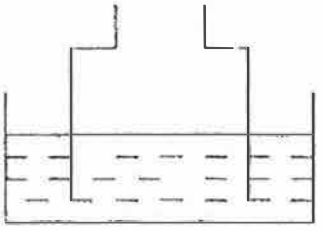
Which one of the following diagrams correctly shows what would happen to the water level in the bottle when the cap of the bottle is removed?



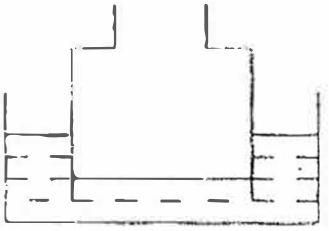
(1)



(3)

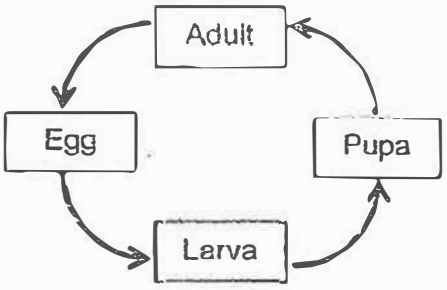


(2)

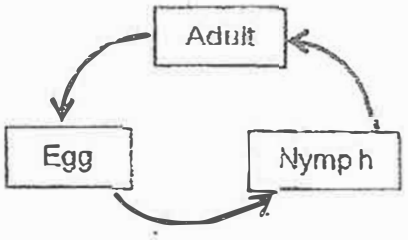


(4)

16. Study the life cycles of Animals X and Y as shown below.



Animal X



Animal Y

Which statement about the life cycles of Animals X and Y is definitely correct?

(1) Animal X has a longer life span than Animal Y.

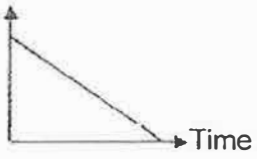
(2) Animal Y does not moult at the nymph stage.

(3) The young of Animal X does not look not like the adult.

(4) The adult of Animal X lays eggs in water but the adult of Animal Y lays eggs on land.

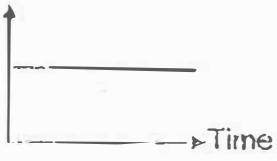
17. Which one of the following graphs shows Sean's heartbeat rate slowed down after he stopped jogging?

(1) Heartbeat rate



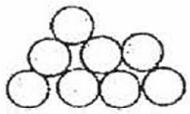
(3) Heartbeat rate

(2) Heartbeat rate

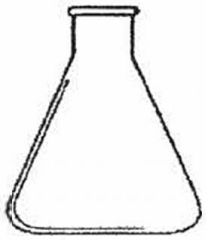


(4) Heartbeat rate

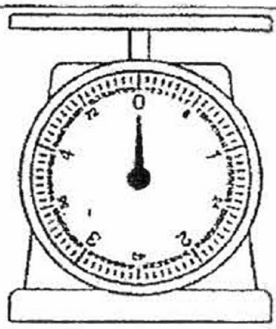
18, Sally has 8 marbles as shown below.



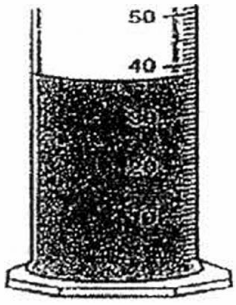
Which one of the following should Sally choose if she wants to find out how heavy each ball is?



(A) Conical flask



(C) Weighing scale



(B) Measuring cylinder

(D) Ruler

(1) B only

(2) C only

(3) A and B only

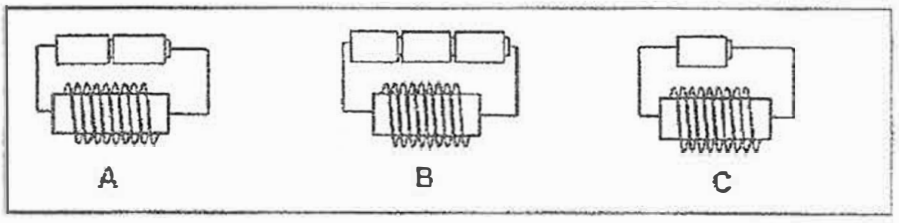
(4) A, B, C and D

19. Cecilia recorded the number of paper clips that electromagnets, A, B and C could attract in the table below.

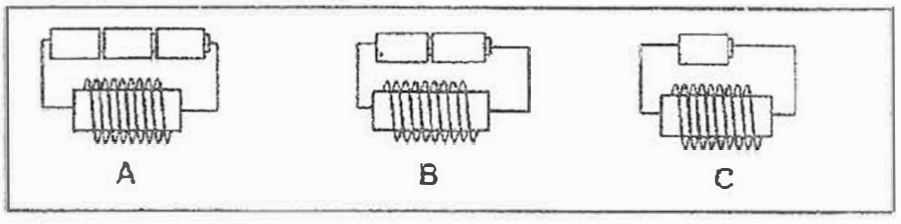
Electromagnet	Number of paper clips attracted
A	9
B	12
C	4

Based on the above results, which of the following set-ups correctly represents electromagnets, A, B and C?

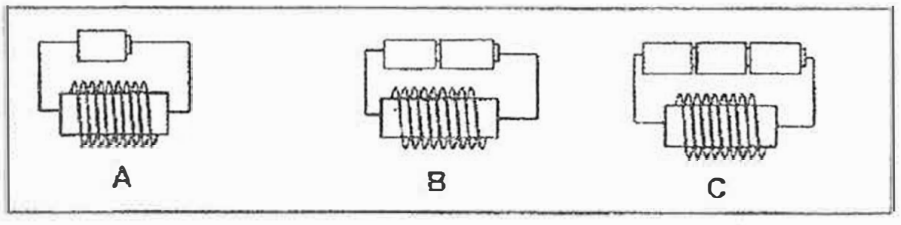
(1)



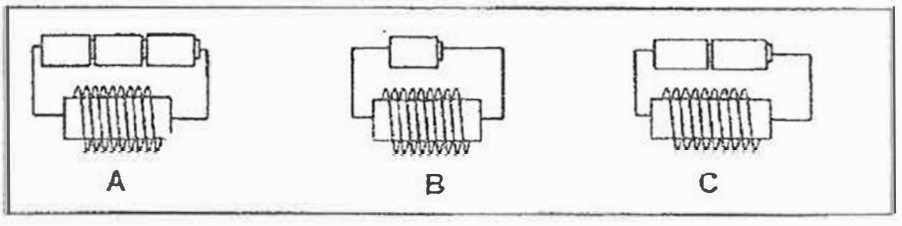
(2)



(3)



(4)

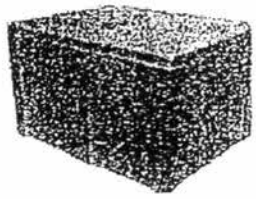


20. Which of the following activities shows the slowing down of heat gain by the ice?

A)

covering ice block with wood shavings

C)

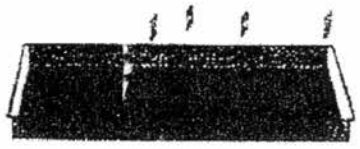


putting ice cubes into styrofoam box

B)

putting ice into hot coffee

D)



putting ice cubes on a metal tray

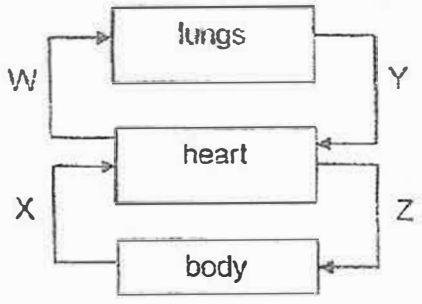
(1) A and C only

(2) B and D only

(3) A, C and D only

(4) A, B, C and D

21. Study the diagram below.



Which blood vessels, W, X, Y and Z, has been described **wrongly**?

	Blood Vessels	Type of Blood
1)	W	Rich in carbon dioxide
2)	X	Rich in carbon dioxide
3)	Y	Rich in oxygen
4)	Z	Rich in carbon dioxide

22. Leonard placed 2 containers of the green bean seeds, A and B under a lamp. He put different number of seeds in each container and recorded the average height and width of the seedling after 10 days. Equal amounts of water were provided for the seeds each day.

Container	Number of seeds	Average height of seedlings	Average width of seedlings
A	20	10 cm	1mm
B	5	6.5cm	3mm

Which one of the following most likely explains why the seedlings in container A grew taller than the seedlings in container B?

(1) Seedlings in container A needed to compete for more air.
(2) Seedlings in container A needed to compete for more sunlight.
(3) Seedlings in container A received more nutrients since they are taller.
(4) Seedlings in container A had more food stored in their seed leaves.

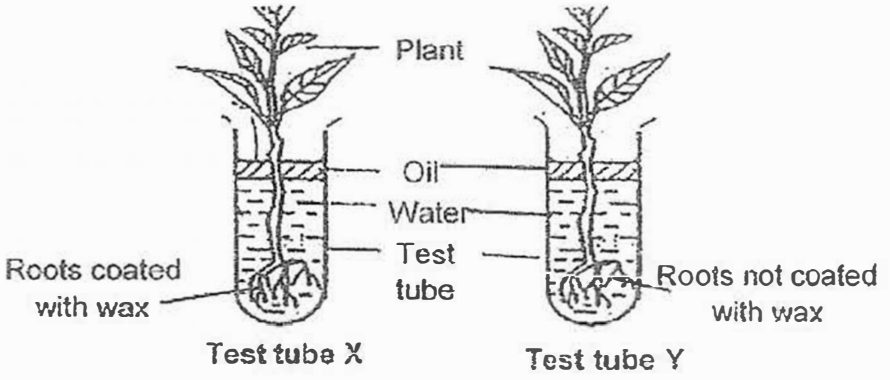
23. The table below shows the freezing points and boiling points of 3 differe... substances, R, S, and T.

Substance	Freezing Point (°C)	Boiling Point (°C)
R	40	180
S	20	120
T	0	80

Which of the Substances, R, S and/or T is/are liquid(s) at 100°C?

(1) R only
(2) R and S only
(3) T only
(4) None of the above

24. Lisa poured equal amounts of water into 2 test tubes as shown below. She placed a similar plant each into Test tubes X and Y. Only the roots of the plant in Test tube X were coated with wax.



She recorded the amount of water left in each test tube after 5 days in the table below. Which set of data would she expect to see at the end of the experiment?

(1)

Beaker	Volume of water at the start (ml)	Volume of water left after 5 days (ml)
X	500	500
Y	500	480

(2)

Beaker	Volume of water at the start (ml)	Volume of water left after 5 days (ml)
X	500	540
Y	500	520

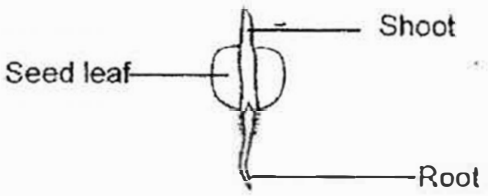
(3)

Beaker	Volume of water at the start (ml)	Volume of water left after 5 days (ml)
X	500	460
Y	500	480

(4)

Beaker	Volume of water at the start (ml)	Volume of water left after 5 days (ml)
X	500	480
Y	500	500

25. A table below shows the length of different parts of a seed over a period of 8 days.

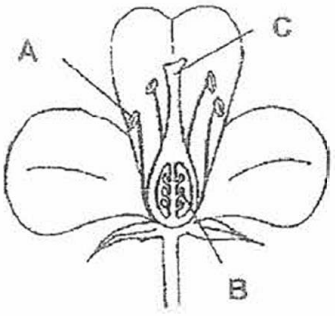


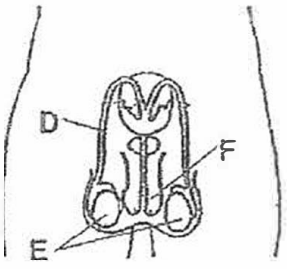
Day	Length (cm)	
	Part X	Part Y
1	0	0
2	0	0
3	0	0
4	0.1	0
5	0.5	0
6	1	0.1
7	1.4	0.3
8	1.9	0.8

Based on the above table, which parts of the seed do Parts X and Y represent?

	Part X	Part Y
(1)	Seed leaf	Root
(2)	Shoot	Root
(3)	Seed leaf	Shoot
(4)	Root	Shoot

26. The diagrams below show the plant and human reproductive systems.

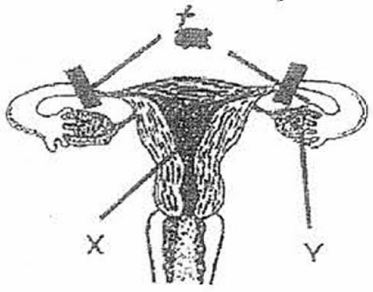




In which parts, A, B, C, D, E and F, are the male reproductive cells produced?

(1) A only
(2) A and E only
(3) C and F only
(4) A, C and F only

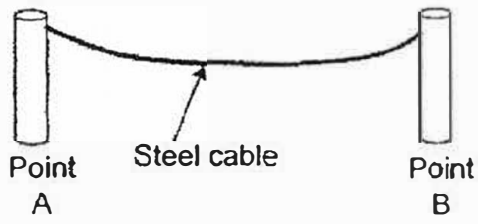
27. The diagram below shows a human reproductive system.



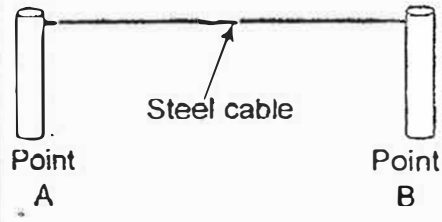
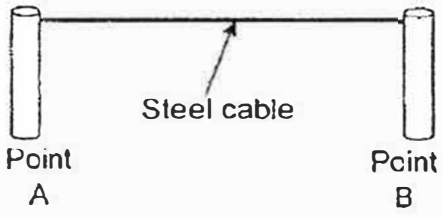
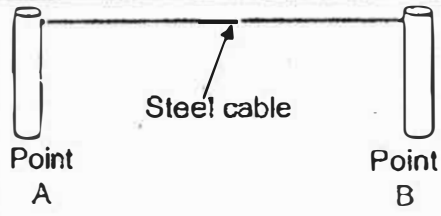
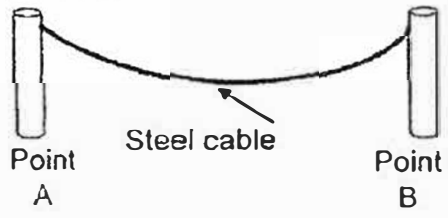
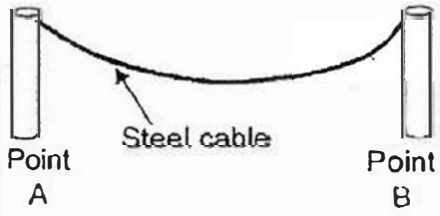
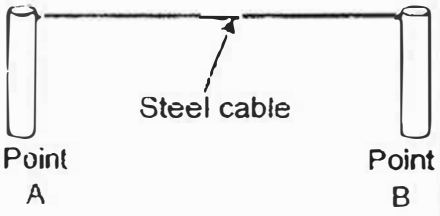
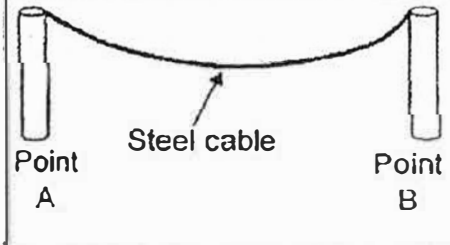
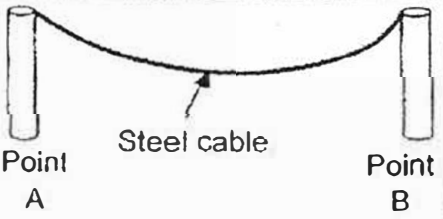
Explain how blocking parts W prevent reproduction from taking place.

(1) The eggs in parts Y will die.
(2) The sperms in parts W will die.
(3) The eggs cannot move to part X.
(4) The sperms cannot move to part W.

28. A group of workers installed the steel cable from Point A to Point B during a 28°C day as shown in the diagram below.



Which one of the following correctly shows how the cables would appear on days when their temperatures are 5°C day and 38°C day respectively?

	5°C	38°C day
(1)		
(2)		
(3)		
(4)		

FIRST SEMESTRAL ASSESSMENT 2017

NAME: _____ ( ) DATE: 3 May 2017

CLASS: PRIMARY 5 SY / C / G / SE / P

Parent's Signature:

SCIENCE

BOOKLET B

	Total Actual Marks	Total Possible Marks
Booklet A		56
Booklet B		44
Total		100

12 questions

44 marks

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

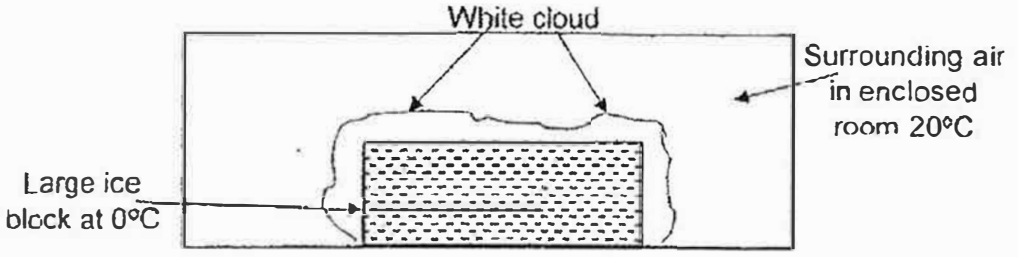
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Part II (44 marks)

Answer all the following questions.

29. Alan placed a large ice block at 0°C in a 20°C enclosed room. After some time, he observed that there was "white cloud" forming around the ice block.



a) What was the "white cloud" made up of? (1m)

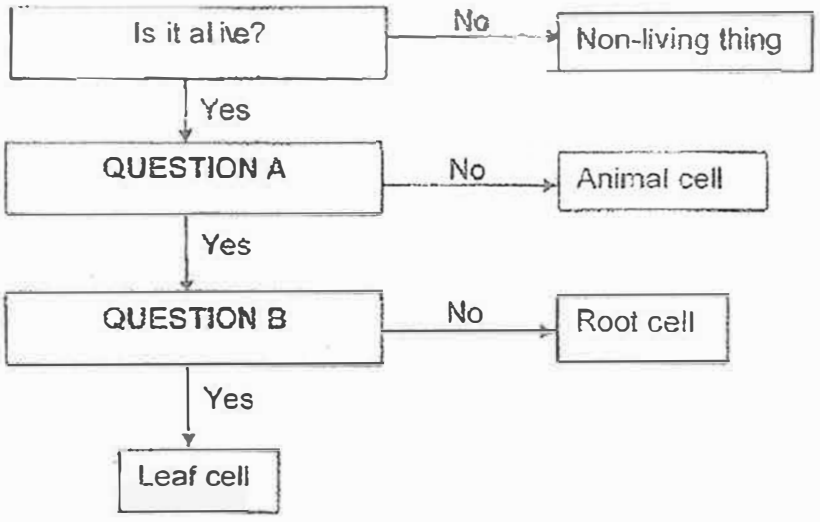
b) **Circle** the correct word in each box below. (2m)

The [cooler / warmer] vapour from the surrounding air [lost / gained] heat and [condensed / evaporated] onto the [cooler / warmer] air around the ice block.

c) **Without adding or changing the large ice block,** explain how Alan can increase the amount of "white cloud" forming around the large ice block. (1m)

4

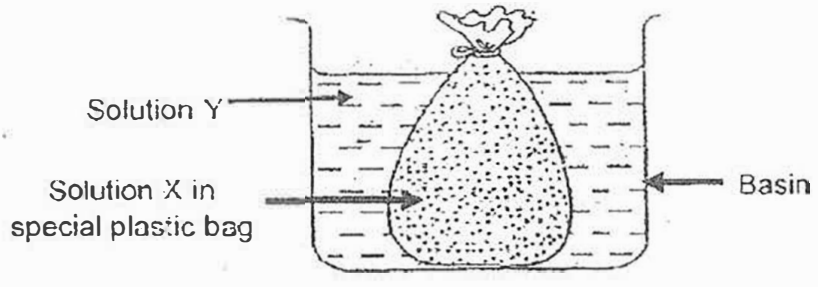
30. a) Study the flowchart below.



Based on the above flowchart, complete the 2 questions below to classify the different cells in the chart. (2m)

Question A	Does it have _____?
Question B	Does it have _____?

b) A bag of Solution X is placed in a basin of Solution Y. Owen observed that Solution X could not exit the special plastic bag but Solution Y could enter the special plastic bag.



i) Based on his setup above, which part of a plant cell has a similar function as the special plastic bag? (1m)

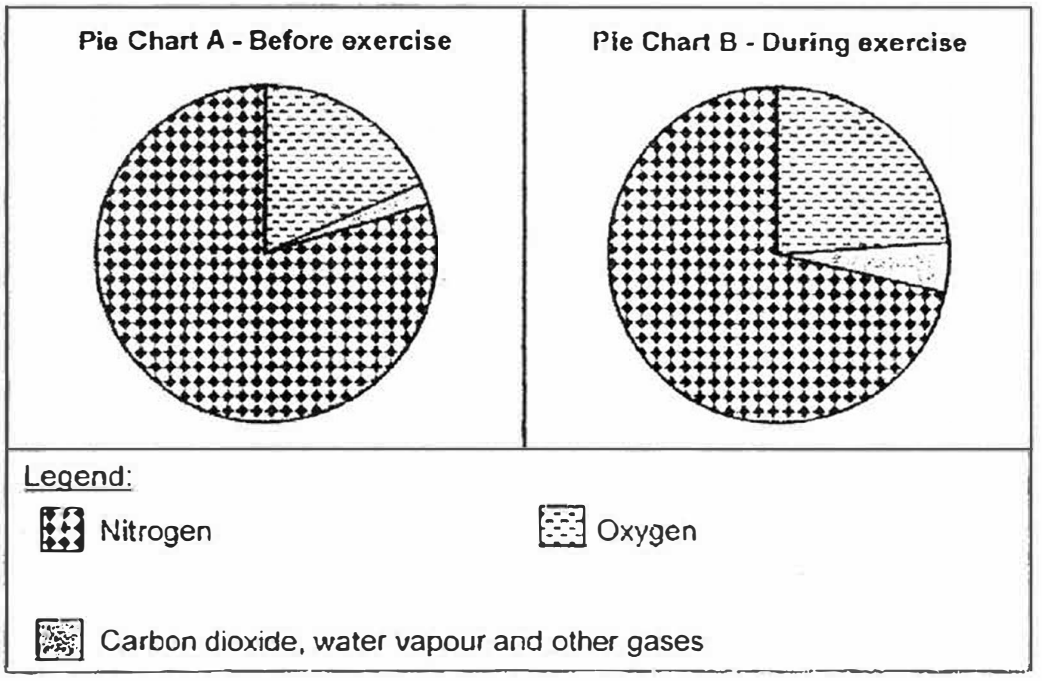
_____

ii) What happened to the size of the bag at the end of the experiment? (1m)

_____

4

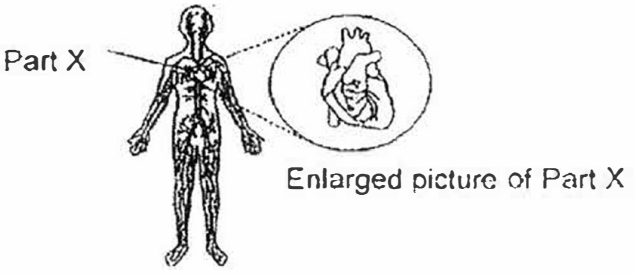
31. a) Pie Chart A shows the average composition of air John breathed in before an exercise. Pie Chart B shows the average composition of air John breathed out during an exercise.



State 2 mistakes in the Pie Chart B. (2m)

Mistake 1:	There should not be a decrease in _____.
Mistake 2:	There should not be an increase in _____.

b) The diagram below shows the human circulatory system.



State the function of Part X. (1m)

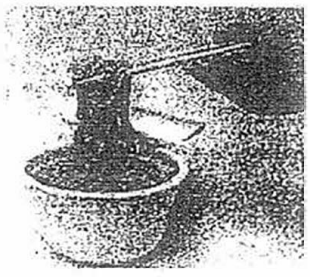
_____

3

32. Jack recorded the properties of 4 different types of materials as shown below.

Material	Breakable	Melting point	Flexibility
A	No	110 °C	No
B	Yes	50 °C	No
C	No	97 °C	Yes
D	No	43 °C	Yes

Jack wanted to use one of the materials above to make into a bowl for hot noodles at 85°C as shown in the picture below.



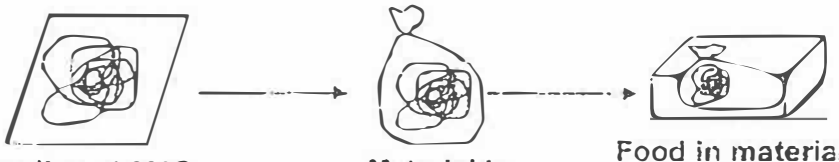
Noodles at 85°C

a) Which material, A, B, C or D is the most suitable to be used to contain hot noodles? Explain your answer. (2m)

_____

_____

b) Jack used a type of material to pack noodles as shown in the diagram below.



Noodles at 60°C on material — **Material is folded** — **Food in material is put in paper box**

Explain why Material C will be a good choice to pack noodles at 60°C. (1m)

_____

3

33a) Linda wanted to observe the plant transport system. Diagram 1 shows the stem of a plant. Diagram 2 shows the water-carrying and food-carrying tubes in the stem.

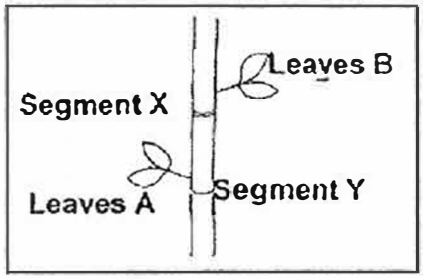


Diagram 1

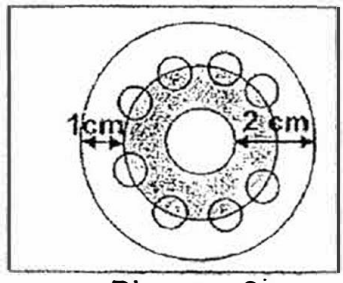
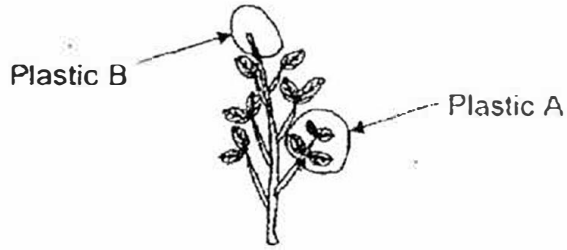


Diagram 2

i) Explain why Leaves A remained healthy when a 1 cm cut is made at Segment Y. (1m)

ii) Explain why Leaves B died when a 2 cm cut is made at Segment X. (1m)

b) Linda tied 2 plastic bags around a plant for 12 hours. Plastic Bag A is tied to some leaves and Plastic Bag B is tied to a branch without any leaves.

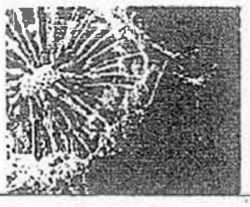


Linda observed that there were water droplets on the inner side of Plastic Bag A but there were no water droplets on the inner side of Plastic Bag B.

i) What can Linda conclude from the above experiment? (2m)

4

34. Lily observed the characteristics of 2 seeds, P and Q, as shown below.



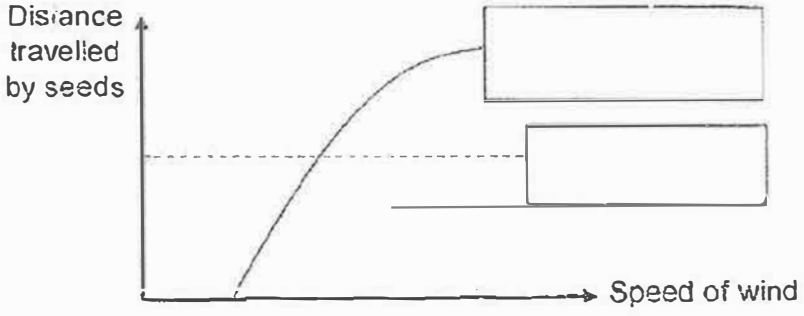
Seed from Plant P

- tiny and light
- has feathery-like structure

Seed from Plant Q

- Tiny and light
- Hard
- Surrounded by juicy flesh

a) She recorded how the speed of wind affected the distance travelled by the seeds, P and Q, as shown in the graph below. Write "**Seed P**" and "**Seed Q**" in the correct boxes in the graph below. (1m)



b) Two islands A and B are surrounded by water. The table below describes them further.

	Island A	Island B
Presence of animals	No	Yes
Presence of wind	Yes	Yes
Amount of sunlight	Sufficient	Sufficient

i) On which island, A or B will there more likely to have fewer Plant Q than Plant P? (1m)

_____

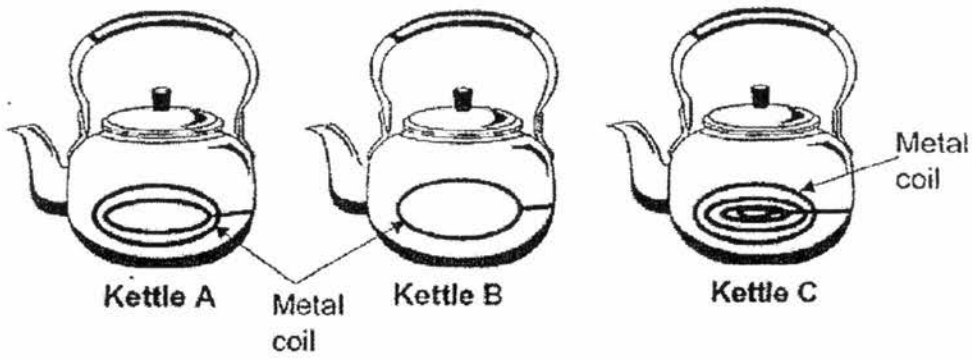
ii) Plant W is not found on Island B and does not disperse by wind. Give 2 possible reasons why Plant W's seedling appear on Island B one year later. (2m)

_____

_____

4

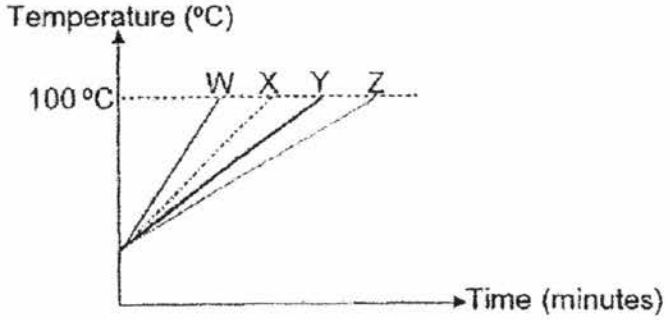
35a) A kettle contains a metal coil which heats up the water in the kettle when the electricity is switched on. Paul uses 3 identical kettles, A, B and C with different metal coils as shown below.



Paul poured an equal amount of water at 25°C into each kettle. He found that the water in Kettle C heated up the fastest. Give a reason for this. (1m)

_____

b) Paul poured water into 4 cups made of different materials, W, X, Y and Z. He recorded the time taken for the water to boil as shown in the graph below.



i) Which Material, W, X. Y or Z is the poorest conductor of heat? (1m)

_____

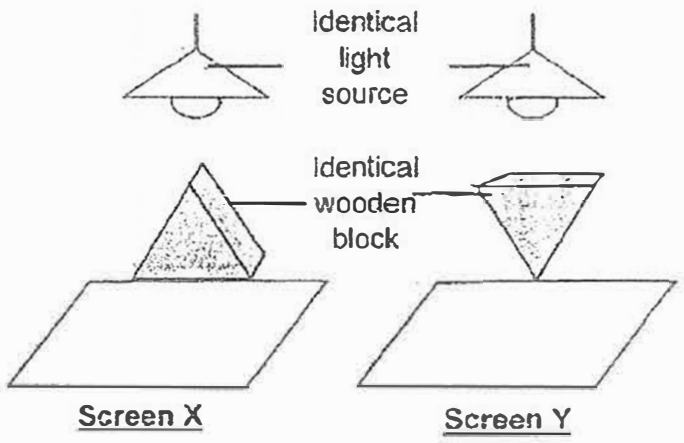
ii) Explain why Material Z is the best material to make into a container for transporting ice. (2m)

_____

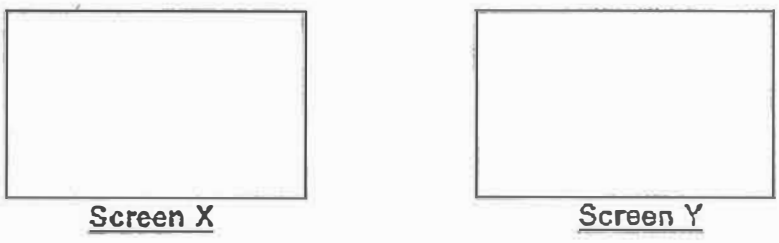
_____

4

36a) Sherlyn placed 2 identical wooden blocks in different positions directly under identical light sources in a dark room. Shadows were formed on Screens X and Y.



i) Draw the shadows formed on screens X and Y. (1m)



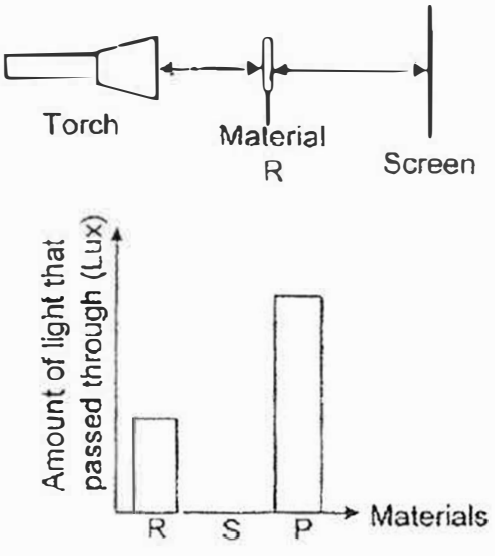
ii) **Without moving the screen or changing the wooden blocks**, state a way to increase the size of the shadow formed on the screen. (1m)

_____

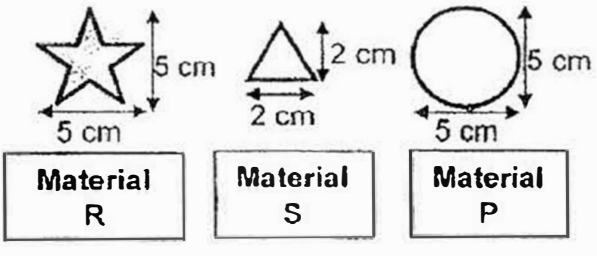
_____

2

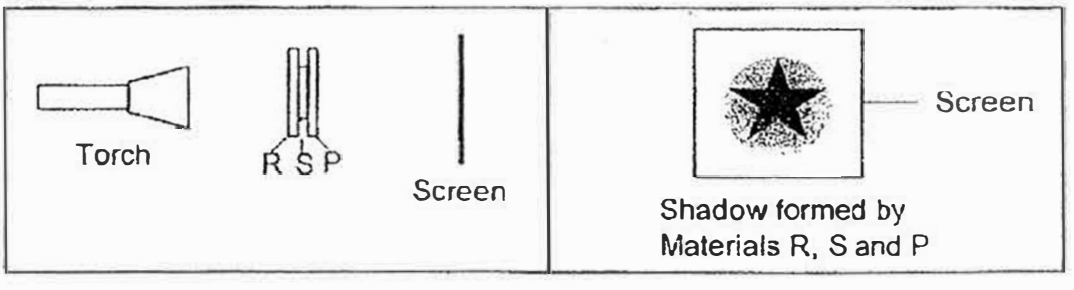
36b) Sherlyn recorded the amount of light that passed through Material R. She repeated the same experiment with materials S and P and recorded the results in the graph below.



Next, she cut materials, R, S and P into different shapes as shown below.



She then shone the torch through Materials R, S and P and drew the shadow formed on the screen as shown below.



Explain why the shadow drawn is incorrect. (1m)

1

37a) Tommy wanted to find out the relationship between the number of bees in his garden and the number of fruits developed in his garden. He recorded the results in the table below.

Months	Number of bees	Number of fruits developed
January	234	15
March	341	18
June	651	21
September	423	19

i) State the relationship between the number of bees in Tommy's garden and the number of fruits developed. (1m)

_____

_____

ii) In the development of fruits, which process are the bees involved in? (1m)

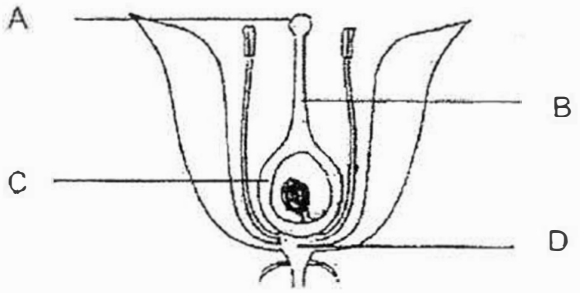
_____

iii) In December, no bees were found in the garden but some fruits were developed. Give a possible reason why the fruits can still develop. (1m)

_____

3

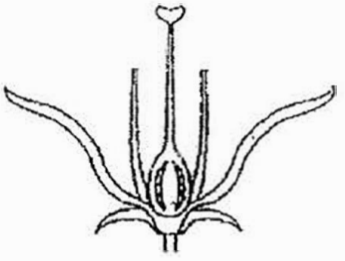
37b) The diagram below shows a flower.



i) Which part, A, B, C or D will become a fruit? (1m)

_____

ii) Tommy has removed petals and pollen of Flower A as shown below.



Flower A

Explain why Flower A can still become a fruit. (1m)

_____

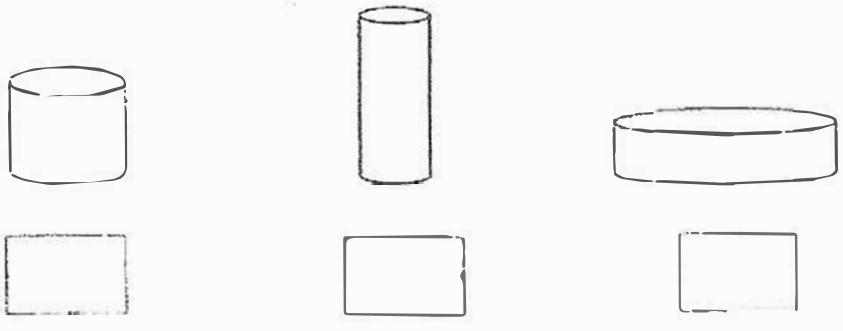
_____

2

38a) Kelly placed containers, A, B, and C in an open garden. She filled each container completely with water and recorded the number of hours taken for the water to decrease by 50ml.

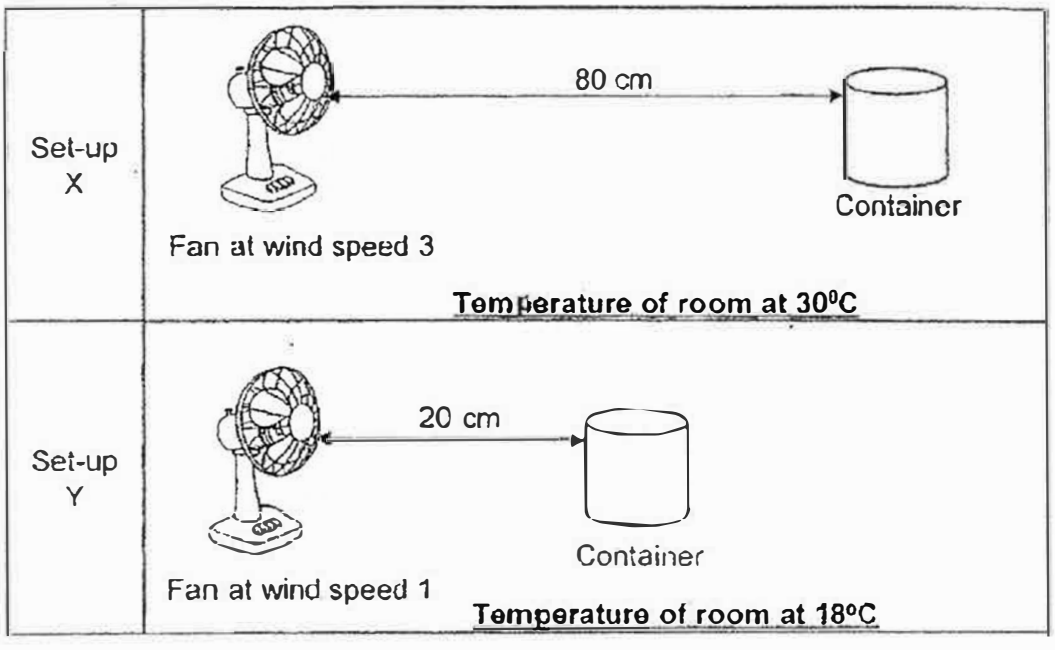
Container	Time taken to decrease by 50ml
A	25 hours
B	18 hours
C	38 hours

The diagram below shows 3 containers. Based on the results in the above table, fill in "A", "B" and "C" in the correct boxes below. (2m)



2

38b) Kelly conducted an experiment as shown below using set-ups, X and Y. Both containers are identical and filled completely with water.



She recorded the results of her experiment as shown below.

Set-up	Amount of water left in container
X	150ml
Y	210ml

i) Based on Kelly's experiment, explain why she was unable to conclude that the greater the wind speed of the fan, the faster the rate of evaporation. (1m)

_____

_____

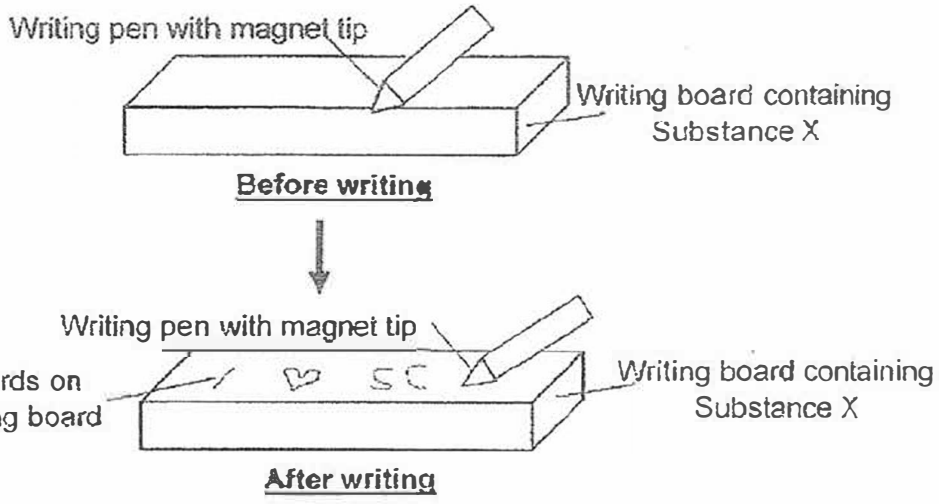
ii) Kelly wanted to find out how the distance between the fan and container of water affects the rate of evaporation.
State 2 variables which Kelly should keep the same for her to conduct a fair test. (1m)

Variable 1 : _____

Variable 2 : _____

2

39. Sally has a special writing board that works as shown below.



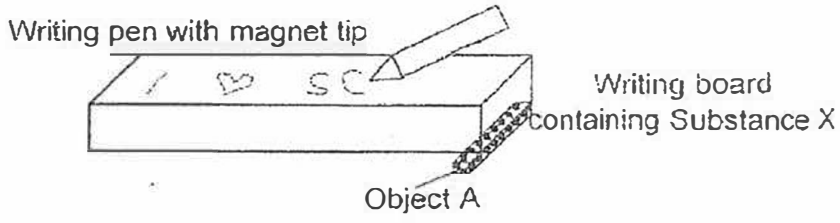
a) Explain how the words appear on the writing board. (1m)

_____

b) Suggest a material which Substance X could be made of. (1m)

_____

In order to remove the written words on the writing board. Sally placed Object A below the writing board. As Object A moves around the bottom of the writing board, the 'written' words would disappear.



c) Explain why Sally is unable to remove the written words if Object A is made of aluminium. (1m)

_____

3

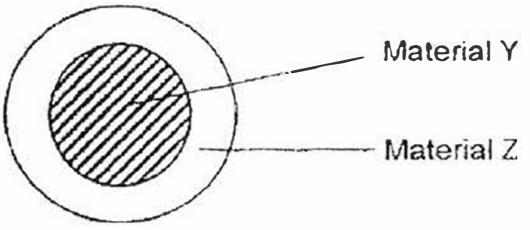
40. Janice used 3 materials, X, Y and Z to conduct an experiment. She placed the materials in different conditions and observed the changes in their lengths as shown in the table below.

Material	Original length at 25°C (cm)	Length at 0°C (cm)	Length at 55°C (cm)
X	5	4.5	5.4
Y	7	6.7	8.1
Z	9	8.9	9.2

a) Which material, X, Y or Z, expands the most at 55°C? (1m)

_____

b) Janice created a plate using Material Y and Z as shown below.



Explain why the plate will crack at 55°C. (2m)

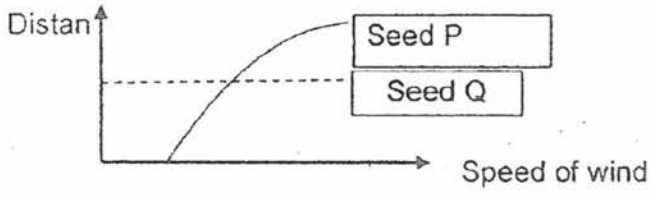
_____

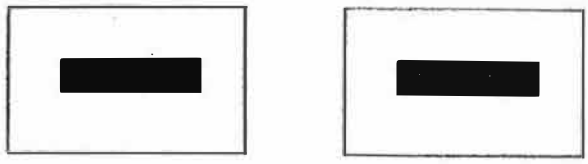
_____

3

2017 P5 Science SA1 Answer Key

1)	2	6)	4	11)	4	16)	3	21)	4	26)	2
2)	4	7)	4	12)	3	17)	4	22)	2	27)	3
3)	2	8)	1	13)	2	18)	2	23)	2	28)	2
4)	2	9)	1	14)	4	19)	1	24)	1		
5)	1	10)	4	15)	2	20)	1	25)	4		

Qn	Suggested Answer
Q29a	Water droplets
Q29b	The warmer water vapour from the air lost heat and condensed onto the cooler air around the ice block.
Q29c	Increase the temperature of the room.
Q30a	QUESTION A: Does it have **a cell wall**? QUESTION B: Does it have **chloroplasts?**
Q30bi	Cell membrane
Q30bii	It would become bigger.
Q31a	Mistake 1: There should not be a decrease in **nitrogen**. Mistake 2: There should not be an increase in **oxygen**.
Q31b	To pump blood to other parts of the body
Q32a	Plastic A.(1m) Its melting point is above 85°C(0.5) and is not flexible(0.5m).
Q32b	Its melting point is above 60°C and is flexible
Q33ai	The water-carrying tubes are not cut below Leaves A and Leaves A can still receive water.
Q33aii	Water carrying tubes are cut below Leaves B and Leaves B cannot receive water.
Q33b	i) It shows that plants give out water (vapour) through their leaves (which condensed as water droplets on the plastic bag).
Q34a	
Q34bi	Island A
Q34bii	Plant W could be dispersed by animals which fly or swim to Island B AND Plant W could be dispersed by water.
Q35a	C has the most coils / metal to heat up the water.
Q35bi	Z
Q35bii	Z. It is poorest conductor of heat. Z will conduct/ transfer heat from the

	surroundings to the ice the slowest.
Q36ai	 Screen A Screen B
Q36aii	Move the light source nearer to the wooden block. OR Move the wooden block away from the screen.
Q36b	Material S is opaque/does not allow light to pass through(0.5) . There should be a black triangle in the shadow shown (0.5).
Q37ai	When the number of bees in Tommy's garden increases, the number of fruits developed will increase. *(Cause and effect cannot be reversed)*
Q37aii	Pollination
Q37aiii	Other insects / Wind can still help to pollinate the flowers/ transfer the pollen grains to the stigma.
Q37bi	C
Q37bii	Flower B can be pollinated by pollen grain from another flower of the same species and develop into a fruit.
Q38a	A, C, B
Q38bi	She changed two variables, the temperature of the room and the distance between the water and the fan, making the test unfair.
Q38bii	Variable : The wind speed Variable : Temperature of the room/ temperature of water Variable: Exposed surface area of water
Q39a	The magnetic tip of the pen attracts Substance X.
Q39b	Iron OR Steel
Q39c	Aluminium is (non-magnetic and) cannot be/ is not a magnet, thus it cannot attract Substance X. *(As an iron bar is a magnetic material but it also can't attract X if it is not made into a magnet, saying 'aluminium is non-magnetic' is not sufficient)*
Q40a	Material Y
Q40b	Materials Z and Y expanded at different rates.