						-	

SINGAPORE CHINESE GIRLS' SCHOOL
PRELIMINARY EXAMINATION 2019
PRIMARY 6 SCIENCE

Name: _____ ( ) Date: 22 August 2019

Class: Primary 6 SY / C / G / SE / P

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.

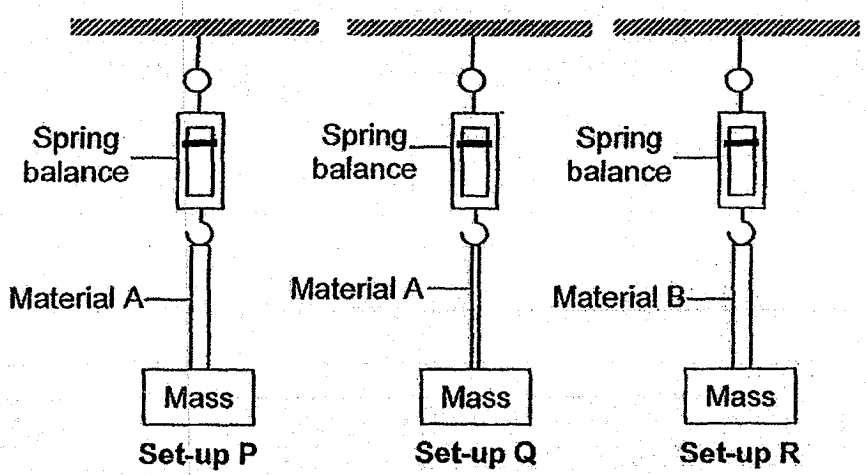
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A (56 marks)
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.**

1. Which one of the following can be used to differentiate between fish and reptiles?

1) Ability to swim
2) Body temperature
3) Presence of legs
4) Presence of gills

2. Mohan conducted an experiment as shown below. He increased the mass hung on each material, A and B, until they broke.



Which of the following pairs of set-ups can he compare fairly?

X: P and Q
Y: P and R
Z: Q and R

1) X only
2) X and Y only
3) Y and Z only
4) X, Y and Z

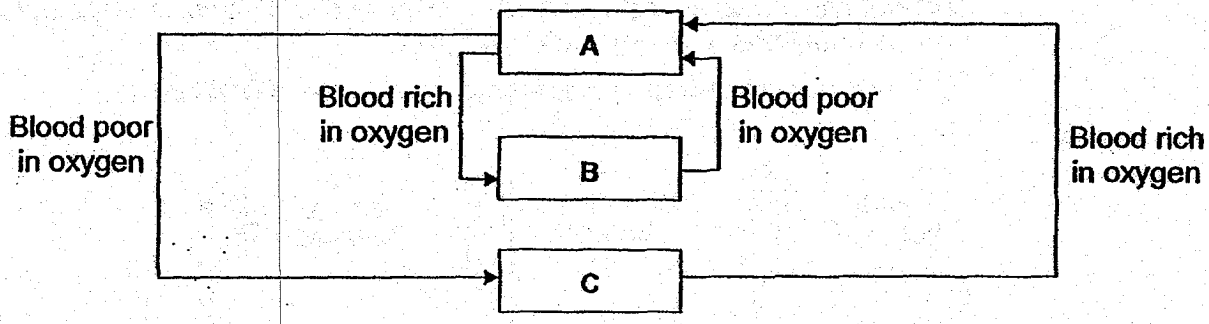
3. Which one of the following about the digestive system is correct?

	Large intestine	Stomach	Small intestine
1)	Absorbs excess water from digested food	Absorbs digested food	Digests food
2)	Digests food	Digests food	Absorbs excess water from digested food
3)	Absorbs excess water from undigested food	Digests food	Absorbs digested food
4)	Absorbs digested food	Absorbs excess water from undigested food	Digests food

4. Which one of the following correctly shows what happens when we exercise?

	Oxygen required	Carbon dioxide released	Digested food required	Heartbeat rate
1)	Increases	Increases	Increases	Increases
2)	Decreases	Increases	Remain the same	Increases
3)	Increases	Decreases	Decreases	Decreases
4)	Decreases	Remain the same	Remain the same	Decreases

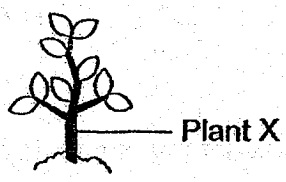
5. The diagram below shows the flow of blood in our body.



Which one of the following correctly shows A, B and C?

	A	B	C
1)	Other parts of the body	Heart	Lungs
2)	Other parts of the body	Lungs	Heart
3)	Lungs	Heart	Other parts of the body
4)	Heart	Other parts of the body	Lungs

6. Kumar set up an experiment using 4 similar leaves of the same mass, A, B, C and D of Plant X. He coated some surfaces of the leaves as shown in the table below.

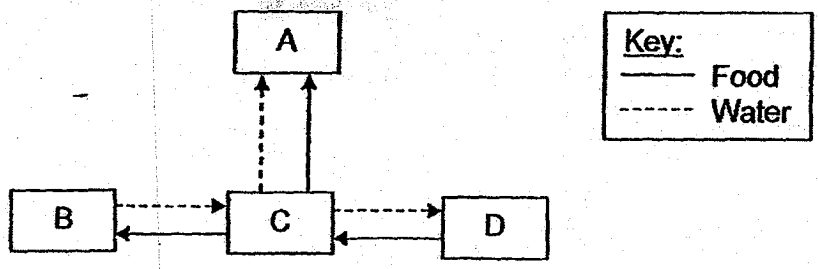


Leaf	Underside coated with oil	Upper side coated with oil
A	✓	✓
B		
C	✓	
D		✓

After a few hours, Kumar weighed each leaf and recorded the mass. Which one of the following shows the correct order of the mass of the leaves, from the heaviest to the lightest?

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

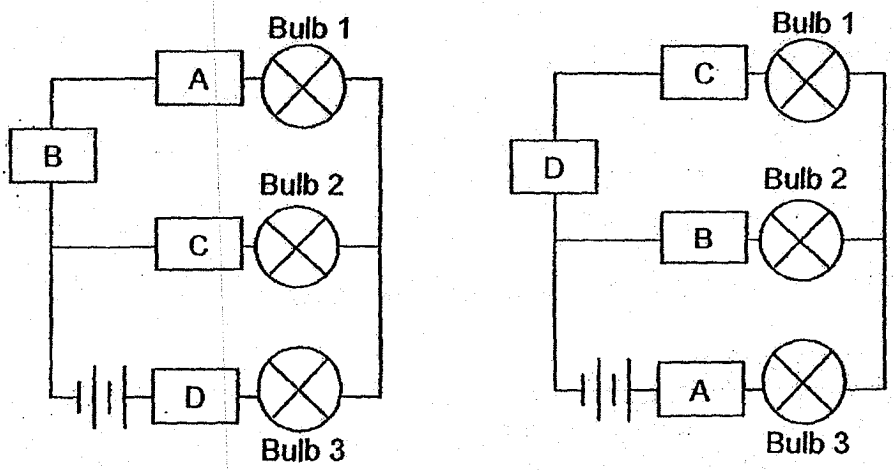
7. The diagram below shows the movement of food and water in a plant.



Which one of the following below is correct?

	A	B	C	D
1)	Fruit	Leaves	Stem	Roots
2)	Fruit	Roots	Stem	Leaves
3)	Leaves	Stem	Roots	Fruit
4)	Roots	Stem	Leaves	Fruit

8. Alice set up 2 circuits using similar electrical components as shown below.



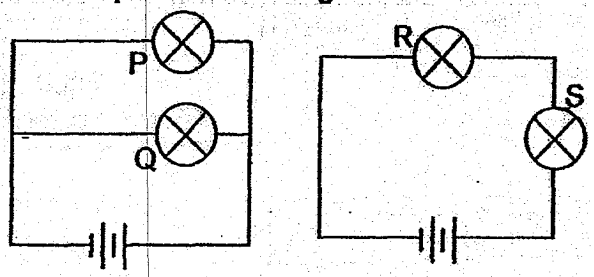
The table below shows the results of her experiment.

	Did the bulbs light up?		
	Bulb 1	**Bulb 2**	**Bulb 3**
Circuit P	No	No	No
Circuit Q	No	Yes	Yes

Which one of the following is correct?

	Conductors of Electricity	Non- conductors of Electricity	Not possible to tell
1)	A	B	C and D
2)	A	-	B, C and D
3)	A and B	C and D	-
4)	A and B	D	C

9. Alice set up 2 circuits using similar electrical components as shown below.



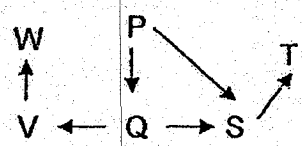
Circuit A Circuit B

Which of the following statements is/are correct?

A: The bulbs in both circuits are arranged in series.
B: The bulbs in Circuit A are brighter than the bulbs in Circuit B.
C: If Bulb R in Circuit B is fused, Bulb S will not be able to light up.
D: If Bulb P in Circuit A is fused, Bulb Q will not be able to light up.

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

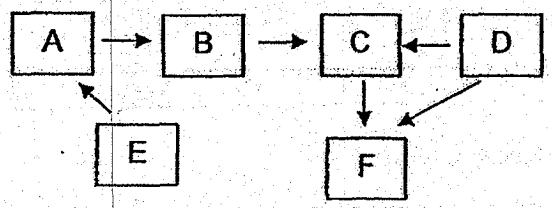
10. Study the food web below.



Which one of the following statements is correct?

1) P is a decomposer.
2) V and Q are animal eaters.
3) W and T are food producers.
4) S is a plant and animal eater.

11. The food web below shows the relationship between 6 organisms.

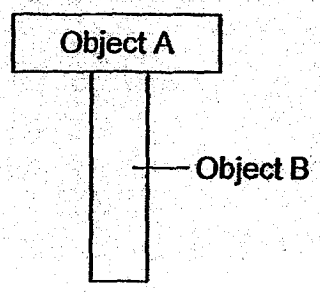


Which organism/s is/are both prey and predator?

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

12. Aziz observed that Object A and Object B were attracted as shown below.

Aziz then placed Object A and Object B in another position as shown below.

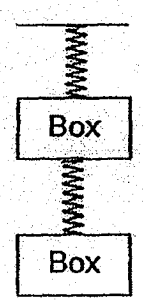


He noticed that Object A and Object B were not attracted. Which one of the following correctly explains why this happened?

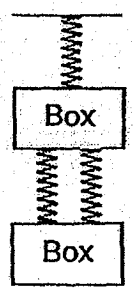
1) Only Object A is made of a non-magnetic material.
2) Only Object B is made of a non-magnetic material.
3) The magnetic force in the middle of Object A is too weak.
4) Both Object A and Object B are made of non-magnetic materials.

13. Cindy hung boxes of the same mass onto identical springs. Which one of the following correctly shows the extension of the springs when the boxes are hung on the springs?

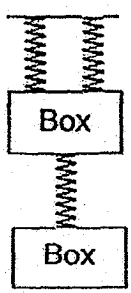
1)



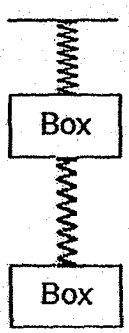
3)



2)



4)

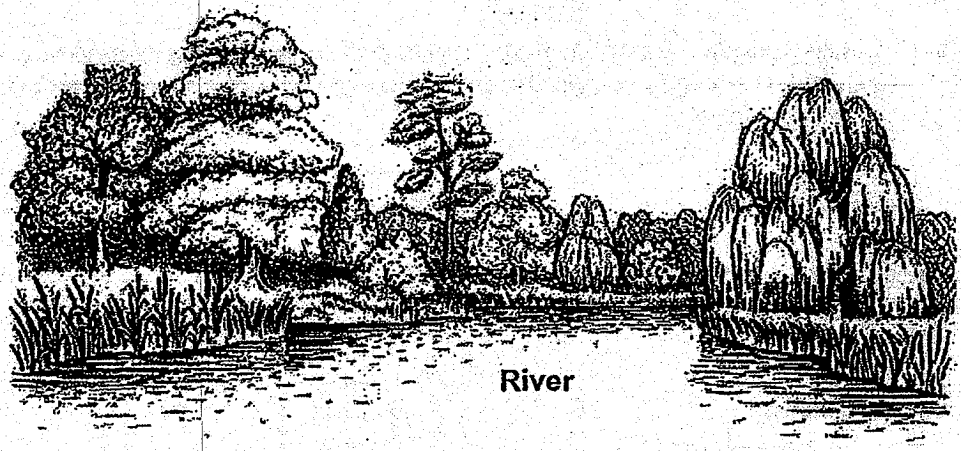


14. The picture below shows a group of polar bears looking for food in a rubbish dump in a town.

Which one of the following directly drives the polar bears to search for food in the town?

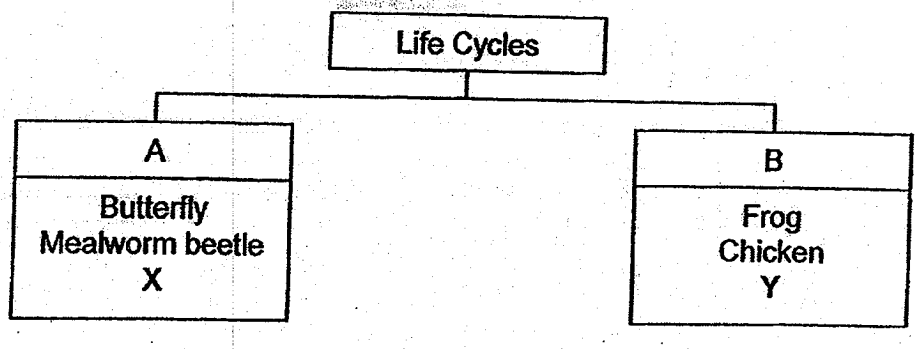
1) Acid rain
2) Deforestation
3) Air pollution
4) Global warming

15. What would happen if all the plants in the area as shown below are removed?



1) The animals in the river will increase.
2) The amount of soil eroded will increase.
3) The amount of rainfall in the area will increase.
4) The amount of oxygen in the area will increase.

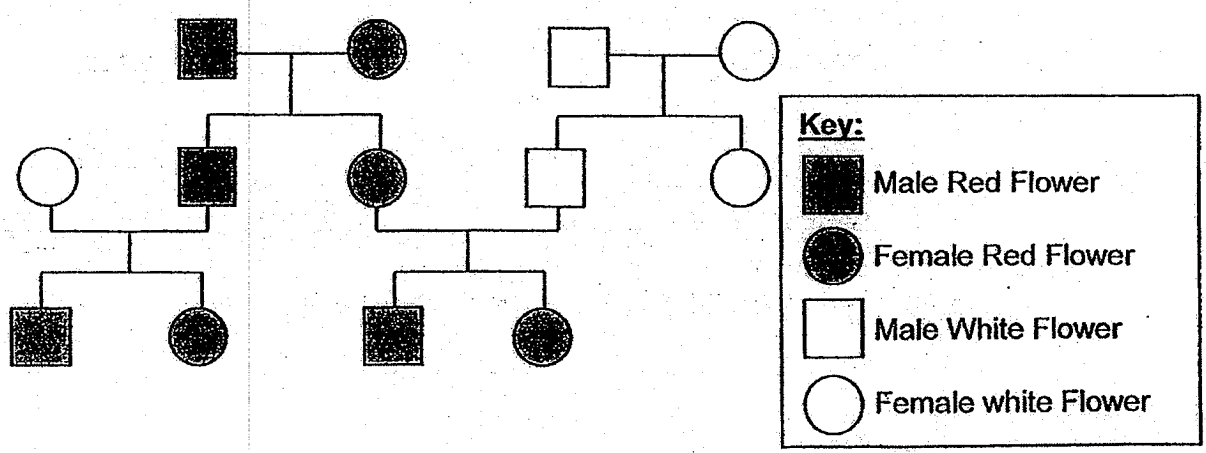
16. Study the classification chart below.



Which one of the following correctly shows what X and Y should be?

	X	Y
1)	Mosquito	Grasshopper
2)	Cockroach	Moth
3)	Grasshopper	Cockroach
4)	Moth	Mosquito

17. Plant A produces male and female flowers. The diagram below shows the different flowers of Plant A that can be produced on each plant.

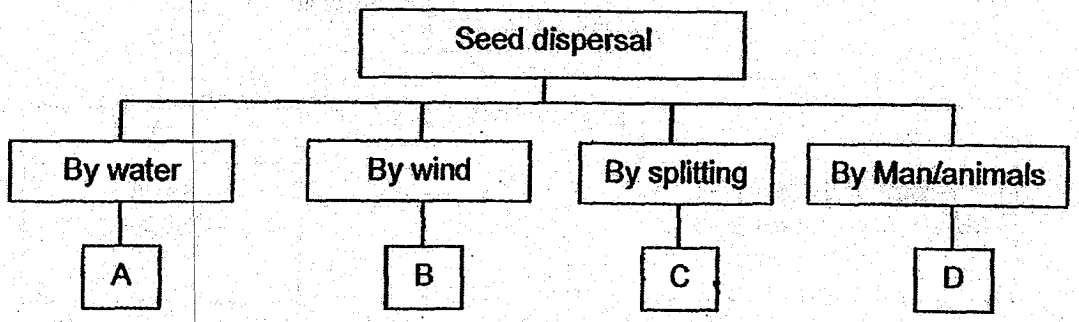


Based on the diagram above, which of the following statements are true?

A: Both male and female flowers must be red to produce plants that have red flowers.
B: Both male and female flowers must be white to produce plants that have white flowers.
C: Female sex cell of the red flower and the male sex cell of the red flower can produce red flowers.
D: Male sex cell of the red flower and the female sex cell of the red flower can produce white flowers.

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

18. Study the classification chart below.

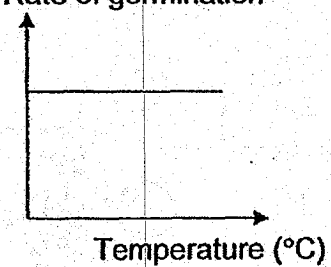


Which one of the following organisms cannot be placed in the classification chart above?

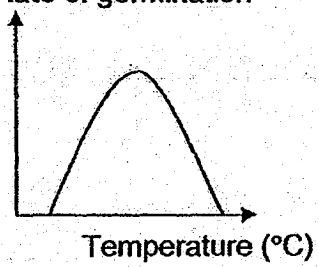
1) Mango tree
2) Bird's nest fern
3) Rubber plant
4) Mimosa plant

19. Which one of the following correctly shows the relationship between temperature and the rate of germination?

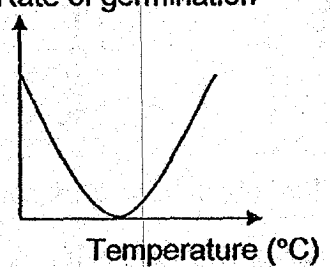
1) Rate of germination



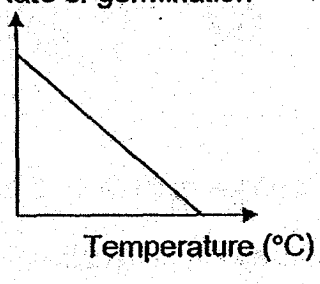
3) Rate of germination



2) Rate of germination



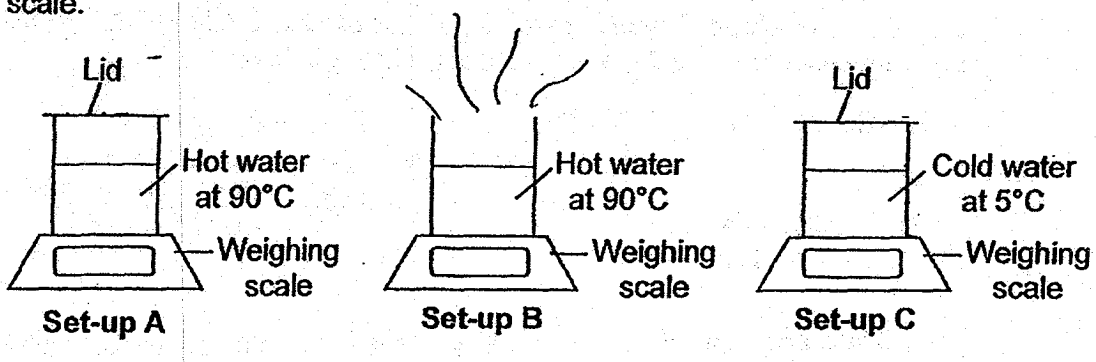
4) Rate of germination



20. Which of the following is required for both germination and decomposition to take place?

1) Shade
2) Sunlight
3) Moisture
4) Carbon dioxide

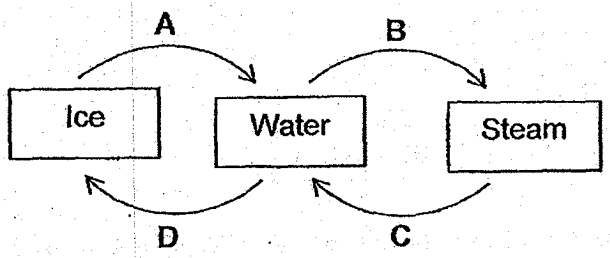
21. Jenny placed 3 containers of water on the weighing scales in the Science room as shown in the diagram below. She noted the mass indicated on each weighing scale.



After 10 minutes, she checked the weighing scales again. Which one of the following correctly shows the mass indicated on each weighing scale after 10 minutes as compared to the mass at the start of the experiment?

	Set-up A	Set-up B	Set-up C
1)	Remain the same	Decrease	Increase
2)	Remain the same	Decrease	Remain the same
3)	Decrease	Remain the same	Increase
4)	Decrease	Remain the same	Remain the same

22. The diagram below shows the changes of states of water.



Which processes take place at a fixed temperature?

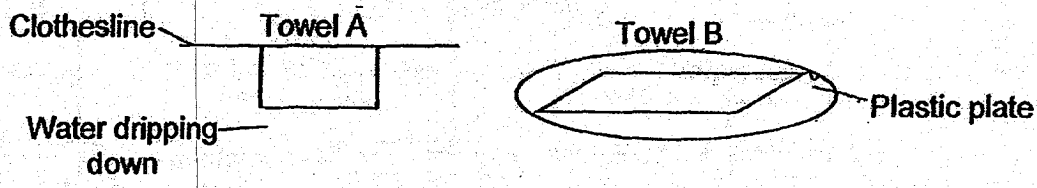
1) A and B only
2) C and D only
3) B, C and D only
4) A, B and D only

23. Substance X is a solid at 50°C and a gas at 220°C.

Which one of the following is possible?

	Freezing point of X (°C)	Boiling point of X (°C)
1)	75°C	180°C
2)	25°C	180°C
3)	75°C	250°C
4)	25°C	250°C

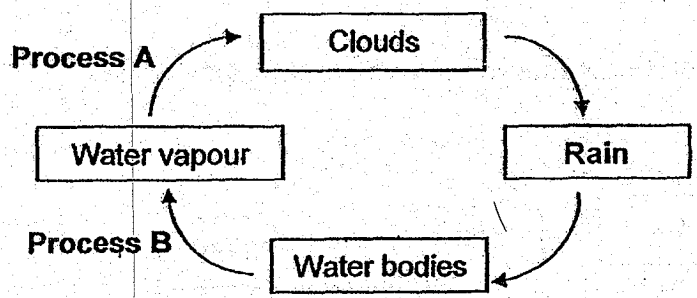
24. Siti wetted 2 identical square towels with the same amount of water. Towel A was folded over a clothesline such that half of it was facing the front and half of it was facing the back. Towel B was laid out flat onto a plastic plate. She then placed them at the same place as shown below.



After 5 hours, Siti observed that Towel A was completely dry but Towel B was still damp. Which one the following is the correct reason for this to happen?

1) Towel A had less water in it to evaporate.
2) Towel A was exposed to more light than Towel B.
3) Gravity increased the rate of evaporation in Towel A.
4) Towel A had more exposed surface area than Towel B.

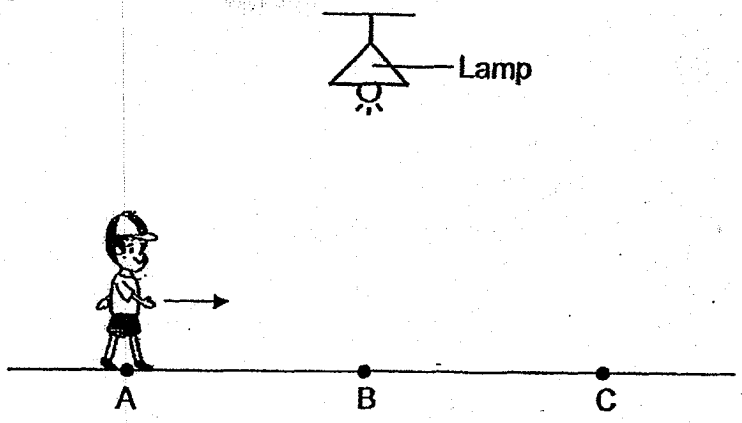
25. The diagram below shows the water cycle.



Which one of the following correctly shows if heat was gained or lost by the water in Process A and Process B?

	Process A	Process B
1)	Heat loss	Heat gain
2)	Heat loss	Heat loss
3)	Heat gain	Heat gain
4)	Heat gain	Heat loss

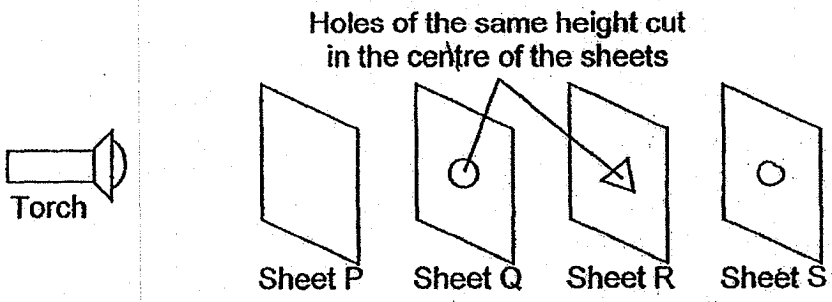
26. David walked in a straight line from A to B and then to C as shown in the diagram below.



Which of the following correctly describes the length and position of David's shadow at Position A and Position C?

	A		C	
	Length of shadow	**Position of shadow**	**Length of shadow**	**Position of shadow**
1)	Longer than at B	In front of David	Longer than at B	Behind David
2)	Shorter than at B	In front of David	Shorter than at B	Behind David
3)	Longer than at B	Behind David	Longer than at B	In front of David
4)	Shorter than at B	Behind David	Longer than at B	In front of David

27. The experiment shown below is carried out in a dark room.

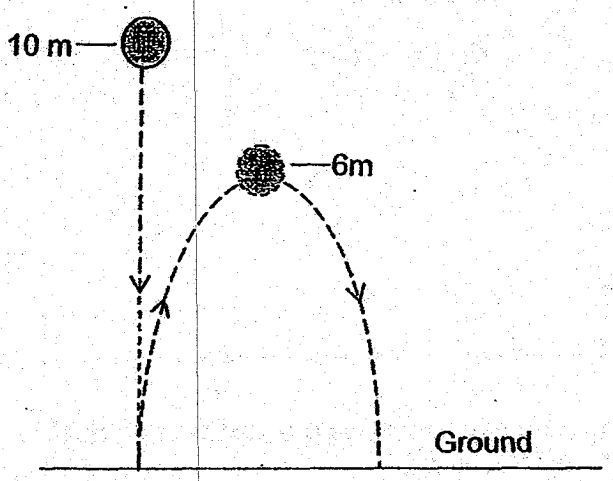


Sheets P, Q, R and S are arranged in a straight line. When the torch is switched on, a bright round patch of light is seen on Sheet S only.

Which one of the following correctly describes the properties of materials that Sheets P, Q, R and S are made of?

	Transparent	Opaque
1)	P and Q	R and S
2)	R and S	P and Q
3)	P and R	Q and S
4)	P, Q and R	S

28. Xiao Ming dropped a ball from 10 m. The ball bounced up to 6 m.



What should Xiao Ming do if he wants the ball to bounce up to 10 m?

1) Use a lighter ball
2) Use a heavier ball
3) Drop the ball onto softer ground
4) Drop the ball from higher than 10 m

						–	

SINGAPORE CHINESE GIRLS' SCHOOL
PRELIMINARY EXAMINATION 2019
PRIMARY 6 SCIENCE

Name: _____ ( ) Date: 22 August 2019

Class: Primary 6 SY / C / G / SE / P

Components	Marks Obtained	Total Marks
Booklet A		56
Booklet B		44
Total		100

_____
Parent's Signature

SCIENCE

BOOKLET B

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

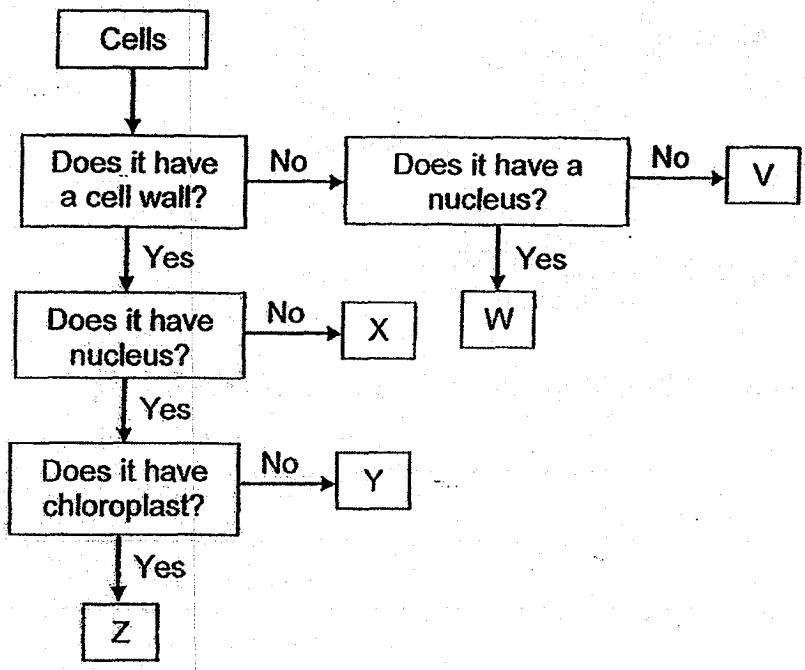
Name: _____ ( ) Date: _____.

Class: Primary 6 SY / C / G / SE / P

Booklet B (44 marks)

Answer all the following questions.

29. Study the flowchart below.



a) Based on the flowchart above, describe Cell W. (1m)

_____

b) Based on the flowchart above, what is the difference between Cell V and Cell X? (1m)

_____

c) Based on the flowchart above, which cell/s above has/have a regular shape? (1m)

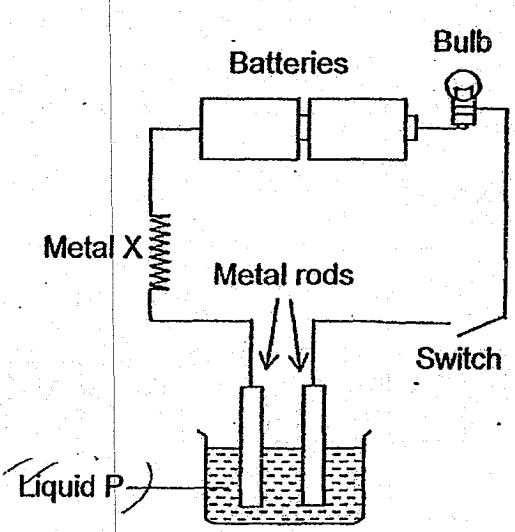
_____

d) Based on the flowchart above, which cell/s above is/are able to make food? (1m)

_____

4

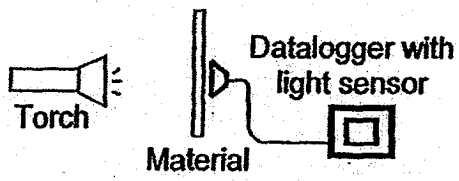
30. An experiment was set up as shown in the diagram below. Metal X became hot and the bulb lights up when the switch was closed.



a). Explain why the bulb lit up when the switch was closed. (2m)

b) When another battery was added to the circuit, Metal X produced more heat energy. Explain how Metal X became hotter. (2m)

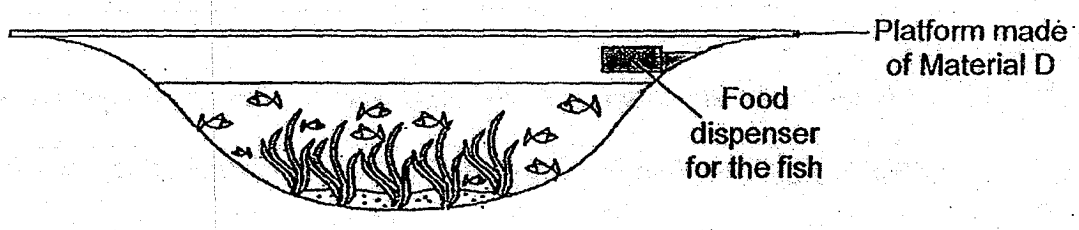
31. Sumin conducted an experiment as shown below. She placed different materials in front of a torch and measured the amount of light that passed through each material.



The table below shows the results of her experiment.

Material	Amount of light from the torch (units)	Amount of light detected by the light sensor (units)
A	1000	0
B	1000	945
C	1000	86
D	1000	154

Sumin then built a platform using Material D over a pond in a garden so that people can view the organisms in the pond from the platform. However, the organisms in the pond died sometime after the platform was built.



a) Explain why the plants and animals in the pond died after some time. (2m)

i) Plants: _____

_____

ii) Animals: _____

_____

b) Based on Sumin's experiment, which material should Sumin use to build the platform instead of Material D so that the plants and animals in the pond will not die? Explain your answer. (2m)

_____

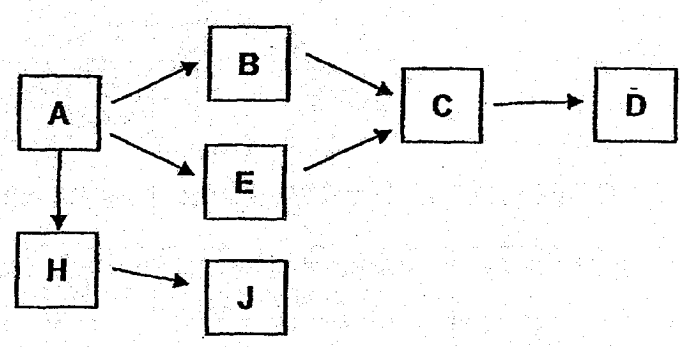
_____

_____

c) State 1 way the plant can benefit from the fish. (1m)

_____

32. The food web below shows the relationships among Organisms A, B, C, D, E, H and J in a river.



a) Which organism/s will benefit directly if the level of carbon dioxide in the river increases? Explain your answer. (2m)

_____

_____

b) All of Organisms C and Organisms J died because of water pollution in the river.

i) Explain why the population of Organism D would then decrease. (1m)

_____

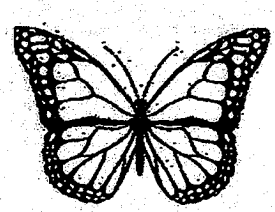
_____

ii) Explain why the population of Organism H would then increase. (1m)

_____

_____

33. The caterpillar of Butterfly A feeds on Plant X which is poisonous. The poison stays in Butterfly A but does not harm it.



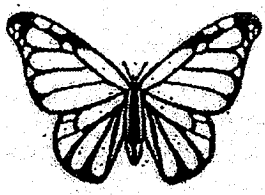
Butterfly A

a) Bird P likes to eat butterflies but avoids eating Butterfly A. Explain why. (1m)

_____

_____

b) The diagram below shows Butterfly B.



Butterfly B

Butterfly B is not poisonous. How is it an advantage for Butterfly B to look like Butterfly A? (1m)

_____

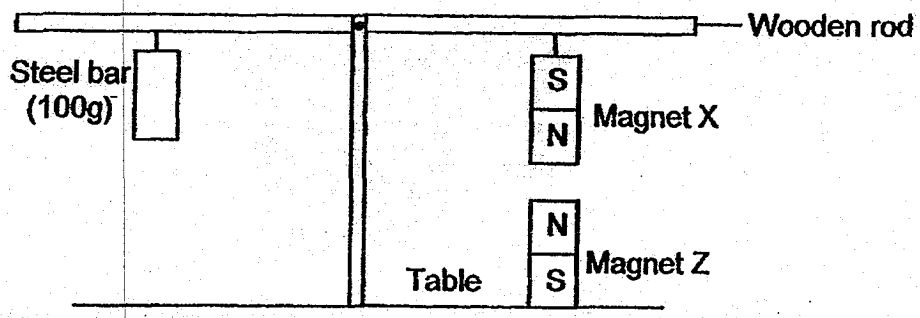
_____

c) Butterfly B lays green eggs on the leaves of plants. Explain why the eggs are able to avoid being detected by predators. (1m)

_____

_____

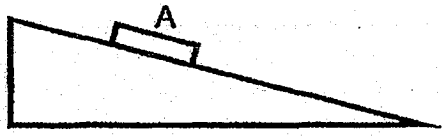
34. Linda set up an experiment as shown below. Magnet Z was fixed to the table below Magnet X to balance the wooden rod.



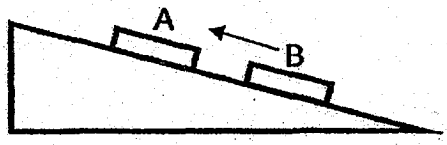
Based on Linda's experiment, indicate if each of the following statements is 'True', 'False' or 'Not possible to tell' by placing a tick (✓) in the correct column. (4m)

	Statements	True	False	Not possible to tell
a)	Magnet X is heavier than the steel bar.			
b)	If the steel bar is removed, the wooden rod will tilt upwards on the right.			
c)	If Magnet Z is replaced by an iron bar, the wooden rod will be balanced.			
d)	If Magnet Z is placed below the steel bar instead of below Magnet X, the wooden rod will be balanced.			

35. In Experiment 1, Meihua placed Magnet A on a slope. Magnet A remains stationary on the slope.



In Experiment 2, Meihua placed another magnet, Magnet B on the slope. Magnet B moved up the slope and touched Magnet A.

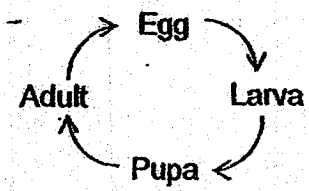


In the table below, indicate the forces that are acting on the magnets by placing ticks (✓) in the appropriate columns. (2m)

		Friction	Gravity	Magnetic force
a)	Magnet A in Experiment 1			
b)	Magnet B in Experiment 2			

6

36. The diagram below shows the life cycle of Animal P. Animal P spreads Disease X to humans when it is in the adult stage. After mating, the female of Animal P is able to lay eggs once every 3 days.



A group of researchers kept some Animal P at different temperatures and observed their life cycles. The results are shown in the table below.

	Duration of each stage at different surrounding temperatures (Days)			
	22°C	26°C	30°C	34°C
Egg	13	8	6	2
Larva	4	4	4	4
Pupa	6	6	6	6
Adult	7	10	12	15

a) Based on the results of the experiment, which stage/s of Animal P is/are <u>not</u> affected by the change in the surrounding temperature? (1m)

_____

b) When the surrounding temperature is 22°C, how many days does Animal P take to develop into an adult after hatching? (1m)

_____

c) Give 2 reasons why Disease X is spread the **most** rapidly by Animal P when the surrounding temperature is at 34°C. (2m)

i) _____

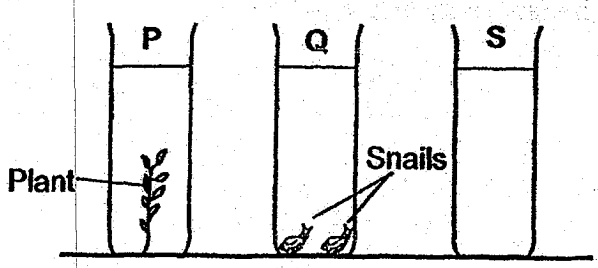
_____

ii) _____

_____

4

37. John conducted an experiment as shown below. Containers, P, Q and S had an equal amount of water. They were placed in a well-lit place.



a) In the table below, indicate if the amount of carbon dioxide in Container P and Container Q would 'increase' or 'decrease' after 1 hour by placing ticks (✓) in the appropriate columns. (1m).

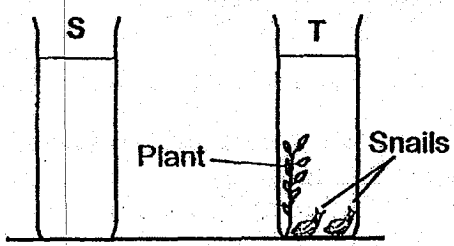
Containers	Increase	Decrease
i) P		
ii) Q		

b) State the purpose of Container S. (1m)

_____

_____

c) John conducted another experiment as shown below.



Both containers had the same amount of water and were placed in a well-lit place. In the table below, indicate how the amount of carbon dioxide in Container S would compare with that in Container T after 1 hour by placing a tick (✓) in the appropriate column. (1m)

i.

S has more carbon dioxide	T has more carbon dioxide	Not possible to tell

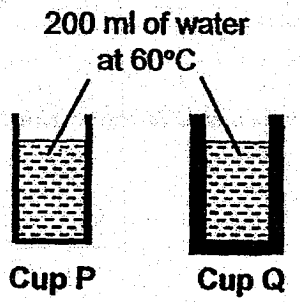
ii. Explain your option. (1m)

_____

_____

_____

38. Mohan had 2 cups made of the same material but different thickness. He poured 200 ml of water at 60°C into each cup at the same time as shown below.

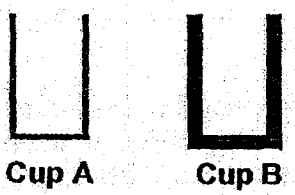


a) When Mohan touched the cup, he observed that the outer surface of Cup P felt warmer than the outer surface of Cup Q. Explain why this happened. (1m)

_____

_____

Mohan repeated the experiment with Glass Cup A and Glass Cup B with different thickness as shown below.



b) After pouring 200 ml of water at 95°C into each cup at the same time, Cup B cracked while Cup A did not. Explain Mohan's observation. (2m)

_____

_____

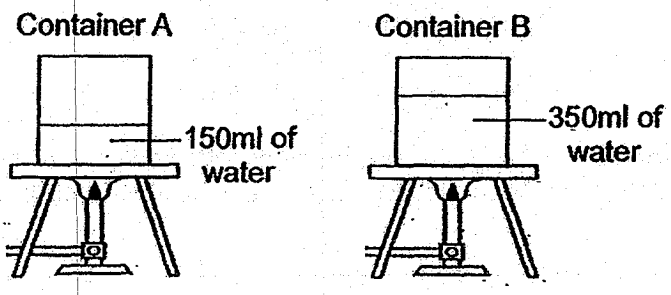
_____

3

39a) The amount of heat in a liquid depends on its _____

and _____. (1m)

b) Amin heated 2 containers of water at the same time.



After 10 minutes, the water in Container A started to boil but not the water in Container B. Explain why this happened. (1m)

_____

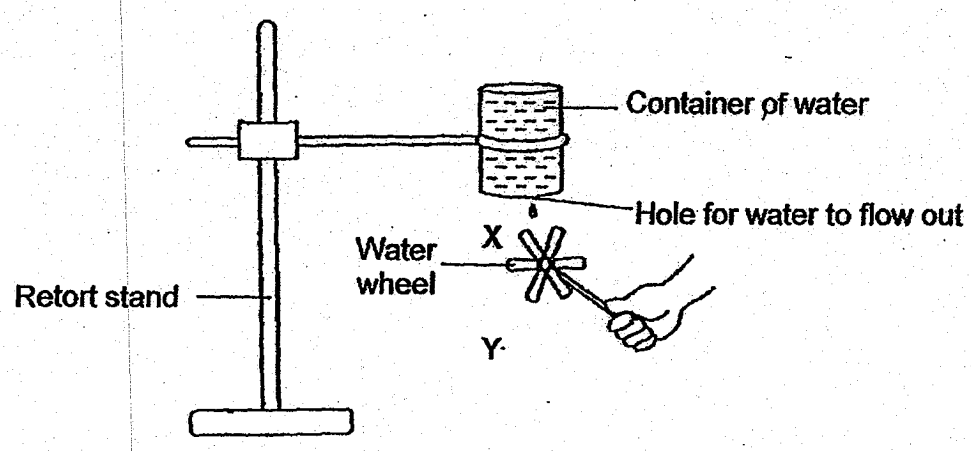
_____

c) After the water in both containers boiled for 2 minutes, Amin turned off the heat and let the water cool down. Which container of water, A or B, will take a longer time to reach room temperature? Explain your answer. (1m)

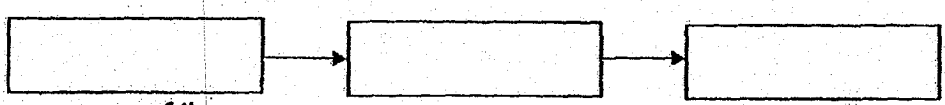
_____

_____

40. Rajah set up the experiment as shown below. He then filled a container with water and fixed it on a retort stand. He then made a small hole at the bottom of the container and held a water wheel at Position X. When water flowed out of the container, the water wheel spun.



a) State the energy conversion of Rajah's experiment. (1m)



b) State if the speed of spinning of the water wheel would 'increase', 'decrease' or 'remain the same'. (1m)

	Situation	Speed of water wheel [please tick (✓)]		
		Increase	Decrease	Remain the same
i)	A slightly bigger hole is made at the bottom of the container.			

	Situation	Speed of water wheel [please tick (✓)]		
		Increase	Decrease	Remain the same
ii)	Water wheel is held at Position Y instead of Position X.			

c) Explain your answer for (bii) on the speed of water wheel at Position Y (2m)

_____

_____

_____

End of Paper

4

Name : _____( )

Class: _____

SINGAPORE CHINESE GIRLS' SCHOOL
SCIENCE PRELIMINARY EXAMINATION 2019

Booklet A

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

Booklet B

No.	Suggested Answer
29a	W has a nucleus but no cell wall.
20b	Cell X has a cell wall but Cell V does not.
29c	X, Y and Z
29d	Z
30a	Liquid P is a conductor of electricity. When the switch is closed, there will be a closed circuit / complete circuit, allowing the bulb to light up.
30b	When another battery is added, there will be more potential energy that will be converted into more electrical energy. More electrical energy will then be converted to more heat energy in Metal P.
31ai	The plants did not receive enough light to make food so the plants died.
31aii	There was not enough oxygen for the animals so the animals died.
31b	Material B. It allowed the most light to pass through so the plants can make the most food and give out the most / enough oxygen for itself and the animals.
31c	Give out carbon dioxide for the plants to make food. / Droppings are used as fertilizer / mineral salts for the plants.

32a	A. It is a food producer / plant. When the carbon dioxide increases, it will make more food.
32bi	C is D's only source of food / there will be no more food for D / D has nothing else to eat.
32bii	There is no more predator to eat D.
33a	Poison from Plant X will harm Bird P.
33b	Predators / Bird P will think that Butterfly B is poisonous and will not eat it.
33c	Leaves are green so the green eggs can camouflage against the leaves.

34

	Statements	True	False	Not possible to tell
a)	Magnet X is heavier than the steel bar.	✓		
b)	If the steel bar is removed, the wooden rod will tilt upwards on the right.		✓	
c)	If Magnet Z is replaced by an iron bar, the wooden rod will also be balanced.		✓	
d)	If Magnet Z is placed below the steel bar instead of below Magnet X, the wooden rod will also be balanced.			✓

35

		Friction	Gravity	Magnetic force
a)	Magnet A in Experiment 1	✓	✓	
b)	Magnet B in Experiment 2	✓	✓	✓

36a	Larva and pupa
36b	10 days
36ci	At 34°C. they develop into the adult stage the fastest (which is the stage it can spread diseases).
36cii	Animal P stays as an adult for the longest time, so it can reproduce for the longest time / lay the most eggs.

37a

i)

Containers	Increase	Decrease
P		✓

ii)

Containers	Increase	Decrease
Q	✓	

37b It is a control set-up.

37c i.

S has more carbon dioxide	T has more carbon dioxide	Not possible to tell
		✓

37cii The amount of carbon dioxide used by the plant for photosynthesis is unknown.
AND
The amount of carbon dioxide given out by the snails is unknown.

38a Cup P was thinner so heat from the water was conducted/ travelled to his hand faster.
NB: Comparison adjectives (thinner, thicker, faster, slower) are needed and direction of heat travel is needed

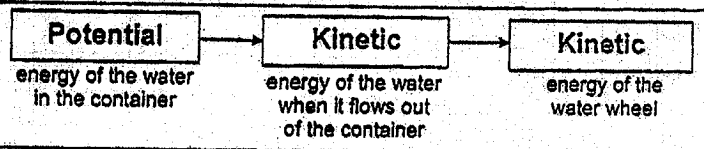
38b Glass is a poor conductor of heat.
The inner glass surface gained heat first / gained more heat and expanded faster/ more than the outer glass surface.
NB:Must' explain and mention difference in expansion between inner and outer glass

39a volume; temperature

39b The water in Container A had a smaller volume so it needed to gain less heat to reach boiling point. That is why it started boiling sooner than Container B's.
NB: Must use comparison adjectives unless you elaborate both A and B)

39c The water in Container B.
The water had a larger volume so it would need to lose more heat than water in Container A to reach room temperature.

40a



40b

	Situations	Speed of water wheel (please tick (✓))		
		Increase	Decrease	Remain the same
i)	A bigger hole is poke at the bottom on the container	✓		
ii)	Water wheel is held at Position Y instead of Position X	✓		

40c Y is a greater distance down from the container of water. Thus more of the potential energy of water can convert into more kinetic energy. With more kinetic energy, the water can turn the wheel faster.
*NB: The container itself did not move, thus 'Water in the container' did **not** have more GPE.*