

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

FIRST SEMESTRAL ASSESSMENT 2018

NAME: _____ ()

DATE: 2 May 2018

CLASS: PRIMARY 6 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.

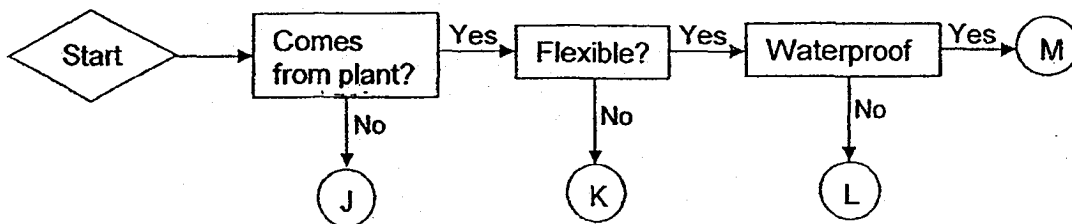
Part I (56 marks)

For each question from 1 to 28, 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. 4 students made the following statements below about some animals. Which is the correct statement?

- 1) Ailee : Whale is a fish as it lives in water.
- 2) Ben : Guppy is a mammal as it gives birth.
- 3) Clark : Spiny anteater is a mammal as it suckles its young.
- 4) Denise : Crab is an amphibian as it can breathe in water and on land.

2. Study the flowchart below.



What can objects J, K, L and M be?

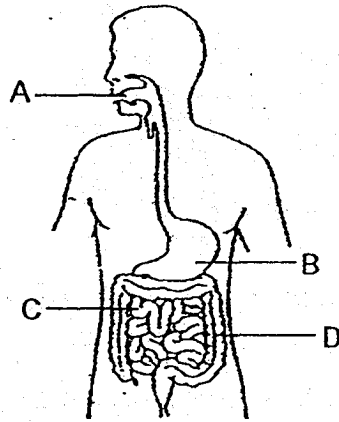
	J	K	L	M
1)	Iron nail	Silk dress	Rubber gloves	Tissue paper
2)	Silk dress	Wooden table	Tissue paper	Rubber gloves
3)	Wooden table	Rubber gloves	Wooden table	Iron nail
4)	Rubber gloves	Iron nail	Silk dress	Rubber gloves

3. Which of the following substances are transported by the circulatory system?

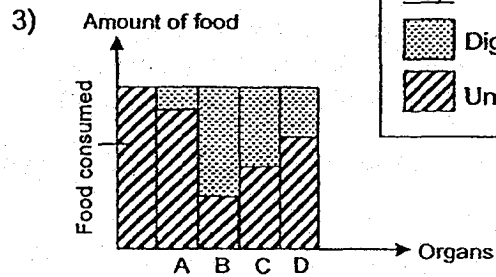
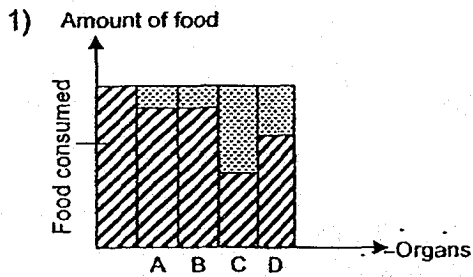
- A: Digested food
- B: Oxygen
- C: Carbon dioxide
- D: Waste materials

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

4. The diagram below shows the human digestive system.

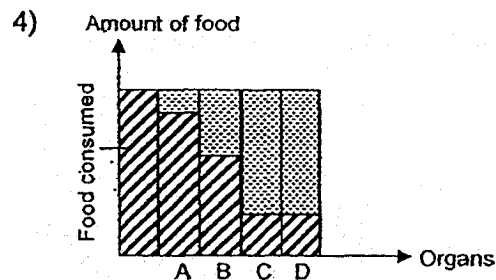
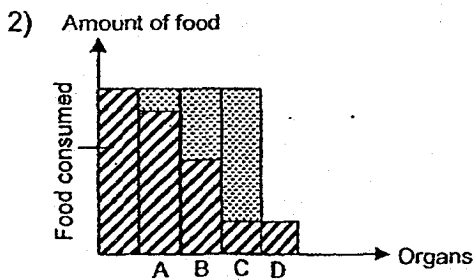


Which of the following graphs correctly shows the amount of digested and undigested food in the organs A, B, C and D of the digestive system after some food is consumed?

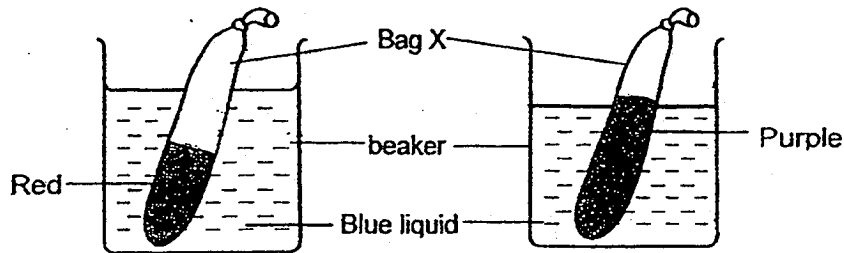


Key:

- Digested food
- Undigested food



5. Some red liquid was placed in Bag X. The bag of red liquid was then placed in a beaker of blue liquid.



After 30 minutes, the liquid in Bag X increased in volume and turned purple. The liquid in the beaker remained blue but decreased in volume.

Which of the part of a plant cell functions in a similar way to Bag X?

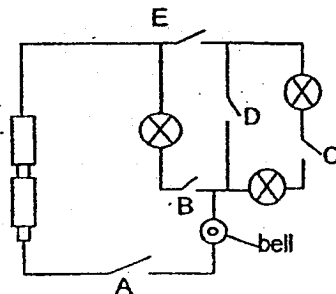
- | | |
|------------------|--------------|
| 1) cell wall | 3) nucleus |
| 2) cell membrane | 4) cytoplasm |
6. Tricia put a red rose and white rose into a beaker of red-coloured water each. After a few days, she made the following statements.

- A: The white rose turned red.
 B: Only the white rose took in water.
 C: The stem transported water to the flowers.

Which of the above statements are correct?

- | | |
|-----------|-----------------|
| 1) A only | 3) A and C only |
| 2) B only | 4) B and C only |

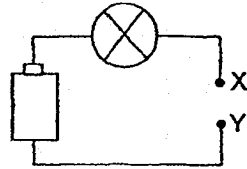
7. Study the diagram shown below.



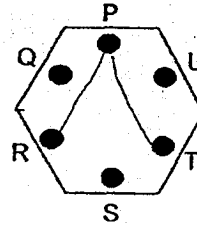
Which switches must be closed if all bulbs are unlit but the bell rings?

- | | |
|-----------------|--------------------|
| 1) A and E only | 3) A, C and E only |
| 2) D and E only | 4) A, D and E only |

8. The diagram below shows a circuit tester and a circuit board. The circuit board is connected to 3 points by wires.



Circuit tester



Circuit board

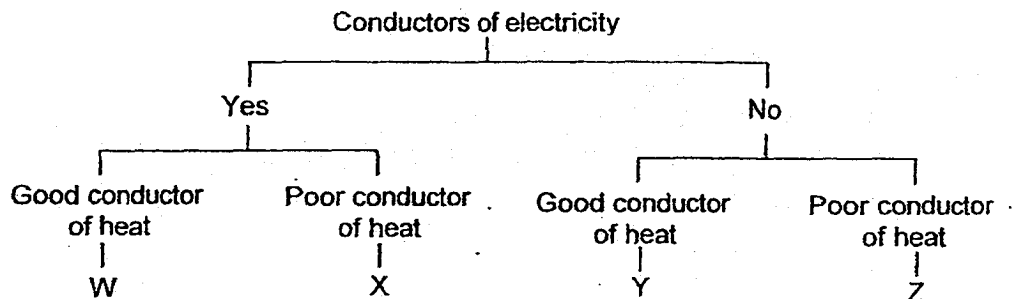
When the 2 points, X and Y, of the circuit tester are placed on 2 different points on the board, the results are shown in the table below.

Points connected	Does the bulb light up?
P and R	Yes
Q and U	No
S and U	No
R and T	Yes

Which of the following pairs of points will light up the bulb when connected to the circuit tester?

- 1) P and T
- 2) Q and S
- 3) R and U
- 4) T and U

9. Study the classification chart below.



Based on the above chart, which one of the materials is a non-conductor of electricity and a poor conductor of heat?

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

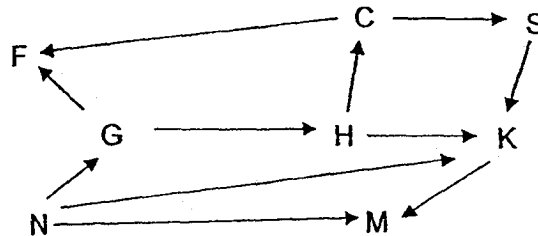
10. The table below shows the number of organisms living on a rain tree.

Organisms	Number
Bird's nest ferns	3
Squirrels	5
Staghorn ferns	2
Sparrow eggs	3
Ant larva	30
Sparrows	4
Ant pupa	20
Ant	65

How many populations can be found on the rain tree?

- | | |
|------|------|
| 1) 8 | 3) 6 |
| 2) 5 | 4) 4 |

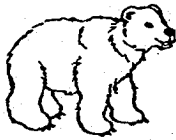



11. Study the food web below.



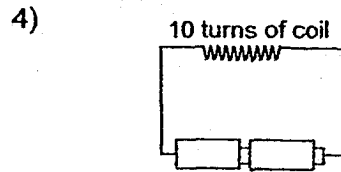
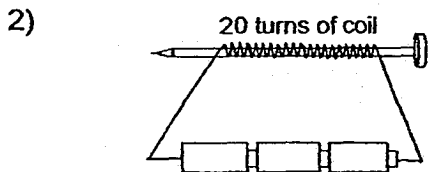
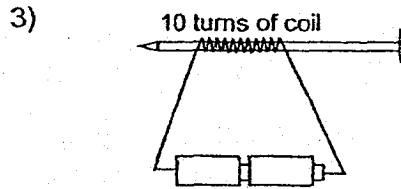
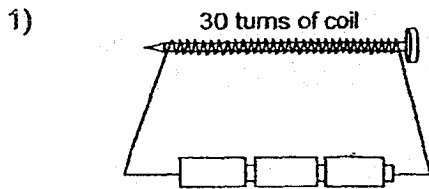
Which of the following statements is **not** correct?

- 1) Organisms K and M are omnivores.
- 2) There are more carnivores than omnivores.
- 3) Organisms G and F have 2 sources of food.
- 4) If all of Organism C die, Organism S will not have any food.

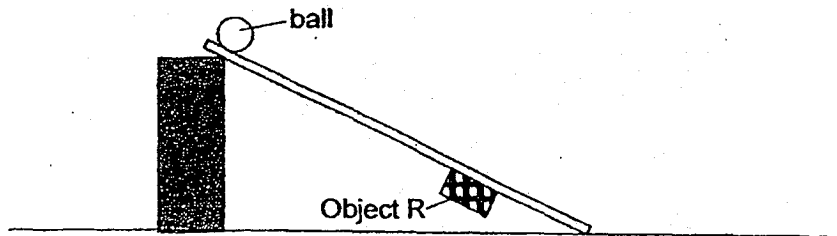
12. 4 children were given 4 pictures of organisms as shown below. They were asked which organism would be able to survive in the arctic. They were also asked to provide a reason for their answer. Which of the children is correct?

	Organism	Reason
1) Kelly:		It has thick fur and a thick layer of fat to keep warm.
2) Larry:		It will hide underground to keep warm.
3) Mark:		It will fluff up its feathers to trap its body heat.
4) Nancy:		It has more exposed surface area in its ears to gain more heat from the surroundings.

13. Which of the following electromagnets will pick up the most number of paper clips?



14. Peter released a ball from the top of a ramp. It stops moving at the position where Object R is taped under the ramp.



Which materials are the ball and Object R made of?

	Ball	Object R
1)	magnetic	non-magnetic
2)	magnetic	magnet
3)	magnetic	magnetic
4)	non-magnetic	non-magnetic

15. Balls A and B are placed on a plastic surface and a push is exerted on Ball B as shown in the diagram below.

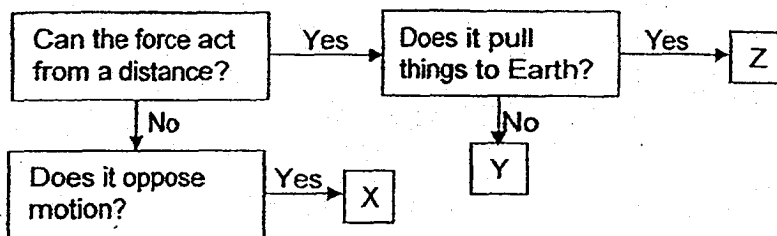


When Ball B hits Ball A, Ball B moves back to the right and Ball A remains stationary. Which of the following actions will move Ball A to the left?

- A : Replace Ball A with a lighter one
- B : Replace Ball B with a heavier one
- C : Use less force to push Ball B
- D : Use a greater force to push Ball B

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

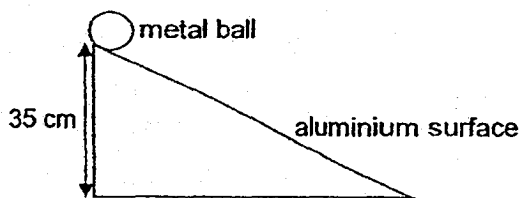
16. Study at the flowchart below.



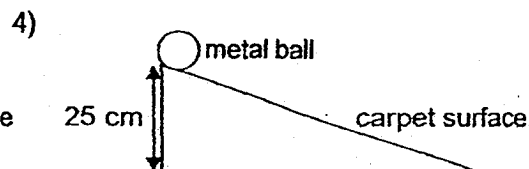
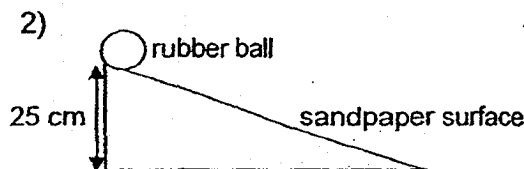
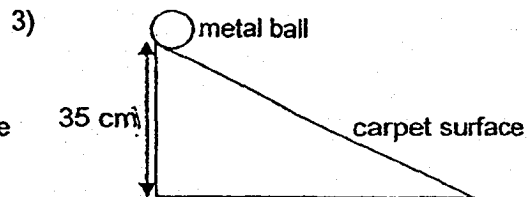
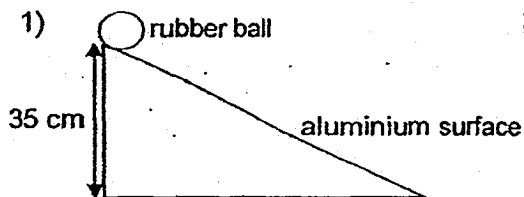
Which one of the following correctly identifies the types of forces?

Type of force		
X	Y	Z
1) frictional	magnetic	gravitational
2) magnetic	gravitational	frictional
3) magnetic	frictional	gravitational
4) gravitational	frictional	magnetic

17. Dexter wants to set up an experiment to find out how the surface of a ramp affects the distance moved by a metal ball. He did the set up below.



Which one of the following set-ups should Dexter use to make a fair comparison?



18. Below are pictures of a cockroach and a grasshopper.



Cockroach

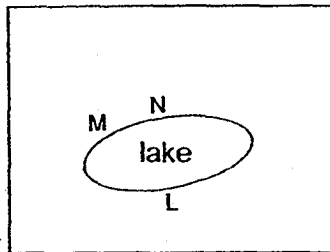


Grasshopper

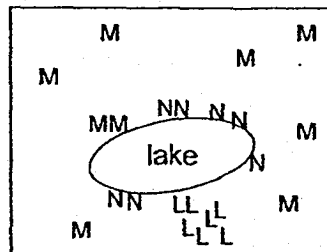
Which one of the following describes the life cycle of both animals correctly?

Statements	Cockroach	Grasshopper
1) Young looks like the adult.	x	✓
2) Entire life cycle takes place on land.	✓	✓
3) Young moults.	✓	x
4) Lays eggs in water	x	✓

19. The diagram below shows the plants, L, M and N, on the same plot of land in March and September.



March

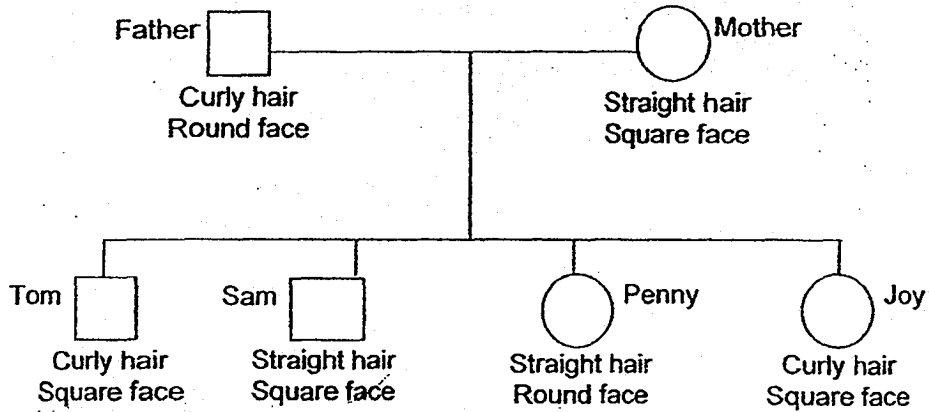


September

Which plant dispersed its seeds by splitting and wind respectively?

	Splitting	Wind
1)	M	N
2)	N	L
3)	L	N
4)	L	M

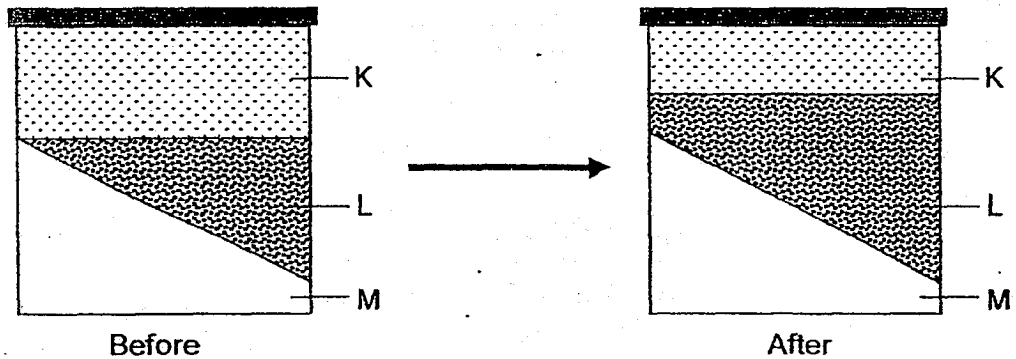
20. Study the family tree below.



Based on the family tree above, which of the following statements is correct?

- 1) Sam inherited both features from the same parent.
- 2) 3 children inherited the shape of their faces from their father.
- 3) Half the children have the same face shape.
- 4) Penny has the same hair type as all her brothers.

21. The container shown below contains 3 substances, K, L and M. More Substance L is then added into the container without changing the amounts of Substances K and M. The changes in their levels are shown below.



What can K, L and M be?

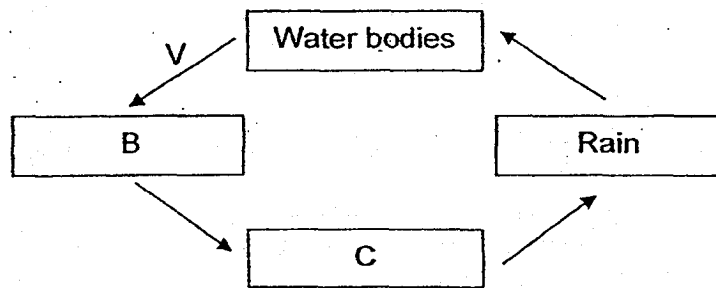
	K	L	M
1)	Solid	Liquid	Gas
2)	Liquid	Solid	Gas
3)	Gas	Liquid	Solid
4)	Liquid	Gas	Solid

22. Condensation takes place when _____.

- A : a cup of ice cubes is placed in the freezer
- B : a boy breathes onto a mirror
- C : a packet of freshly fried French fries is kept in a plastic bag
- D : a bottle taken out from the refrigerator and placed on the table

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

23. Study the diagram below.



Which one of the following is correct?

	B	C	Process V
1)	Clouds	Water vapour	Condensation
2)	Water vapour	Clouds	Evaporation
3)	Water bodies	Clouds	Evaporation
4)	Water vapour	Water bodies	Condensation

24. The picture below shows a pot used for cooking.

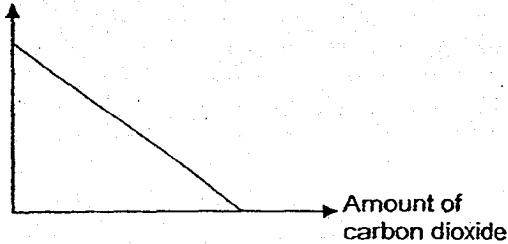


Which of the labelled parts of the pot are commonly made of poor conductors of heat?

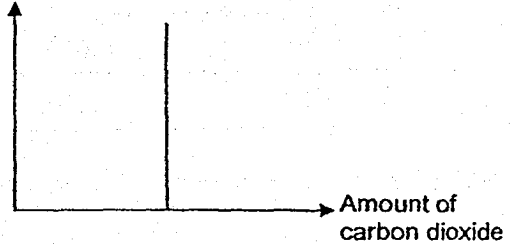
- 1) A and B only
- 2) A and C only
- 3) B and D only
- 4) C and D only

25. Which one of the graphs below shows the effect of the amount of carbon dioxide on the rate of photosynthesis?

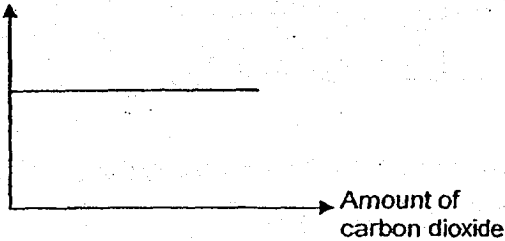
1) Rate of photosynthesis



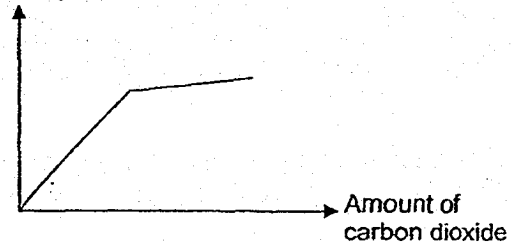
3) Rate of photosynthesis



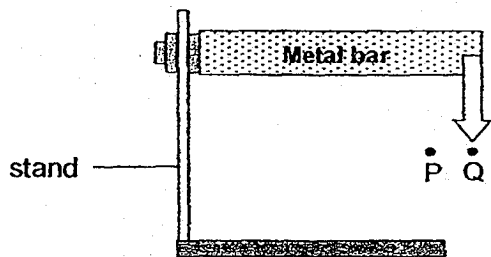
2) Rate of photosynthesis



4) Rate of photosynthesis



26. Study the set-up below.



Alan fixed one end of a piece of metal bar to a stand and fixed a plastic arrow to its free end. The arrow was initially pointed at P.

What did David do to make the arrow point at Q later?

- 1) Heated the arrow
- 2) Heated the metal bar
- 3) Brought a magnet near the arrow
- 4) Placed ice cubes on the metal bar

27. The table below shows the energy conversion of electrical energy to 3 main forms of energy in 3 different appliances.

Appliance	Energy conversion
R	Electrical energy \rightarrow light energy
S	Electrical energy \rightarrow heat energy
T	Electrical energy \rightarrow kinetic energy

What can the appliances R, S and T be?

	R	S	T
1)	Rice cooker	Washing machine	Torch
2)	Washing machine	Rice cooker	Torch
3)	Rice cooker	Torch	Washing machine
4)	Torch	Rice cooker	Washing machine

28. A ball was thrown up into the air. It moved from A to B as shown in Figure 1 and then dropped to A as shown in Figure 2.



Figure 1



Figure 2

Which of the following is correct?

	Potential energy of the stone from A to B	Kinetic energy of the stone from B to A
1)	increases	decreases
2)	decreases	increases
3)	increases	increases
4)	decreases	decreases

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

FIRST SEMESTRAL ASSESSMENT 2018

NAME: _____ ()

DATE: 2 May 2018

CLASS: PRIMARY 6 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

13 questions

44 marks

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

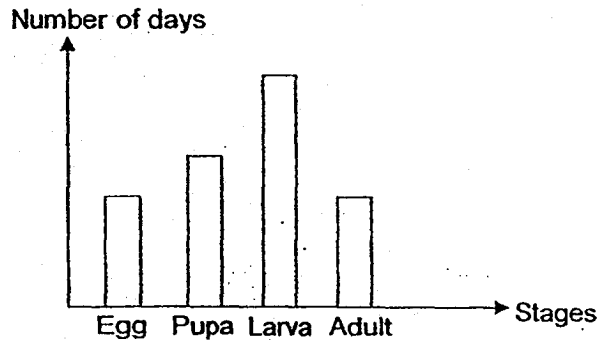
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Part II (44 marks)

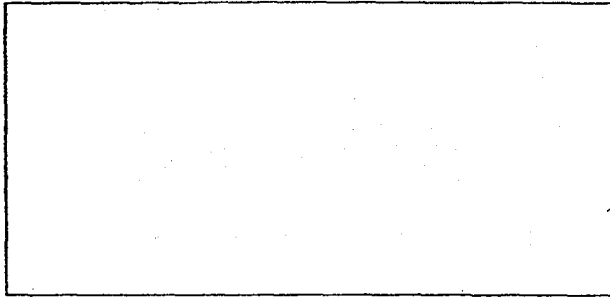
Answer all the following questions.

29. Siew Ann wanted to observe how Animal X grows from an egg to an adult. She recorded the duration Animal X spends at each stage and drew the graph below.



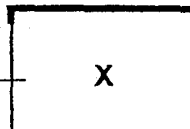
- a) Draw the life cycle of Animal X in the box below.

[1]



- b)

No food and water



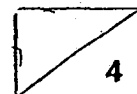
Sealed glass container

Which stages of Animal X can survive in the box above?

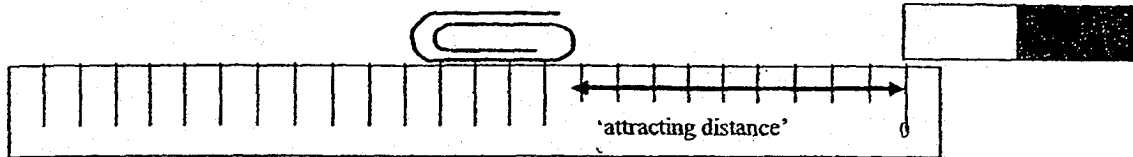
[1]

- c) Animal X is a pest. At which stage, larva or pupa, will it be easier to kill? Explain.

[2]



30. Yasmin carried out an experiment. She placed a magnet on the table and measured the longest distance from which the paper clip could be attracted to the magnet as shown in the diagram below. She repeated the experiment with 3 other magnets of the same size using the same set-up. The results are recorded in the table below.

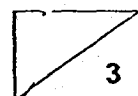


Magnet	Longest distance (cm)
R	5
S	4
T	4
U	2

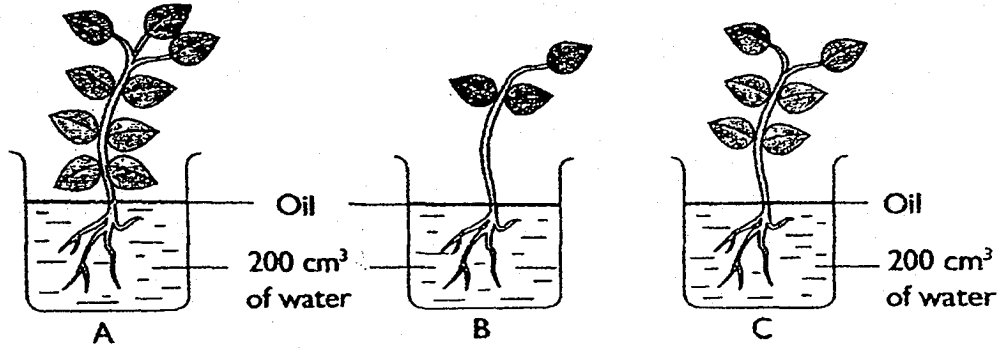
- a) What could be the aim of Yasmin's experiment? [1]

- b) Yasmin wanted to find out which magnet, S or T, is actually stronger. Tick the following which will enable her to achieve the above. [2]

	Tick (✓)
Do the experiment on the floor	
Use a longer ruler	
Measure the distance in mm	
Use a lighter paper clip	
Use a heavier paper clip	



31. Steven placed a plant each in 3 beakers. Each beaker contains 200 cm³ of water as shown below.

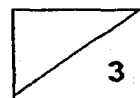


After 4 days, the amount of water in each beaker was measured and recorded in the table below.

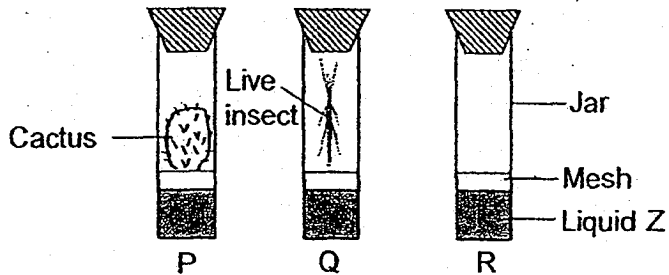
Plant	Volume of water at the start of experiment (cm ³)	Volume of water left (cm ³)
A	200	136
B	200	179
C	200	185

- a) Steven's friend, Kayla, pointed out that the volume of water left in Beaker C was wrong. Explain why this is so. [2]

- b) How does putting a layer of oil ensure that the amount of water taken in by the plant is accurate? [1]



32. John carried out the experiment below. The set-ups were placed under the Sun. At the start of the experiment, the colour of Liquid Z in each jar was red. Liquid Z changes from red to yellow when it interacts with a certain gas.



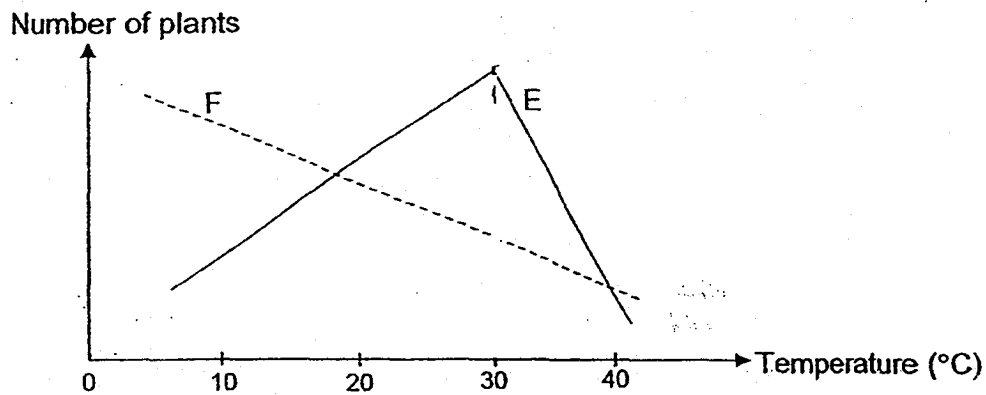
After 3 hours, John noted the colour of Liquid Z in each jar and recorded in the table below.

Jar	Colour of Liquid Z
P	Red
Q	Yellow
R	Red

- a) What could be the gas that caused Liquid Z in Jar Q to change from red to yellow? [1]

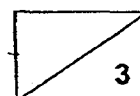
- b) Both the cactus and the live insect are living things. Explain why Liquid Z in Jar P did not turn yellow but Liquid Z in Jar Q did. [2]

33. A group of Science students conducted an experiment on 2 populations of Plants E and F. They wanted to find out how temperature affects the growth of these plants. The graph below shows the results obtained.

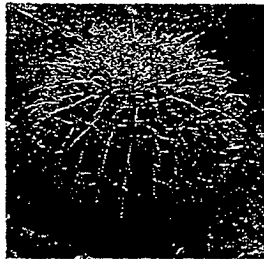


- a) What is the relationship between the Population of Plant E and temperature? [2]

- b) Country X experiences temperatures between 26°C and 32°C. Which plant, E or F, will grow better there? [1]



34. Plant G, shown below, has survived well in places with extremely high temperatures like the desert.

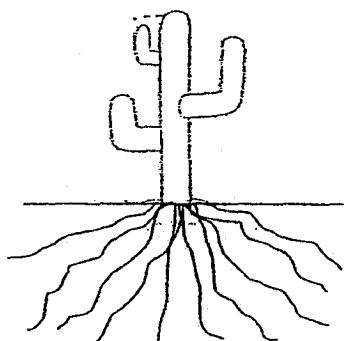


Plant G

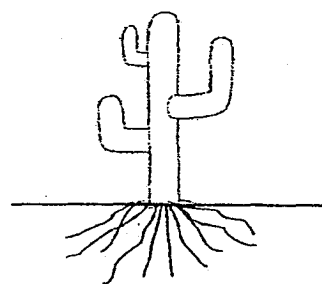
- a) Below are 2 structural adaptations of Plant G that help it to survive in deserts. Explain how each adaptation has helped Plant G to survive in deserts. [2]

Structural adaptation	How adaptation is helpful
Needle-like leaves	
Thick, juicy stem	

- b) Below are 2 plants, J and K.



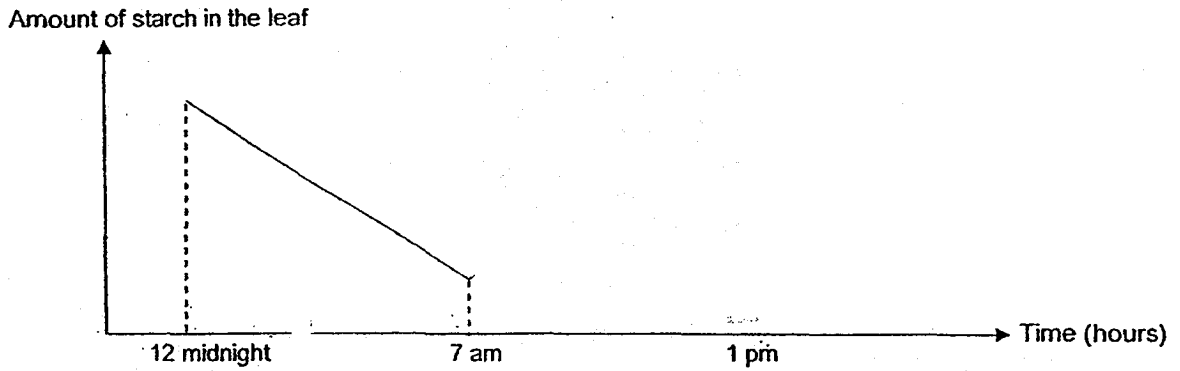
Plant J



Plant K

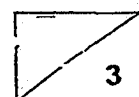
Why will Plant J's roots be an advantage over Plant K's in the desert? [1]

35. A money plant is watered and placed in the garden from 12 midnight to 7 a.m. A leaf is tested for starch every 2 hours. The graph below shows the results of the experiment.

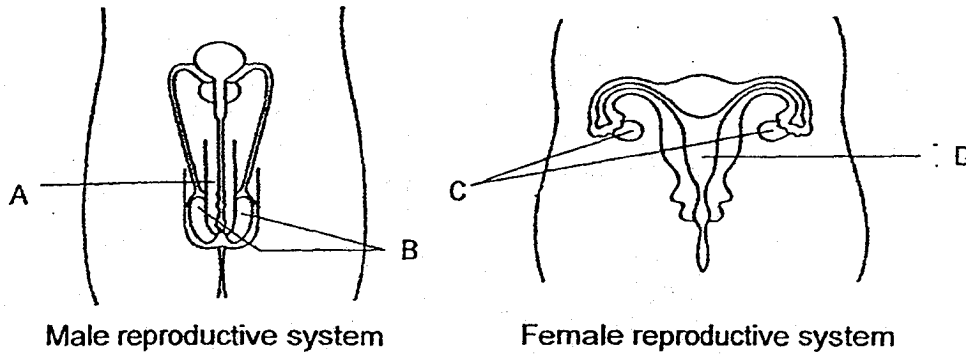


- a) Explain why the amount of starch decrease from midnight to 7 a.m. [2]

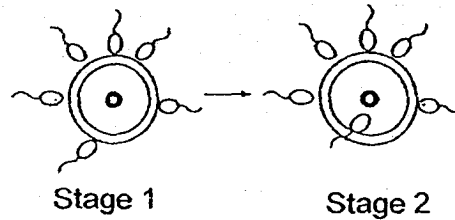
- b) Draw and label on the graph above to show the amount of starch in the leaf of the same plant at the same location from 7 a.m. to 1pm. [1]



36. The human reproductive systems are shown below.



The diagrams below show a life process occurring in the body of a female.



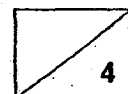
a) Name the process that is taking place at Stage 2. [1]

b) Based on the diagrams of the human male and female reproductive systems, in which part, A, B, C or D, will the foetus develop? [1]

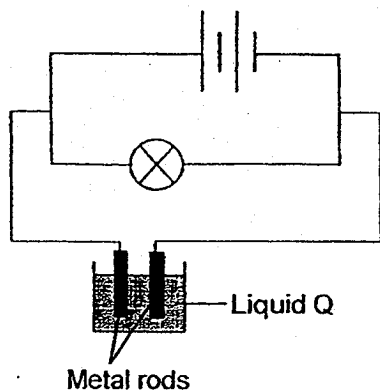
c) Which part, A, B, C or D, produce the sperm and egg respectively? [1]

Sex Cell	Part
Sperm	
Egg	

d) In plants, state the part which has the same function as sperms. [1]



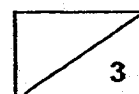
37. Aminah sets up the circuit below to find out if Liquid Q is a conductor of electricity.



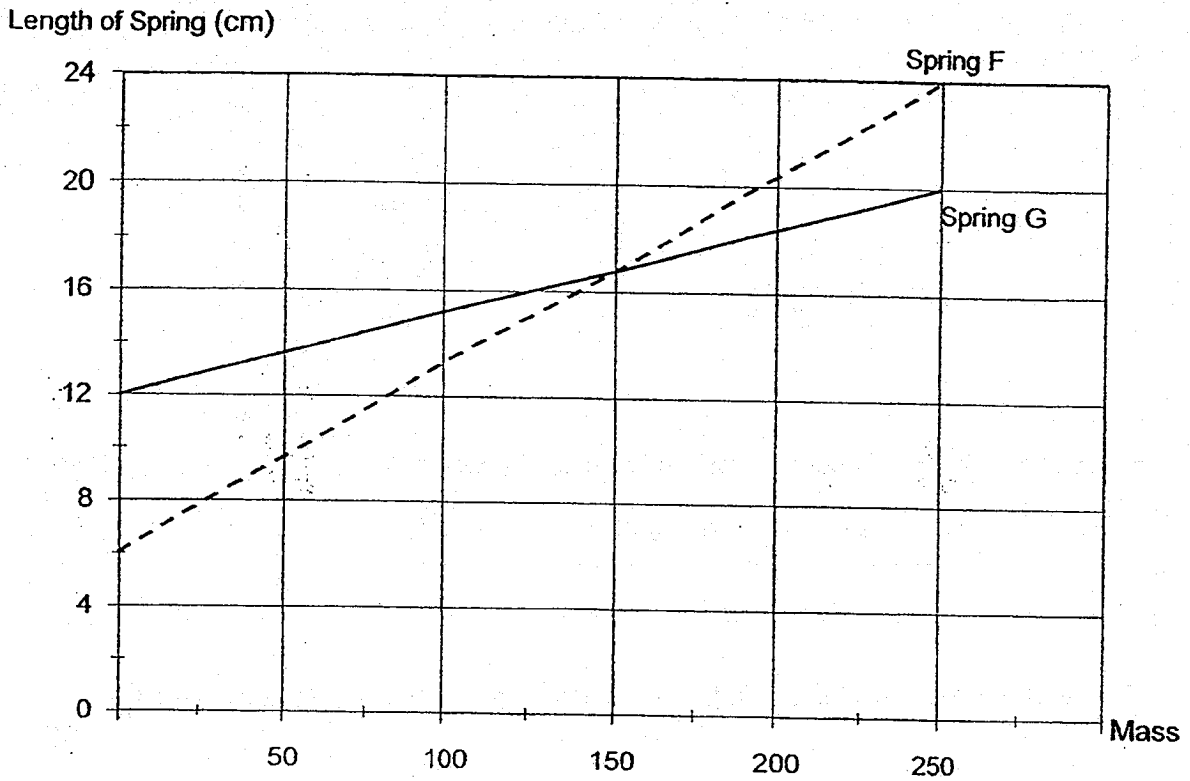
She concluded her investigation by checking if the bulb lights up. However, her friend, Lily, told her that this could not be used to draw a conclusion.

- a) Explain why you agree with Lily. [1]

- b) Using the same components, modify Aminah's investigation. Draw and label your suggested experimental set up in the box below. [2]

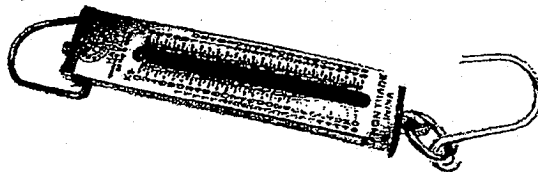


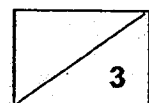
38. The graph below shows the lengths of 2 springs when 5 different weights were hung on them.



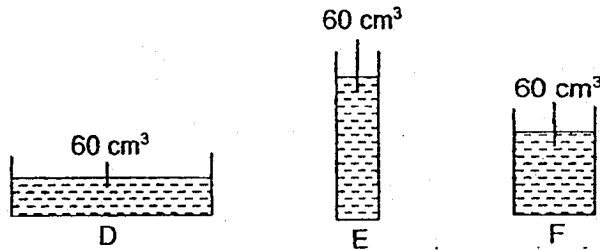
a) What is the extension of Spring G when 250g weight is hung on it? [1]

b) In the spring balance below, Spring G is used to weigh objects weighing up to 2kg. Explain why Spring F is more suitable for objects weighing less than 0.5kg. [2]





39. An experiment was carried out to find out if the exposed surface area of water affects the rate at which water evaporates. 3 containers, D, E and F, were filled with the same amount of water. They were then placed in the Science room for 15 hours. The amount of water left in each container was measured every few hours.



- a) Arrange the containers based on the rate of evaporation. [1]

Slowest \longrightarrow Fastest

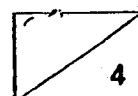
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- b) By placing the containers in the same location, list 2 variables that are kept constant. [2]

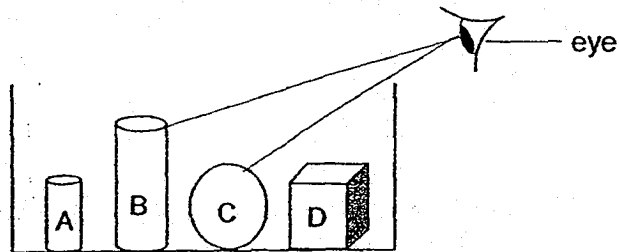
i) _____

ii) _____

- c) Using the same containers, what could be done to increase the rate of evaporation for all the containers? [1]

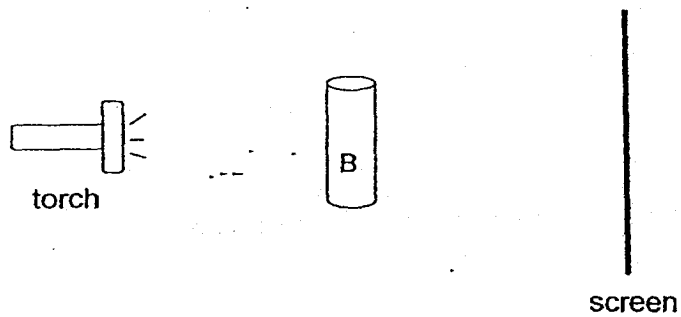


40. Ivan placed 4 opaque objects in an opaque basin and looked at them from the position as shown in the diagram below.

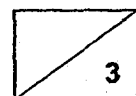
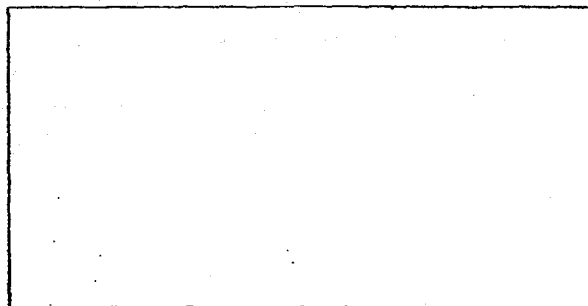


- a) Which objects can Ivan see from the position shown? [1]

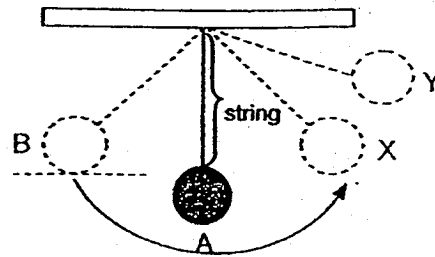
- b) State the property of light that allows him to see only the objects in (a)? [1]



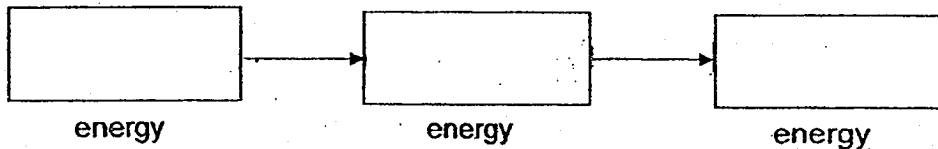
- c) In the box below, draw the shadow formed on the screen. [1]



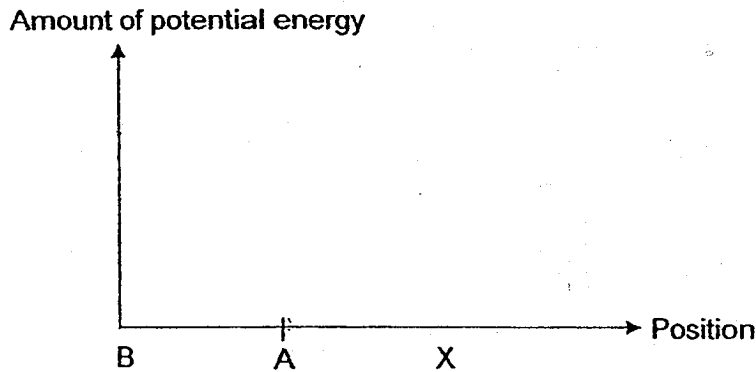
41. Below is a diagram of a ball being released from Position B.



a) Write the main energy conversion of the pendulum from Positions B to X. [1]



b) Complete the graph below to show the change in potential energy from Position B to Position X. [2]



c) List 1 thing that can be done so that the pendulum can reach Position Y. Explain. [2]

**SINGAPORE CHINESE GIRLS' SCHOOL
FIRST SEMESTAL EXAMINATION 2018
PRIMARY 6 SCIENCE MODEL ANSWER**

Booklet A

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

Booklet B

Qn	Model Answer												
29a	<pre> graph TD Egg --> Larva Larva --> Pupa Pupa --> AdultX[Adult X] AdultX --> Egg </pre>												
29b	Egg and pupa												
29c	Larva. It moves so it can be more easily spotted than the pupa. Or Pupa. It cannot move by itself so it cannot escape as easily as the larva.												
30a	To find out which magnet, R, S, T or U is the strongest / weakest magnet.												
30b	<table border="1" style="width: 100%;"> <thead> <tr> <th></th> <th>Tick (✓)</th> </tr> </thead> <tbody> <tr> <td>Do the experiment on the floor</td> <td></td> </tr> <tr> <td>Use a longer ruler</td> <td></td> </tr> <tr> <td>Measure the distance in mm</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Use a lighter paper clip</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Use a heavier paper clip</td> <td></td> </tr> </tbody> </table>		Tick (✓)	Do the experiment on the floor		Use a longer ruler		Measure the distance in mm	✓	Use a lighter paper clip	✓	Use a heavier paper clip	
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Do the experiment on the floor													
Use a longer ruler													
Measure the distance in mm	✓												
Use a lighter paper clip	✓												
Use a heavier paper clip													
31a	Beaker C should have less water left than Beaker B as the plant in Beaker C has more leaves than the plant in Beaker B. So the plant in Beaker C will lose more water through its stomata of the leaves and more water will be taken in by the roots of the plant.												
31b	Oil prevents water from evaporating so the water loss in each beaker is only due to the absorption of water by the roots of the plants.												
32a	Carbon dioxide												
32b	The cactus used up more carbon dioxide during photosynthesis than it gave out during respiration so there was not enough carbon dioxide in P to make Liquid Z turn Yellow. However, the live insect could only carry out respiration and gave out carbon dioxide so Liquid Z in Q turned Yellow.												
33a	For temperatures below 30°C, the higher the temperature, the greater the number of Population E. However, when the temperature goes above 30°C, the higher the temperature, the smaller the number of Population E.												
33b	Population E												
34a	<table border="1" style="width: 100%;"> <thead> <tr> <th>Structural adaptation</th> <th>How adaptation is helpful</th> </tr> </thead> <tbody> <tr> <td>Needle-like leaves</td> <td>Reduce water loss through the leaves</td> </tr> <tr> <td>Thick, juicy stem</td> <td>Stores water for the plant</td> </tr> </tbody> </table>	Structural adaptation	How adaptation is helpful	Needle-like leaves	Reduce water loss through the leaves	Thick, juicy stem	Stores water for the plant						
	Structural adaptation	How adaptation is helpful											
	Needle-like leaves	Reduce water loss through the leaves											
Thick, juicy stem	Stores water for the plant												

34b	The roots of Plant J are longer than Plant K's to enable the plant to reach more water deeper in the ground.								
35a	The plant could not carry out photosynthesis as there was no light. As a result, the plant used up its store of starch.								
35b									
36a	Fertilisation								
36b	D								
36c		<table border="1"> <tr> <td>Sex Cell</td> <td>Part</td> </tr> <tr> <td>Sperm</td> <td>B</td> </tr> <tr> <td>Egg</td> <td>C</td> </tr> </table>	Sex Cell	Part	Sperm	B	Egg	C	
Sex Cell	Part								
Sperm	B								
Egg	C								
36d	Pollen grains								
37a	The bulb is already in a closed/complete circuit without the parts with the metal rods and Liquid Q so the bulb will light up even if Liquid Q is not a conductor of electricity.								
37b									
38a	8cm								
38b	Spring F. It extends more when the same mass is hung on it than Spring G. Thus, the reading/scale will be more significant obvious precise.								
39a	E, F, D								
39b	Temperature of surrounding Wind speed								
39c	Increase wind speed – put the containers in a windier place Increase temperature – put the containers in a place with higher temperature								
40a	B and C								
40b	Light travels in a straight line.								
40c									
41a	Potential energy → Kinetic energy → Potential energy								
41b									
41c	Release the pendulum from a greater height than Position B. The pendulum has more potential energy to be converted to more kinetic energy to move higher.								