SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRIMARY SIX PRELIMINARY ASSESSMENT 2018

NAME: _____ ( ) DATE: 28 August 2018

CLASS: PRIMARY 6

Parent's Signature:

_____

SCIENCE

BOOKLET A

28 questions

56 marks

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

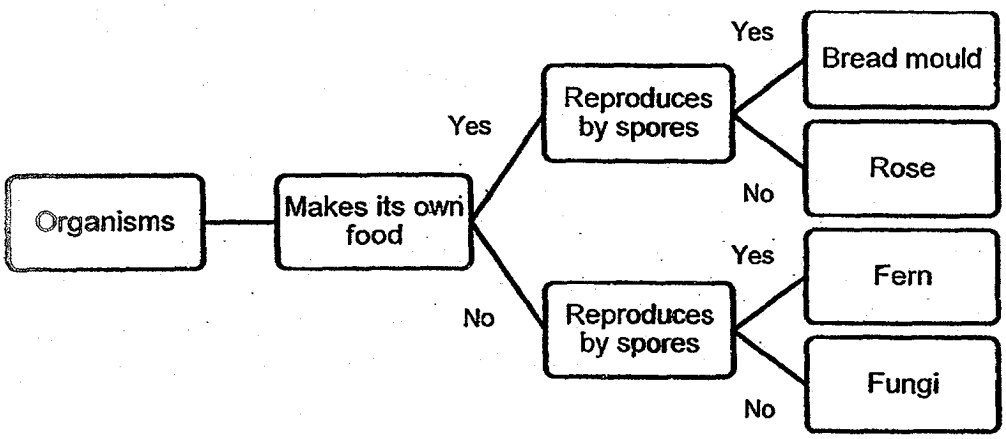
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

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. Study the flow chart below carefully.



Based on the flow chart above, which of the following is correctly placed?

(1) Bread mould
(2) Rose
(3) Fern
(4) Fungi

2. Jocelyn made the following observations about Organism G.

It has moist skin. It has dark-coloured skin. It does not have scales or hair. It can live on land and in water.

What is Organism G?

(1) Fish
(2) Mammal
(3) Reptile
(4) Amphibian

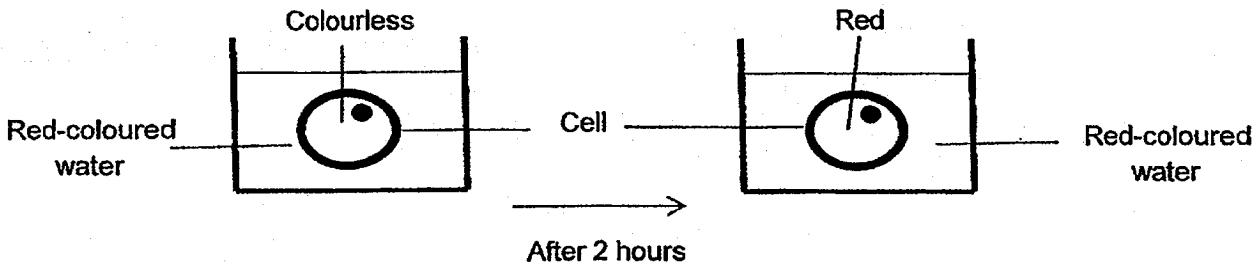
3. Mohammed wants to make a bookshelf for his books. The table below shows the properties of 4 different materials, A, B, C and D.

Materials	Strong	Waterproof	Flexible
A	✓		
B	✓		✓
C		✓	
D			✓

Which of the materials should Mohammed choose?

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

4. Xiao Wen placed a colourless cell in a container of red-coloured water. After 2 hours, he removed the cell from the container and observed that it had turned red.



Which of the following correctly explains Xiao Wen's observation?

(1) The cytoplasm transports water from the surroundings.
(2) The cell wall allowed the red-coloured water to enter the cell.
(3) The cell does not have a cell wall to prevent water from entering.
(4) The cell membrane allowed the red-coloured water to enter the cell.

5 What happens when undisgested food stays too long in the large intestine ?

(1) It will result in liquid waste.
(2) It will result in dry and solid waste.
(3) It will result in soft and solid waste.
(4) It will result in soft and watery waste.

6. 4 students observed 3 different cells, W, X and Y, under the microscope and recorded their observations in the table below.

Cells	Cell wall	Cell membrane	Nucleus	Chloroplasts
W		✓	✓	
X	✓	✓	✓	
Y	✓	✓	✓	✓

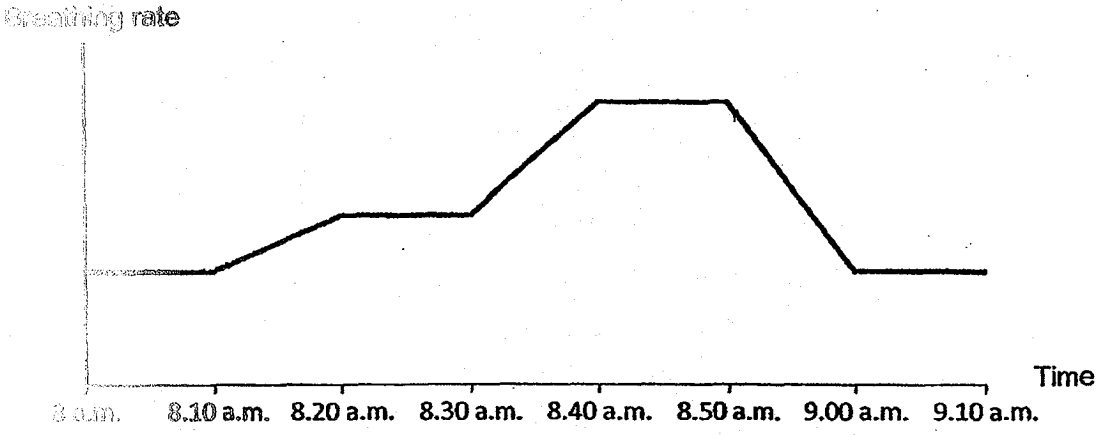
The students then made the following statements.

Student A: Cell W is the only animal cell.
Student B: Only Cell Y has a fixed shape.
Student C: Cells X and Y are plant cells.
Student D: Cells X and Y are cells from the leaves.

Which of the students have made the correct statements?

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

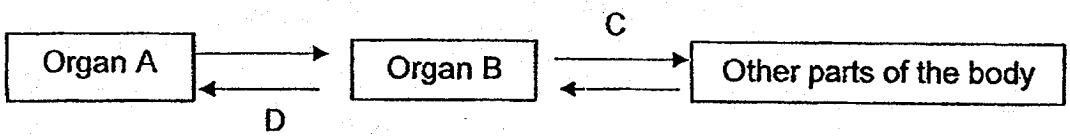
7. Olaf went for a run and his breathing rate was recorded in the graph below.



Based on the graph above, how long did Olaf run?

(1) 20 minutes
(2) 30 minutes
(3) 40 minutes
(4) 50 minutes

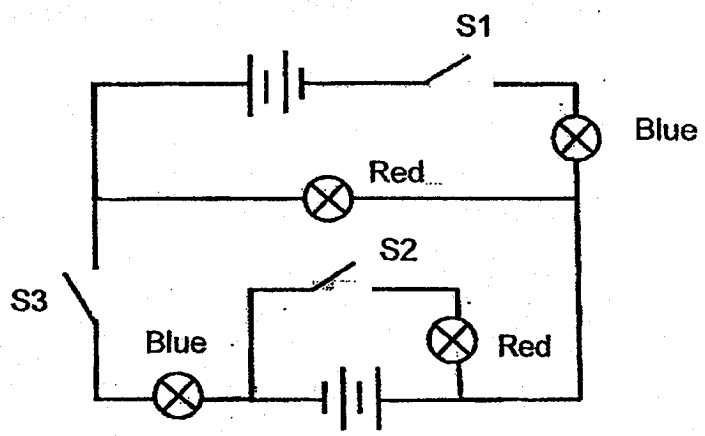
8. The diagram below shows how blood flows in a body system.



Which of the following correctly identifies Organs A and B and describes the blood flowing at C and D?

	Organ A	Organ B	Blood at C	Blood at D
(1)	Lungs	Heart	High in Carbon dioxide	High in Oxygen
(2)	Lungs	Heart	High in Oxygen	High in Carbon dioxide
(3)	Heart	Lungs	High in Carbon dioxide	High in Oxygen
(4)	Heart	Lungs	High in Oxygen	High in Carbon dioxide

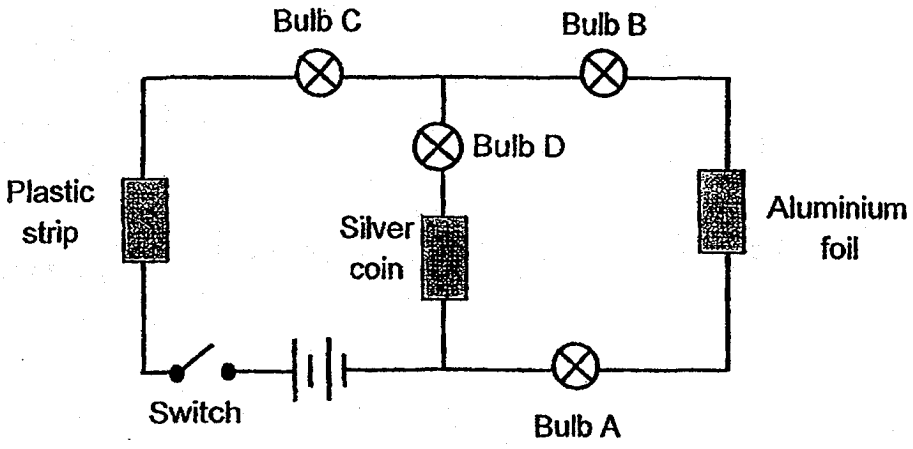
9. The diagram below shows an electric circuit with red and blue bulbs.



Which of the switches must be closed for 1 red bulb and 2 blue bulbs to light up?

(1) S1 and S2 only
(2) S1 and S3 only
(3) S2 and S3 only
(4) S1, S2 and S3

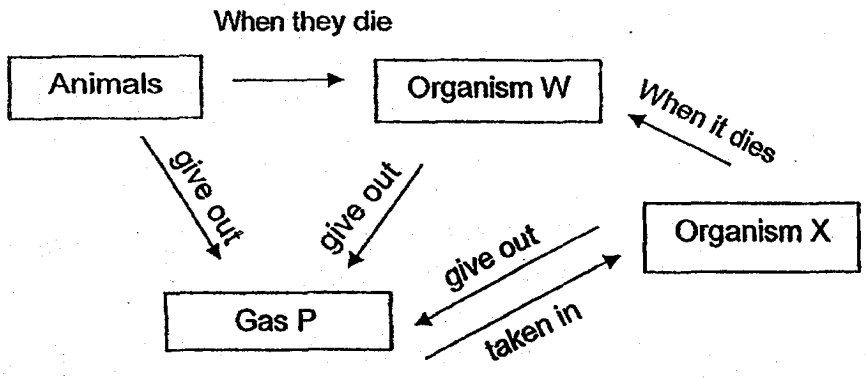
10. Elizabeth set up the circuit below using some of the items found in her home.



Which of the following bulbs would light up if the switch is closed?

(1) Bulbs A, B and C only
(2) Bulbs A, B and D only
(3) All of the bulbs
(4) None of the bulbs

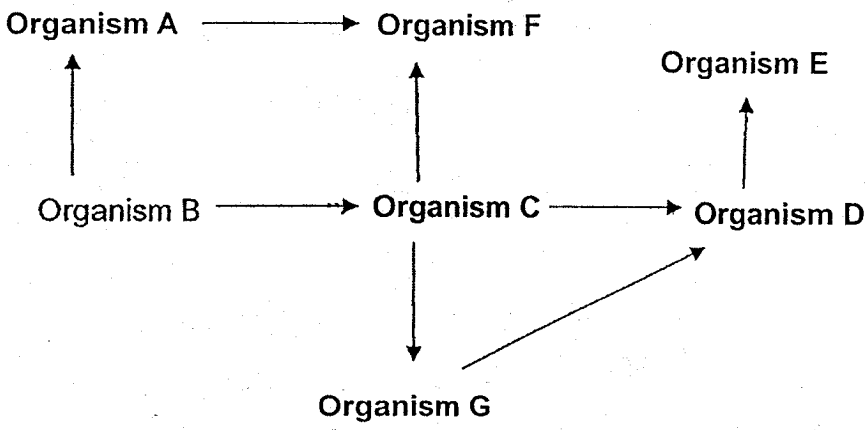
11. The diagram below shows the interactions of plants, animals, decomposers and Gas P in the environment.



Which of the following correctly identifies Organism W, Organism X and Gas P?

	Organism W	Organism X	Gas P
(1)	Decomposers	Plants	Oxygen
(2)	Decomposers	Plants	Carbon dioxide
(3)	Plants	Decomposers	Oxygen
(4)	Plants	Decomposers	Carbon dioxide

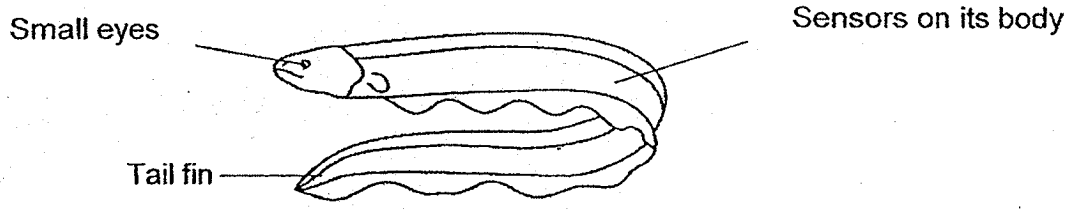
12. Observe the food web below carefully.



How many **predators** are there?

(1) 5 predators
(2) 6 predators
(3) 3 predators
(4) 4 predators

13. The diagram belows shows how Animal G looks like.



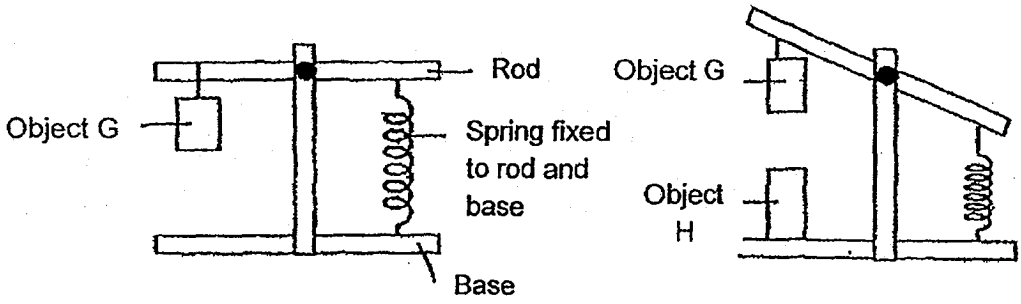
Animal G lives in dark waters. Based on the information above, 4 students made the following observations.

Names of students	Adaptations of Animal G	Types of adaptation
Amber	It avoids well-lit waters.	Structural adaptation
Benedict	It has sensors on its body.	Behavioural adaptation
Cassie	It has small eyes.	Structural adaptation
Devi	It has a tail fin for swimming.	Structural adaptation

Which of the 4 students are correct?

(1) Amber and Benedict only
(2) Benedict and Cassie only
(3) Cassie and Devi only
(4) Benedict, Cassie and Devi only

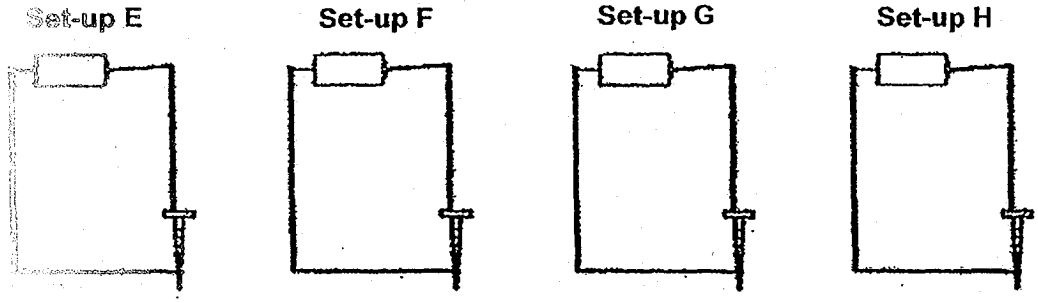
14. Jim set up the experiment as shown below. When he hung Object G on the rod, the spring on the other end of the rod stretched. He then placed Object H directly below Object G and the spring stretched less as shown below.



Which of the following correctly identifies Objects G and H and the force at work?

	Object G	Object H	Forces
(1)	Magnetic material	Magnetic material	Attraction
(2)	Non-magnetic material	Magnet	Repulsion
(3)	Magnet	Magnet	Attraction
(4)	Magnet	Magnet	Repulsion

15. Zoe wanted to find out how the type of nail and number of coils around the nail will affect the strength of the electromagnets. She created a few set-ups as shown below.

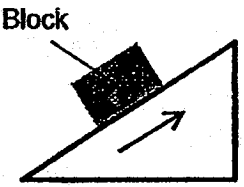


Which of the following set-ups should she use to carry out each of the following experiments?

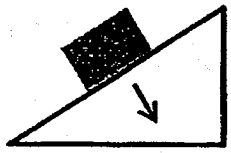
	Experiment 1	Experiment 2
	How would the type of nail affect the strength of electromagnet?	How would the number of coils affect the strength of electromagnet?
(1)	Set-ups E and G	Set-ups E and F
(2)	Set-ups E and H	Set-ups F and H
(3)	Set-ups F and G	Set-ups G and H
(4)	Set-ups F and H	Set-ups E and H

16. Identify the direction of frictional force that is preventing the block from sliding down the slope.

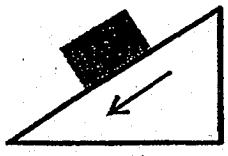
(1)



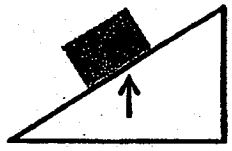
(3)



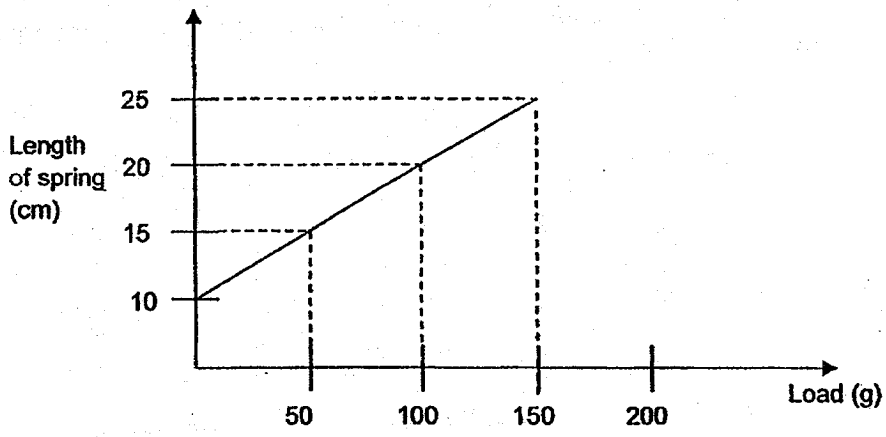
(2)



(4)



17. Ali hung different masses of weight onto a 10 cm spring. He measured the length of the spring and plotted the graph below.



What is the mass of weight that will allow the spring to extend by 15 cm?

(1) 50g
(2) 100g
(3) 150g
(4) 200g

18. Chloe notices that the marble statues and exteriors of buildings in her hometown get corroded after a few years.

Which of the following could have resulted in corrosion of the marble statues and buildings?

A: Burning of trees
B: Soil erosion
C: Global warming
D: Burning of fuels in vehicles
E: Burning of fossil fuels in factories

(1) A, B and C only
(2) C, D and E only
(3) A, D and E only
(4) All of the above

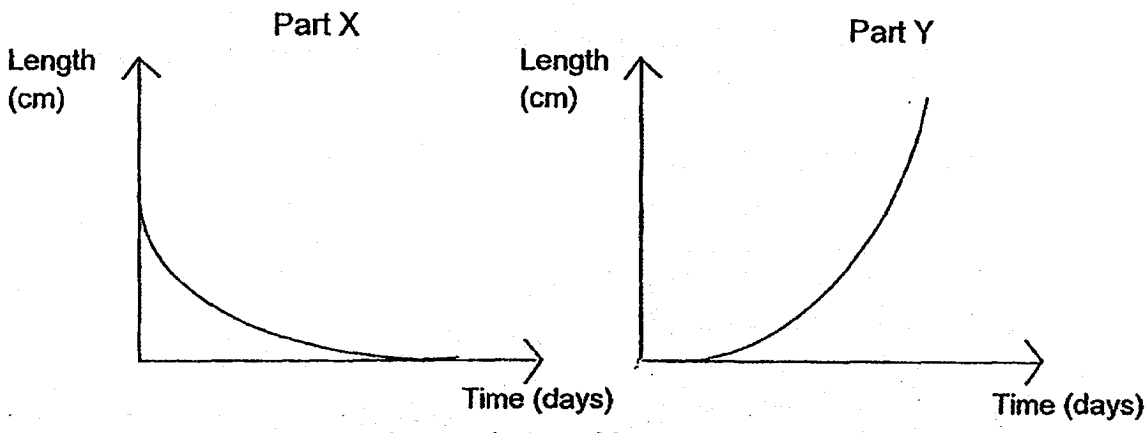
19. 4 students observed the life cycle of a butterfly and cockroach and made the following statements.

Arjun	The young of the butterfly does not resemble the adult but that of the cockroach resembles the adult.
Mabel	Both the young of the butterfly and cockroach develop from fertilised eggs.
Misha	Both the butterfly and cockroach have a 4-stage life cycle.
Jensen	Both the young of the butterfly and cockroach do not feed at all.

Which of the students were correct?

(1) Arjun and Mabel
(2) Mabel and Misha
(3) Misha and Jensen
(4) Arjun, Mabel and Jensen

20. The graphs below show 2 different parts of a seed, Parts X and Y, as the seed germinates into a seedling.



Based on the graphs above, what could Parts X and Y be?

	Part X	Part Y
(1)	Roots	Seed coat
(2)	Shoots	Seed leaves
(3)	Seed leaves	Seed coat
(4)	Seed leaves	Shoots

21. 4 pupils gave the following statements about the plant and human reproductive systems.

Jenny: In both systems, only one male reproductive cell fuses with one female reproductive cell.

Henry: Many pollen grains are needed in plants to increase the chances of pollination.

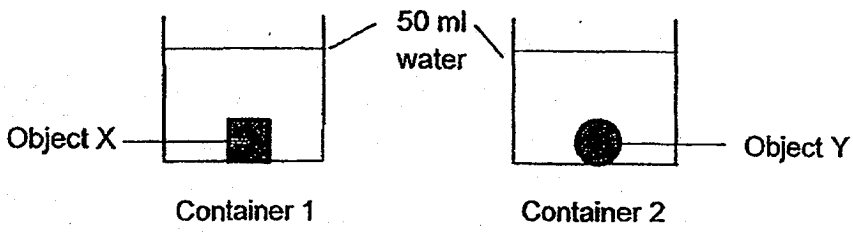
James: The fertilised egg cells in both plants and humans contain genetic materials of both parents.

Belinda: Pollination occurs in both plants and humans.

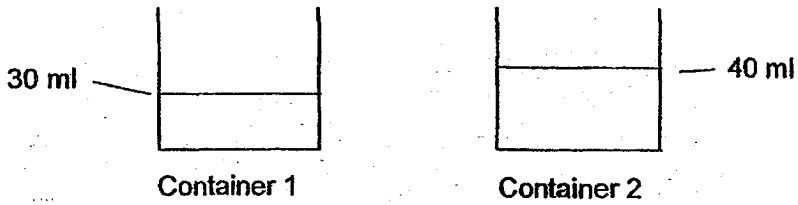
Which of the pupils are correct?

(1) Jenny and James only
(2) Henry and Belinda only
(3) Jenny, Henry and James only
(4) All of them

22. Gladys carried out the experiment below.



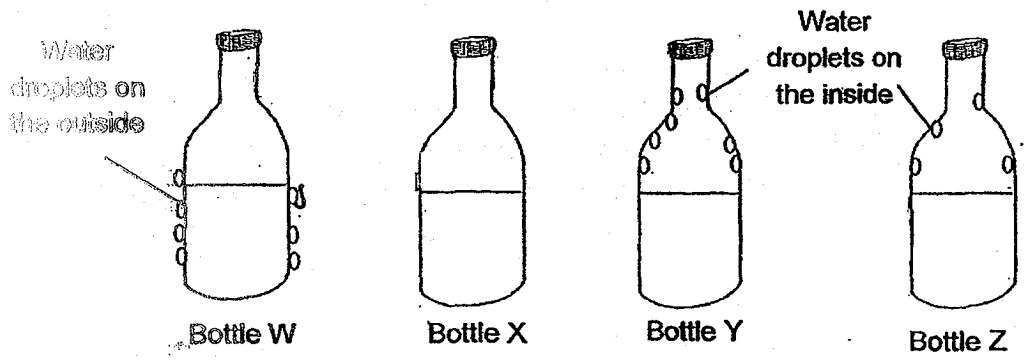
When the Objects X and Y were removed from the 2 containers, the water levels were as shown below.



Which of the following can be determined from Gladys' observations?

(1) Object X has a greater mass than Object Y.
(2) Object X has a smaller mass than Object Y.
(3) Object X has a greater volume than Object Y.
(4) Object X has a smaller volume than Object Y.

23. 4 identical bottles were placed in 4 different rooms. They contained equal volumes of water of the same temperature. After 15 minutes, some water droplets were observed on some of the bottles as shown below.



Which of the bottles was placed in the room with the highest temperature?

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

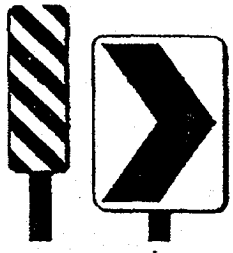
24. The table below shows the melting points of substances M, N, O and P.

Substance	Melting point (°C)
M	-10
N	30
O	50
P	120

Which of the following statements is correct?

(1) Substance M is a gas at 25°C.
(2) Substance N is a liquid at 25°C.
(3) Substances O and P are liquids at 80°C.
(4) Substances N and O are solids at 25°C.

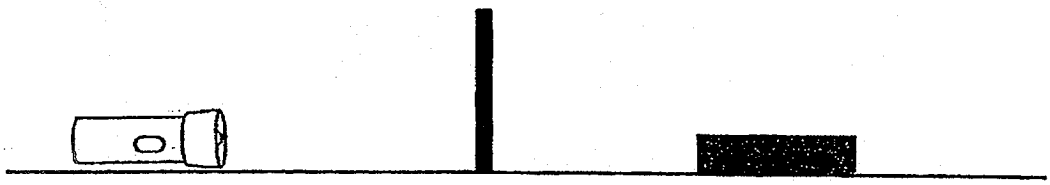
25. A white paint was used on road markers to make them more visible at night.



How did the white paint help drivers to see the road markers?

(1) The paint gave out light.
(2) The paint allowed light to pass through.
(3) Light from cars was reflected by the paint.
(4) The paint absorbed light in the day and shone at night.

26. Mrs Gomez wants to make curtains for her bedroom. She tested 4 different types of cloth, L, M, N and P, in the experiment below in a dark room. The cloth are of the same thickness.



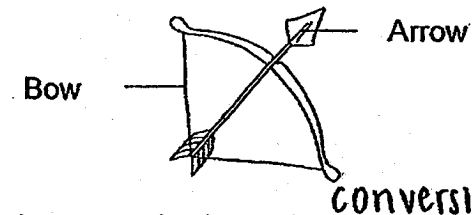
Shining the same amount of light each time, she recorded the amount of light detected by the data logger in the table below.

Cloth	Amount of light detected by the data logger (lux)
L	50
M	25
N	100
P	0

If Mrs Gomez wants to block out as much light as possible, which cloth should she use?

(1) Cloth L
(2) Cloth M
(3) Cloth N
(4) Cloth P

27. Johan watched a movie recently and noticed the use of a bow, as shown in the diagram below.

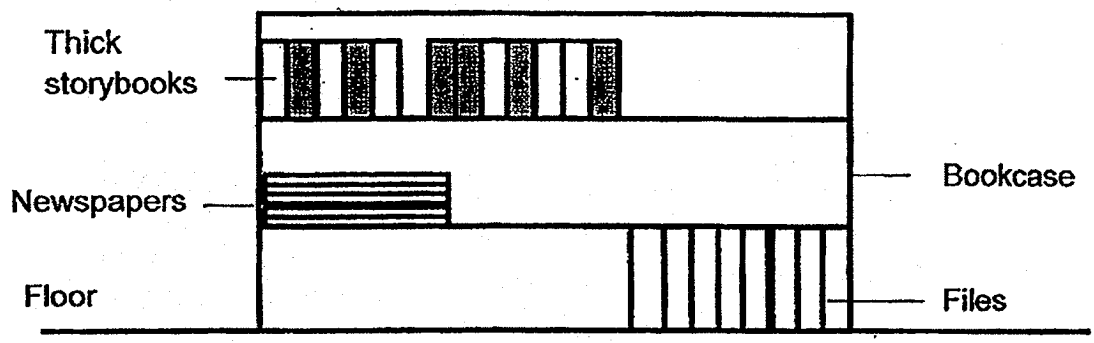


conversion

Which of the following correctly shows the ~~transfer~~ of energy from the moment the bow was pulled back to the shooting of the arrow?

(1)	Kinetic energy from the hand → Potential energy in the bow → Kinetic energy in the arrow
(2)	Kinetic energy from the hand → Kinetic energy in the bow → Kinetic energy in the arrow
(3)	Potential energy from the hand → Potential energy in the bow → Kinetic energy in the arrow
(4)	Potential energy from the hand → Kinetic energy in the bow → Kinetic energy in the arrow

28. The diagram below shows the arrangement of objects on the bookcase. The total mass of all the storybooks is greater than that of the newspapers and files.



Based on the diagram above, which of the following statements is/are correct?

A: The newspapers have no kinetic energy.
B: The files have gravitational potential energy.
C: There is more gravitational force acting on the newspapers than the thick storybooks.

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

End of Booklet A
Please check your work.

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRIMARY SIX PRELIMINARY ASSESSMENT 2018

NAME: _____ ( ) DATE: 28 August 2018

CLASS: PRIMARY 6

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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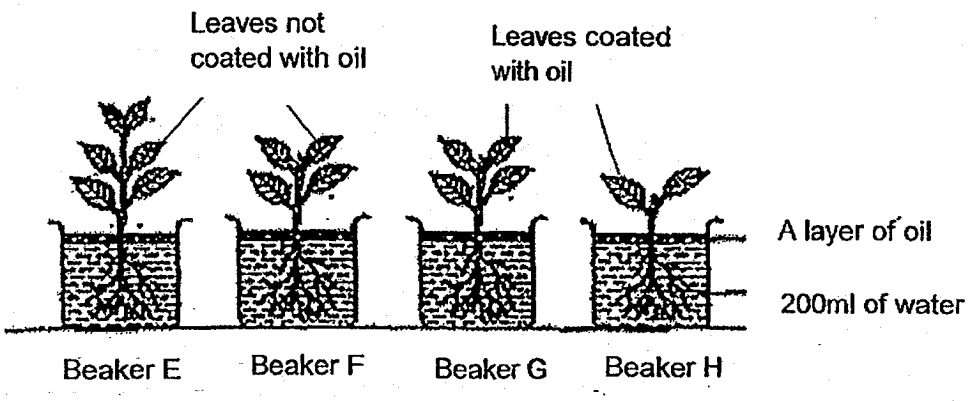
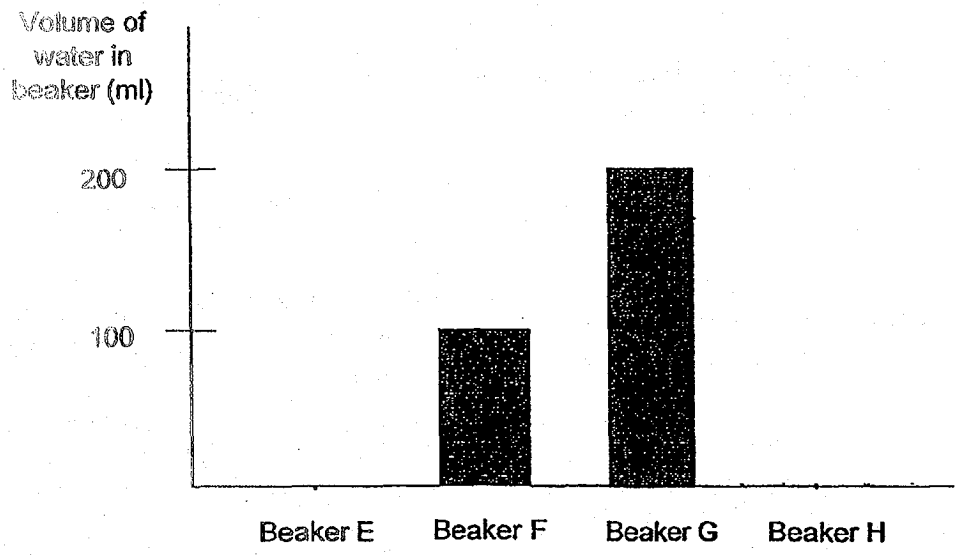
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Part II (44 marks)

29(a) Uncle Joe placed 4 similar plants in 4 beakers filled with 200 ml of water near the window for 2 days. The plants had different number of leaves and only the leaves of the plants in Beakers G and H were coated with oil. The 4 set-ups are shown below.



(i) After 2 days, Uncle Joe recorded the volume of water left in Beaker F and Beaker G and drew a bar graph to analyse his results. Draw the volume of water left in Beakers E and H by completing the bar graph below. (1m)



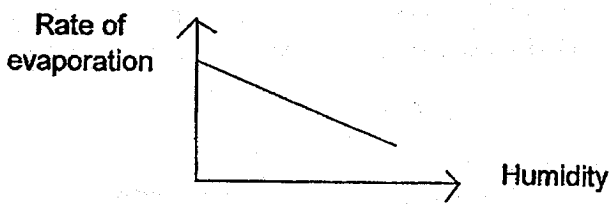
(ii) Explain why the volume of water in Beaker F was less than the volume of water in Beaker G. (2m)

_____

_____

3

29(b) Humidity is the amount of water vapour in the air. The diagram below shows the relationship between humidity and rate of evaporation.

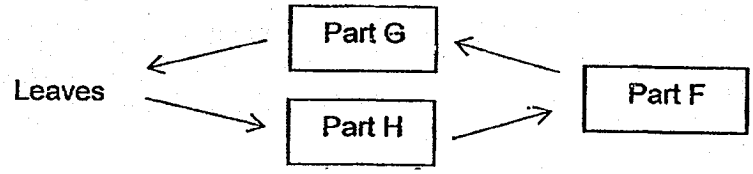


Explain why, when humidity is high, there will be more than 100ml of water left in Beaker F after 2 days. (2m)

_____

_____

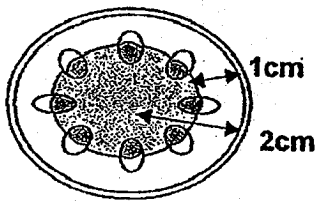
30. The diagram below shows how substances are transported in plants. Part F is a part of a plant.

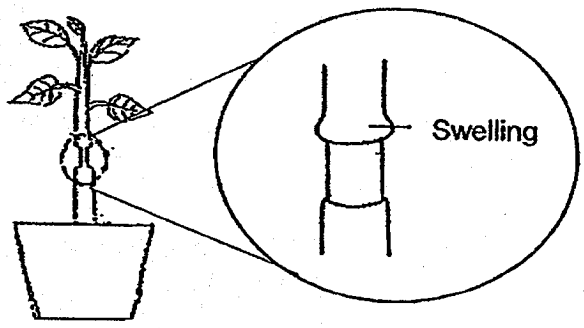


(a) Part G and Part H help to transport substances in plants.
Identify the 2 parts. (1m)

Part G: _____ Part H: _____

(b) The diagram below shows a cross-section of a stem of the plant. Uncle Joe made a cut on the stem. After 2 days, he noticed that there was swelling only on the stem above the cut as shown below.





How deep did he cut? Explain. (2m)

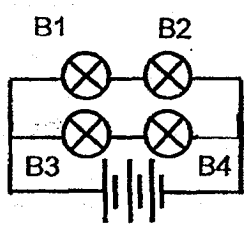
_____

_____

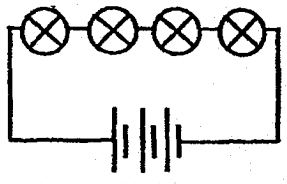
5

31. Kai Li set up 4 electrical circuits and labelled them Circuits W, X, Y and Z, as shown below.

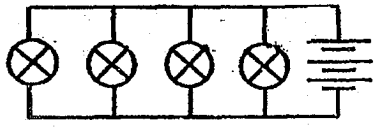
Circuit W



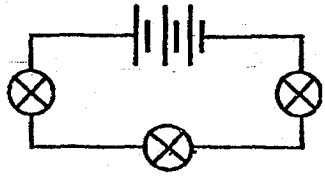
Circuit X



Circuit Y



Circuit Z



(a) Kai Li found out that the bulbs in the 4 circuits were of different brightness. Arrange the circuits in the order of increasing brightness of bulbs. (1m)

Dimmest **Brightest**

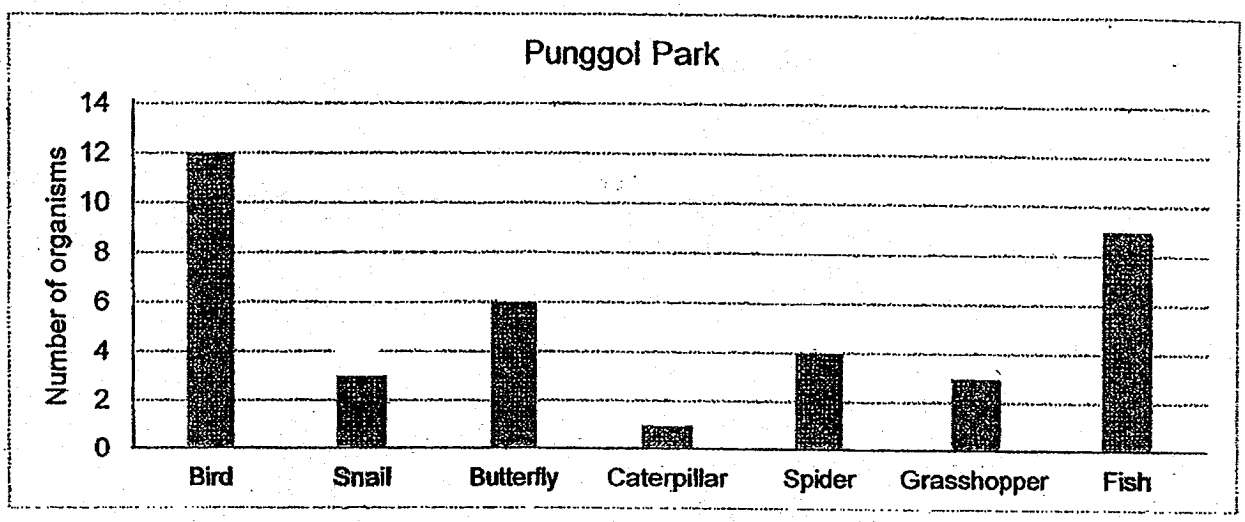
(b) Will B2, B3 and B4 light up if B1 in Circuit W fuses?

Write your answer in the table below. (1m)

	Bulbs
Will light up	
Will not light up	

2

32. Dennis went to Punggol Park with his parents. He counted the number of organisms that he saw as he walked around Punggol Park.



(a) Based on the information that he obtained, Dennis wrote down a few statements. Put a tick (✓) in the correct column. (2m)

Statements	True	False	Not possible to tell
All the organisms in Punggol Park form one community.			
There will be more birds than fish in Punggol Park next month.			
There are 7 populations of animals in Punggol Park.			
There are more insects than birds in Punggol Park.			

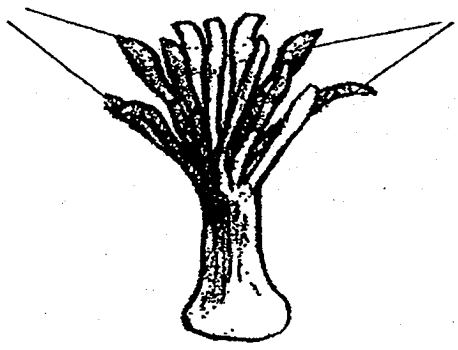
(b) Explain why the grasshopper cannot survive in the seashore habitat. (1m)

_____

_____

3

33. Animal F is a carnivore. It has many tentacles (finger-like structures) as shown in the diagram below. Animal F has an interdependent relationship with Plant G that lives in the tentacles.



Animal F

(a) How does Animal F and Plant G benefit from this relationship?

1 Benefit for Animal F (1m): _____

_____

2 Benefits for Plant G (2m): _____

_____

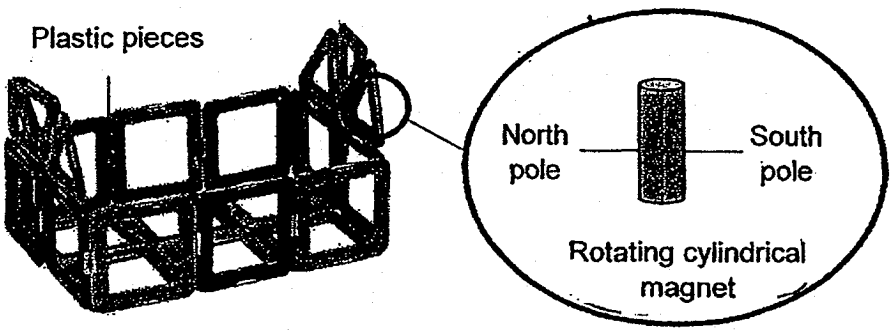
_____

(b) State the type of adaptations, **behavioural** or **structural**, for the adaptations below. (1m)

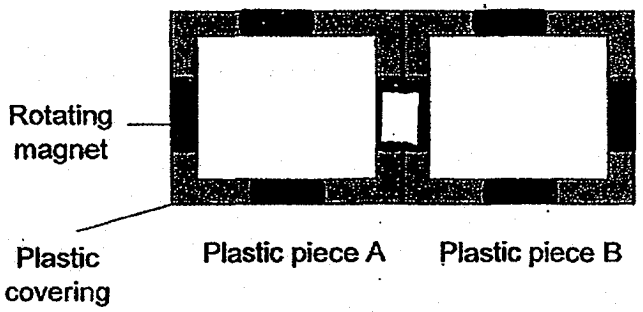
Adaptations	Type of adaptations
Animal F has tentacles.	
Animal F feeds more actively at night.	

4

34. Grace bought a new magnetic toy that consists of many plastic pieces. She could use the plastic pieces to build any structure that she likes.



She noticed that regardless of which sides the plastic pieces are placed next to each other, they always attract. Upon further observation, she noticed that each side of the plastic piece has a rotating magnet with poles on the sides as shown above.



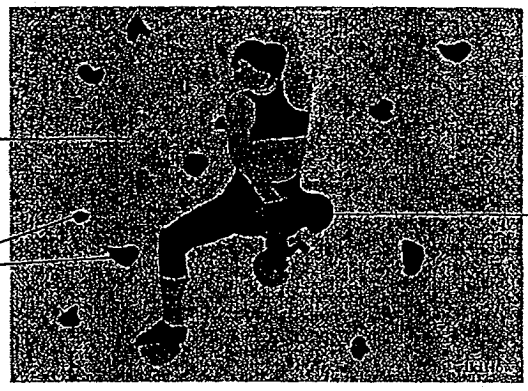
Explain clearly how the plastic pieces are attracted to one another regardless of how they are positioned. (2m)

_____

_____

2

35. Belle always dusts her hands with rock climbing chalk, a white powder, before and during her climb. The rock climbing chalk absorbs moisture.



(a) How does dusting her hands with rock climbing chalk prevent Belle from falling during her climb? (2m)

_____

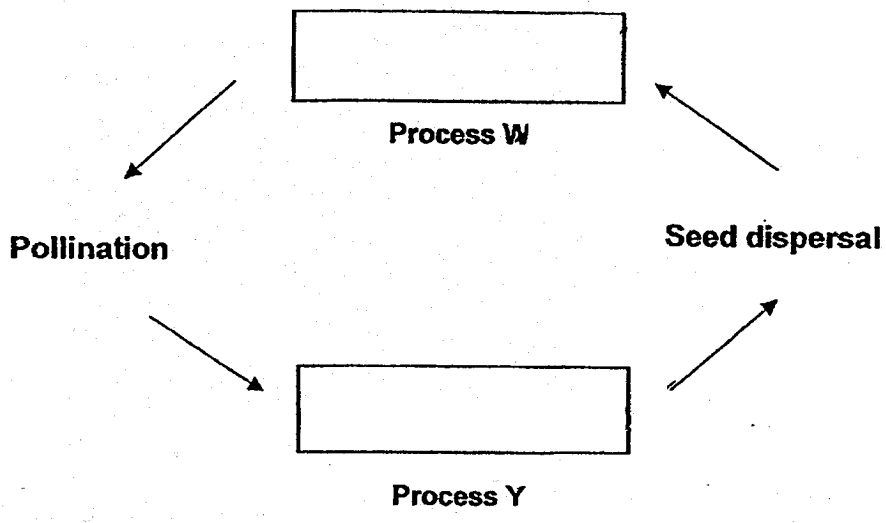
_____

(b) When Belle is climbing, what are the forces that make it more difficult or easier for her? (1m)

Force/s that make the climb easier	
Force/s that make the climb difficult	

3

36. The diagram below shows the stages of sexual reproduction in plants.



(a) Complete the diagram above by filling in the blanks. (1m)

(b) Describe what happens during pollination. (1m)

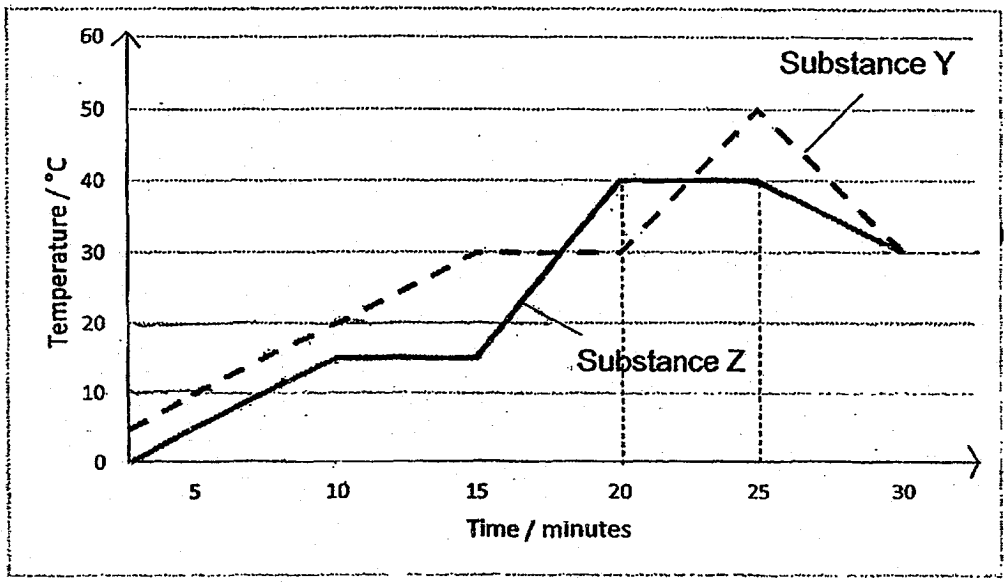
_____

_____

(b) Overcrowding of seeds must be avoided to prevent young plants from competing for _____, _____, _____ and _____. (1m)

0/3

37. 2 substances, Y and Z, were heated and their temperature changes were plotted in the graph below.



Based on the graph above, answer the following questions.

(a) Substances Y and Z were in the solid state at 10°C.
What are the states of Substances Y and Z at 20°C? (2m)

Substance Y: _____

Substance Z: _____

(b) Describe what is happening to Substance Z between the 20th and 25th minute. (1m)

_____

_____

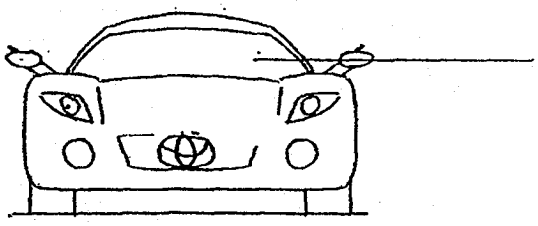
(c) How long did Substance Z gain heat? Explain your answer. (1m)

_____

_____

4

38. Mr Wong was driving his car on a cold rainy day. Water droplets formed on the inner surface of the windscreen. Water droplets were not observed on sunny days.



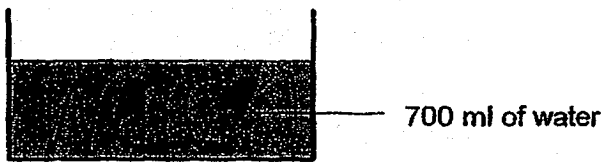
(a) Explain how water droplets were formed on the inner surface of the windscreen on cold rainy days. (2m)

_____

_____

_____

(b) Daniel wanted to find out the rate of evaporation at different times of the day. He filled 3 similar containers with 700ml of water each and placed each container in the garden at different time periods of the day.



At the end of each time period, he recorded the volume of water left in the container in the table below.

Time period	10 a.m. – 12 noon	3 p.m. – 5 p.m.	8 p.m. to 10 p.m.
Volume of water left in the container (ml)	440	500	650

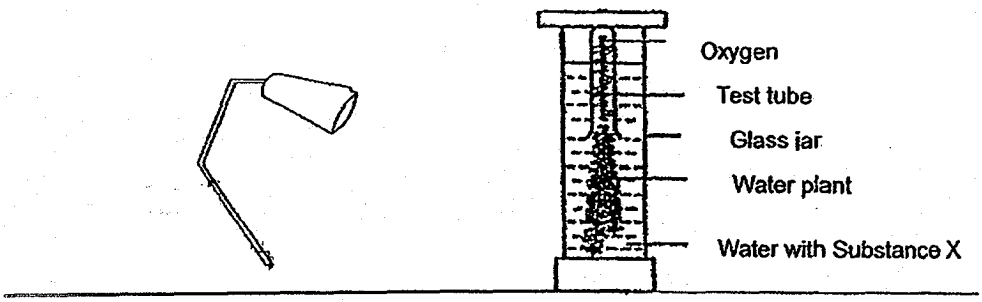
Based on the table above, which period of the day was the hottest? Explain using evidence from the table. (2m)

_____

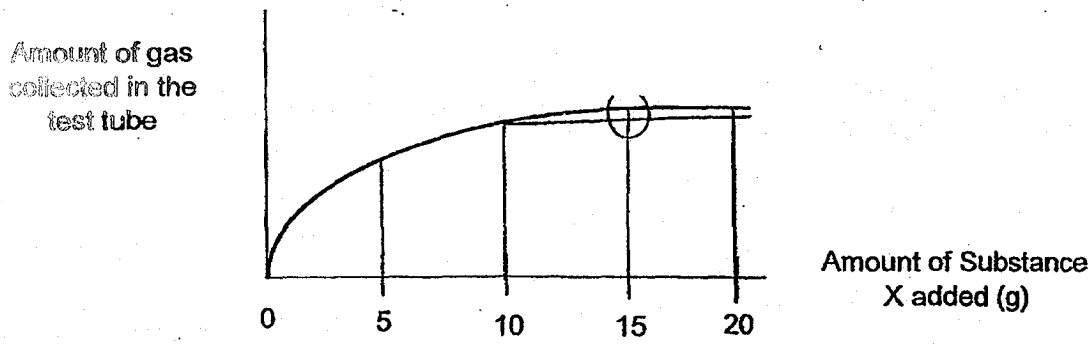
_____

4

39. Jovin carried out the following experiment in a dark room. He added different amounts of Substance X to increase the amount of carbon dioxide in the water and kept all the other variables constant.



After every 15 minutes, he increased the amount of Substance X added and counted the amount of gas collected in the test tube. He plotted the graph below.



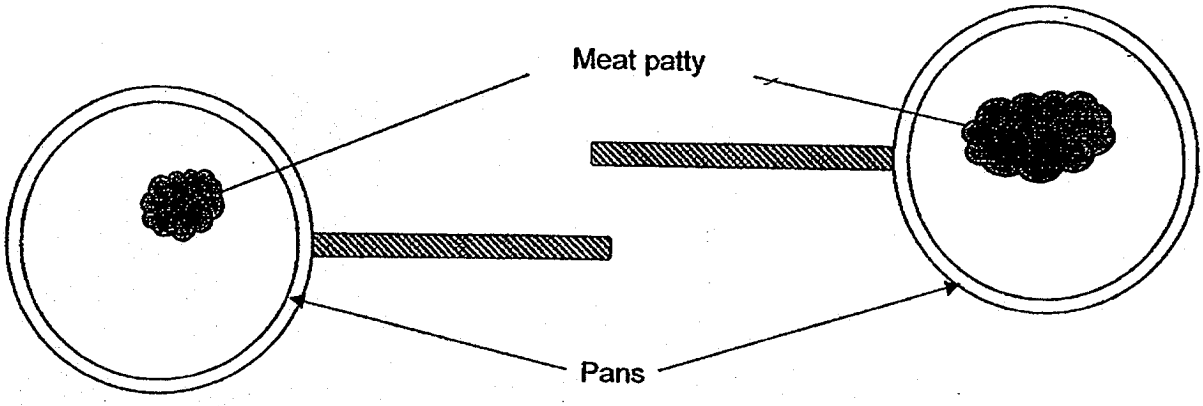
(a) Based on his results, what is the relationship between the amount of carbon dioxide and the rate of photosynthesis? (2m)

(b) Jovin wanted to find out how the amount of light would affect the rate of photosynthesis. How can he modify the experiment in 39(a) without using different apparatus? (2m)

Variable/s to be changed	
Variable/s to be kept constant (Do not mention those that were already kept constant)	

4

40. Mrs Helen wants to cook 2 meat patties using 2 identical pans, A and B, at the same temperature. The meat patties are of the same mass.



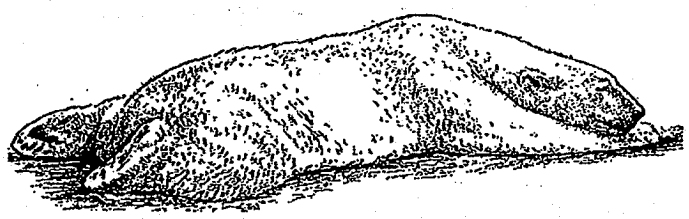
Pan A **Pan B**

(a) Predict the meat patty which will take a shorter time to be cooked. Explain your answer. (2m)

_____

_____

(b) The picture below shows a polar bear on a hot sunny day.



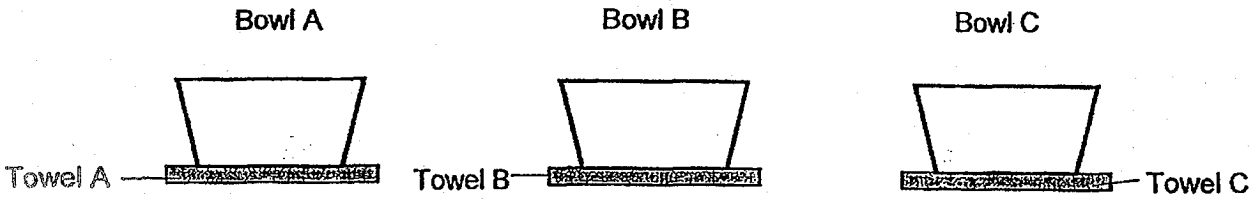
The polar bear feels overheated on a hot sunny day. Explain why it spreads itself out on the snow when it feels overheated. (2m)

_____

_____

4

41. Valeria boiled some soup and placed them into 3 bowls of the same size, A, B and C. The bowls are made up of different materials. Instead of placing the bowls with the hot soup directly on the table, she placed a towel beneath the bowls to protect the table top.



After 5 minutes, she found that the towels felt warmer and she recorded their temperatures in the table below.

Towels	Towel A	Towel B	Towel C
Temperature of towels (°C)	50°C	38°C	43°C

(a) Explain why the towels become warmer after 5 minutes. (1m)

(b) Based on the results above, which bowl will contain the hottest soup after 5 minutes? Explain. (2m)

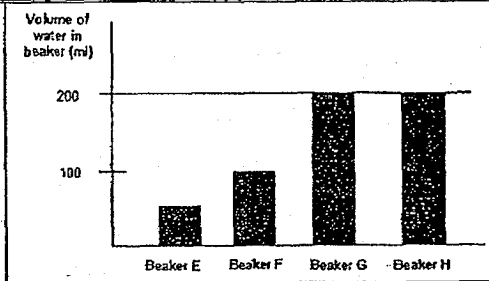
3

End of Booklet B
Please check your work.

SINGAPORE CHINESE GIRLS' SCHOOL
PRELIMINARY EXAMINATION 2018
PRIMARY 6 SCIENCE Model Answers

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

29ai



29aii The leaves of the plant in Beaker G were coated with oil but the leaves of the plant in Beaker F were not so only the stomata of the leaves of the plant in Beaker G were blocked and cannot lose water through its leaves. Thus the roots of the plant in Beaker G will not take in water.

29b When humidity is high, the plant will give out less water vapour through their leaves and take in less water through its roots.

30a Part G: **Water-carrying tubes / Xylem**
Part H: **Food-carrying tubes/ Phloem**

30b He cut a 1cm ring. Food made in the leaves cannot be transported downwards to the roots.

31a **X, Z, W, Y**

31b

Will light up	**B3 and B4**
Will not light up	**B2**

32a

Statements	True	False	NPTT
All the organisms in Punggol Park form one community.	✓		
There will also be more birds than fish in Punggol Park next month.			✓
There are 7 populations of animals in Punggol Park.		✓	
There are more insects than birds in Punggol Park.		✓	

32b The seashore habitat does not have enough water and food for the grasshopper to survive.

33a Benefit for Animal F: **Plant G produce oxygen for Animal F to survive / Plant G attract animals for Animal F to eat**
2 Benefits for Plant G (any 2):
Animal F protects Plant G from their consumers
Animal F gives out carbon dioxide for Plant G to make food
Animal F provides nutrients/ fertilisers for Plant G to grow well

33b

Adaptations	Type of adaptations
Animal F has tentacles.	**Structural**
Animal F feeds more actively at night.	**Behavioural**

34a The magnets can rotate so they will turn such that the unlike poles of the 2 magnets face each other so they can attract.

35a Sweat from the hands reduces friction between the hands and the rock climbing holds. The powder removes/reduces sweat from the hands so there is more friction between her hands and the rock climbing holds.

35b

Forces that make the climb easier	**Friction**
Forces that make the climb difficult	**Gravity**

36a Process W: **Germination**
Process Y: **Fertilisation**

36b Pollen grains from the anther get transferred **onto** the stigma of the flower.

36c Space, mineral salts/nutrients, water and sunlight/light

37a Substance Y: **Solid**.
Substance Z: **Liquid**

37b Substance Z is boiling.

37c 25 minutes. The temperature of Substance Z decreased only after the 25th minute.

38a (The temperature of the air outside the car was cooler than the air inside the car.) Warmer water vapour in the car lost heat and condensed onto the cooler inner surface of the windscreen to form water droplets.

38b 10am to 12 noon was the hottest. The volume of water left was the least, so it means that the rate of evaporation was the highest.

39a As the amount of carbon dioxide increases, the rate of photosynthesis increases. However, as the amount of Substance X increases beyond 15g, as the amount of carbon dioxide increases, the rate of photosynthesis remains constant.

39b

Variables to be changed	**Distance between the lamp and plant**
Variables to be kept constant	**Amount of substance X**

40a Meat patty on Pan B. The meat patty on Pan B has a larger area in contact with the hot pan so it will gain more heat and be cooked faster.

40b The spread body will have a larger area in contact with the snow so the body will lose more heat to the snow.

41a The towels gained heat from the hot bowls of soup.

41b Bowl B. Bowl B is the poorest conductor of heat so the least amount of heat is conducted from the hot soup to the towel and the surroundings.