Ai Tong School
Primary 5 Science
2022 Term 3 Topical Review

30

Name: _____ ( ) Date: _____

Class: P5 _____ Duration: 40 minutes

Section A (14 marks)

For each question from 1 to 4, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write your answer in the bracket provided.

1 Which of the following is not needed for photosynthesis to take place?

(1) water
(2) oxygen
(3) sunlight
(4) carbon dioxide

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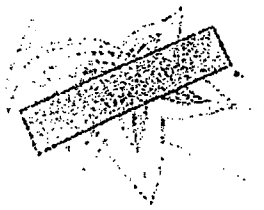
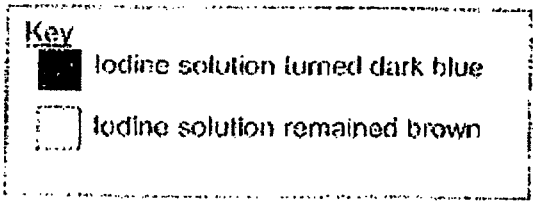
2 Plant H has leaves that are green in the centre but white around the edges. The plant was kept in the dark for 48 hours.
One leaf was partly covered with black paper on both sides of the leaf as shown below.

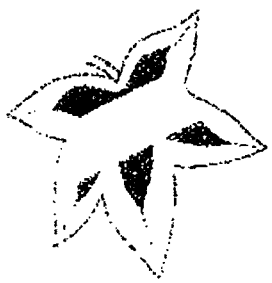


The plant was then placed in bright light for 48 hours and the leaf was tested for starch. Iodine solution turns from brown colour to dark blue in the presence of starch. Which diagram correctly shows the areas that contain starch?



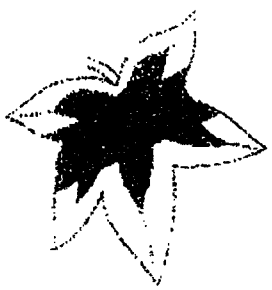
(1)

(2)



(3)

(4)



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3 Sammi set up an experiment using four similar leaves M, N, O and P from the same plant. These leaves have openings known as stomata on both their upper and lower surfaces.

She coated some surfaces of the leaves with oil as shown in the table.

Leaf	Coated with oil	
	Upper surface	Lower surface
M	no	no
N	no	yes
O	yes	no
P	yes	yes

The leaves were placed under bright sunlight which caused each leaf to reduce its mass. The table below shows mass of the leaf after 2 hours.

Leaf	Mass of leaf at the start of experiment (g)	Mass of leaf after 2 hours (g)
M	2.0	1.0
N	2.0	1.7
O	2.0	1.3
P	2.0	2.0

What could Sammi conclude about the stomata on the leaves of this plant?

(1) There were more stomata on the lower surfaces.
(2) There were more stomata on the upper surfaces.
(3) The openings of the stomata on the lower surfaces were smaller.
(4) There were equal number of stomata on the upper and lower surfaces of leaves.

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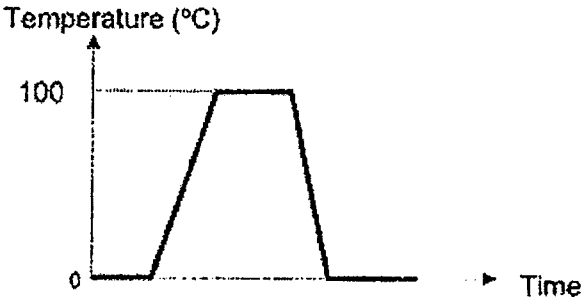
4 The graph below shows the changes in temperature when a beaker of ice is heated and then cooled in the freezer.



Based on the graph shown, we can conclude that the temperature at which water freezes is the same as the temperature at which it_____.

(1) melts
(2) boils
(3) condenses
(4) evaporates

( )

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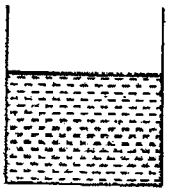
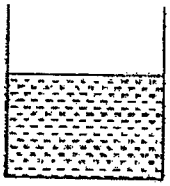
5 John poured some cold water from the refrigerator into a container as shown below.

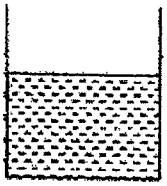


Which of the following shows the observation that will be made after five minutes?

(1)



(2)



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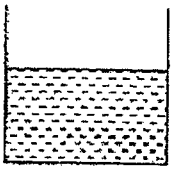
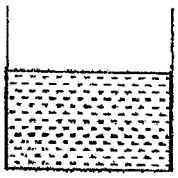


(4)



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6 Ronald wants to find out if water at room temperature or water at 90°C evaporates faster.

Which of the following factor(s) must Ronald keep the same for his set-ups to make the experiment a fair test?

A	amount of water
B	shape of the containers
C	location of the set-ups
D	temperature of the water

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

( )

7 Joe wanted to find out if adding salt to ice will slow down the rate of melting. Order the steps below for him to carry out the experiment.

A	Compare and conclude results.
B	Sprinkle some salt onto ice cube in dish A.
C	Place an ice cube in dish A and dish B respectively.
D	Measure the amount of water in dish A and B after 10 mins.

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

( )

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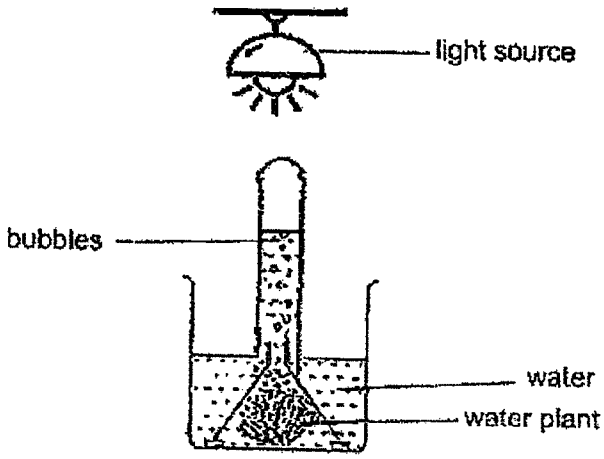
Section B (16 marks)

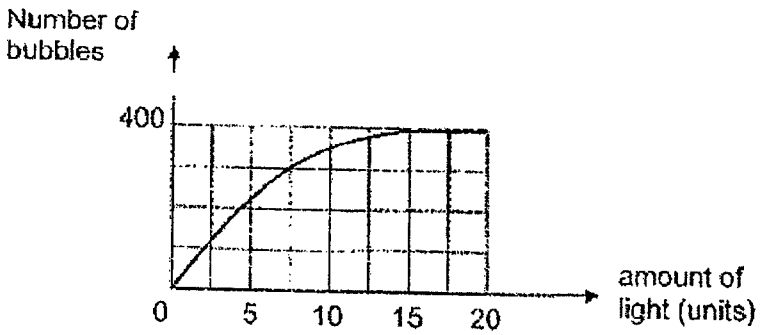
For questions 8 to 10, write your answers in the spaces provided.

The number of marks available is shown in bracket [ ] at the end of each question or part question.

8 Tina conducted an experiment to investigate the effect of the amount of light on the rate of photosynthesis of a water plant over time. She adjusted the amount of light coming from the light source to carry out her experiment.



The graph below shows the results of the experiment.



(a) What is the gas present in the bubbles? [1]

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(b) Explain how gas in the bubbles are produced. [2]

(c) What can Tina conclude from her results? [1]

(d) Tina conducted another experiment. She kept the amount of light, amount of water and temperature of air the same. The number of bubbles obtained was more than before. State the changed variable in her second experiment. [1]

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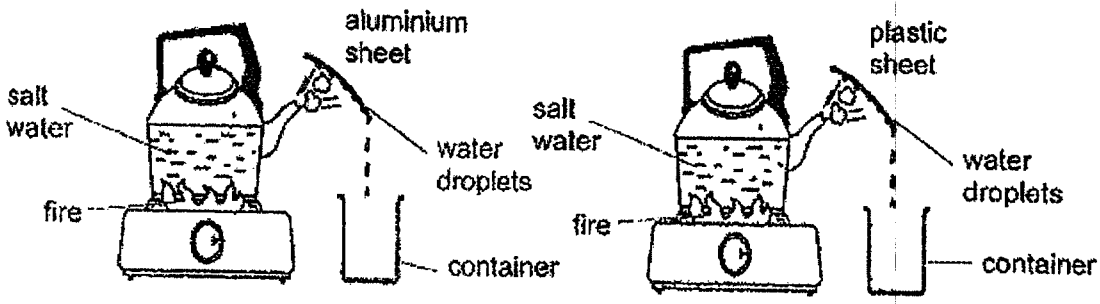
9 (a) What is the temperature of steam? [1]

Sam wanted to collect clean water from some salt water. He prepared two set-ups below.



Set-up A Set-up B

(b) How was water collected in the containers? [2]

(c) What was Sam trying to find out? [1]

(d) What must he measure in his experiment? [1]

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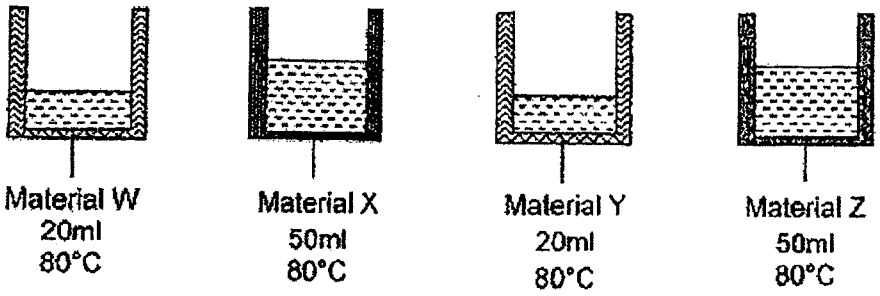
5

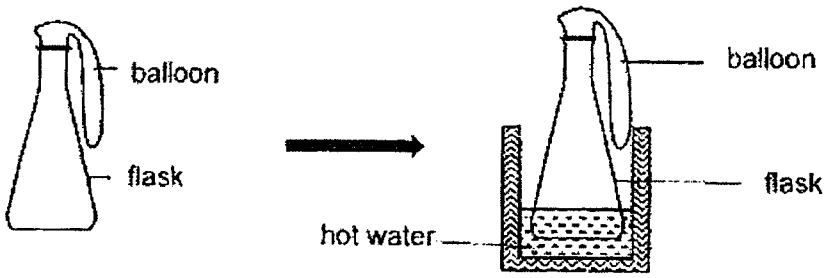
10 The diagram below shows four containers made of different materials. Each container contains different amount of water at the same temperature.



Tim wants to find out which material is suitable to be used as a thermal flask to keep water warm for the longest time.

(a) Which materials should Tim choose in order to conduct a fair test? [1]

Tim took one of the containers and conducted the experiment shown below. He placed the flask in the container of hot water.



(b) State what will happen to the balloon after some time. Explain your answer. [2]

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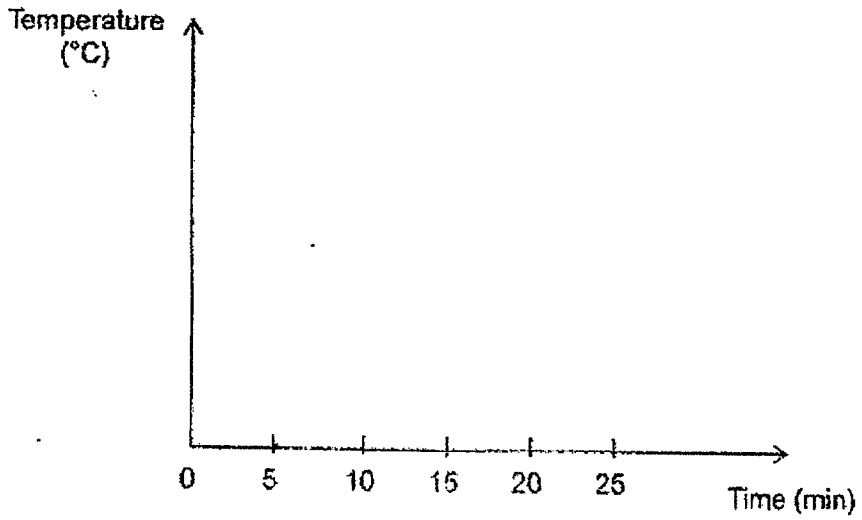
3

11 Joan heated an ice block in a pan. The ice block melted completely after 5 minutes. She continued to heat the water for another 10 minutes until it started to boil for 10 minutes.

(a) Using the axes below, use a ruler and draw a line graph to show the changes in the temperature of the ice cubes in Joan's experiment. [1]



(b) Besides boiling and melting, identify another process that took place during the experiment. [1]

(c) Give a reason why the water cycle is important to living things. [1]

3

End of Paper

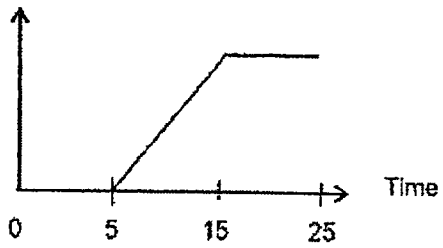
Ai Tong School
Primary 5 2022 Term 3
Science Weighted Assessment
Correction Template

Name : _____ ( ) Class: _____

Date : _____

No.	Answer	Remarks
1	(2)	During photosynthesis, water and carbon dioxide are taken in by the plants in the presence of light and chlorophyll to release oxygen and sugar.
2	(2)	White area of leaf: No chlorophyll to trap light for photosynthesis (iodine remains brown) Area covered by black paper: This part of the leaf is unable to receive light to make food (iodine remains brown) Green area of leaf: Chlorophyll is present to trap light for photosynthesis (iodine turns dark brown)
3	(1)	Leaf O has more water lost than Leaf N. The difference between the two leaves is that Leaf O is coated with oil on its upper surface while Leaf N is coated with oil on its lower surface, thus showing that there is more stomata on the lower surface resulting in the greater loss of water in Leaf O.
4	(1)	Melting point = Freezing point = ~~100°C~~ 0°C
5	(2)	Recognise that cold water cools down the part of the container that is in direct contact with it. Thus, the warmer water vapour in the surrounding air that comes into contact with the cooler external part of the container will be able to lose heat and condense into tiny water droplets which will be observed on the exterior part of the container.
6	(3)	Aim: To find out if water at room temperature or water at 90°C evaporates faster Changed variable: Temperature of the water Constant variables: All other variables
7	(4)	

No.	Answer	Remarks
8a	Oxygen	During photosynthesis, water and carbon dioxide are taken in by the plants in the presence of light and chlorophyll to release oxygen and sugar.
8b	The plant takes in carbon dioxide and light.	
8c	Rate of photosynthesis increases when the amount of light increases until after 15 unit where the rate of photosynthesis remains constant.	Conclusion answers the aim of the experiment. Thus, you need to describe how the changed variable (amount of light) affects the measured variable (rate of photosynthesis). Note that 'number of bubbles' implies the measured variable but it is not the measured variable.
8d	The amount of carbon dioxide in the water Or Number of water plants	
9a	100°C	Temperature of steam = Boiling point.
9b	Water in the salt water gained heat and evaporated to become water vapour. The warmer water vapour touches the cooler sheet, loses heat and condenses into water droplets.	- Source of water must be identified correctly. - Idea of heat gain must be stated. - Temperature difference between the surroundings and the condensing surface must be stated. - Idea of heat loss must be stated.
9c	He wanted to find out if the type of material affects the rate of condensation.	Aim: To find out if changed variable affects the (implied) measured variable.
9d	Amount of water collected in the container	Know the difference between: Implied measured variable: Rate of condensation Measured variable: Amount of water collected
10a	W and Y Or X and Z	Aim: To find out the type of material suitable to be used as thermal flask to keep water warm for the longest time Changed variable: Type of material

		Constant variables: All other variables (namely volume of water and temperature of water from the diagram)
10b	The balloon will be inflated. The air in the balloon gained heat from the hot water and expand.	State the observation first. Explain using - Idea of heat transfer (in this case, heat gain) - Result of heat gain on matter (Matter expands when it gains heat).
11a	Temperature (°C)  	Draw graph using ruler and pencil. - 0th to 5th minute: Ice melts at 0°C - 5th to 15th minute: Water heats up from 0°C to 100°C - 15th to 25th minute: Water boils at 100°C
11b	Evaporation	When water gains heat, the water particles gain heat and leave the surface of the water.
11c	It provides living things with a continuos supply of water for them to survive.	