

Answer Key
Section A

Question	Answer
1	4
2	2
3	4
4	1
5	3
6	3
7	2
8	4
9	2
10	1
11	4
12	4
13	2
14	1

Question	Answer
15	2
16	3
17	4
18	2
19	1
20	4
21	3
22	2
23	3
24	1
25	2
26	1
27	3
28	2

Section B (44 marks)

Qn	Acceptable responses	Marks	Remarks
29a)	<p>Tube A: Water / mineral salts</p> <p>Tube B: Food / sugar / glucose</p>	<p>1</p> <p>1</p>	
29b)	<p>Food and water are carried by two different tubes in plants, but in humans, they are carried by the same blood vessels.</p> <p>Tubes in plants only carry water, food and mineral salts, but blood vessels in humans also carry oxygen, carbon dioxide and waste materials.</p>	1	

Qn	Acceptable responses	Marks	Remarks
30a)	<p>Evaporation from soil / leaves</p> <p>Water vapour condenses</p>	<p>1</p> <p>1</p>	
30b)	<p>Plants carry out photosynthesis, so give out oxygen and take in carbon dioxide</p> <p>Plants carry out respiration, take in oxygen and give out carbon dioxide</p>	<p>1</p> <p>1</p>	

Qn	Acceptable responses	Marks	Remarks
31a)	Temperature of water.	1	
31b)	As the temperature of water increases, the amount of oxygen dissolved decreases	1	
31c)	<p>During the hotter months, there will be less oxygen in the water.</p> <p>The fish will need to increase the gill beat rate so that they are able to <u>obtain more oxygen from the water</u>.</p>	<p>1</p> <p>1</p>	

Qn	Acceptable responses	Marks	Remarks
32	Spider S is protected from their predators by ant P when they are near their nest. Spider S is able to get food from the nests of ant P.	1 1	

Qn	Acceptable responses	Marks	Remarks
33a	X is stem. (1/2M) Function: Keep plant upright/ allows the plant to transport substances/ allows the plant to transport food/ allows the plant to transport water. (1/2M) OR X is food carrying tube. (1/2M) Function: Allows the plant to transport food. (1/2M)	1	
b	A. The depth of root of A is the deepest (1m), so the plant is most able to absorb water from underground (1m) OR A. Roots of A grew the deepest (1m), plant is most likely to get water to survive (1m) OR Plant is able to get most water to survive (1m)	2	Student must show comparison. Award 1m for observation about the depth of roots. Award 1m for explanation of how having the deepest roots helps the plant to survive in desert
c	The roots will become smaller (1/2m) The plant uses the food store in the roots / Food in the root is being used(1/2m)	1	

Qn	Acceptable responses	Marks	Remarks
34a)	This is to prevent light from sources other than the torch to affect the experiment	1	
34b)	Oxygen.	1	
34c)	C. The plant produced most bubbles so C allows most light to pass through Plants produce more bubbles / photosynthesise more when it receives more light.	1 1	
34d)	Carbon dioxide is produced by the snails, which is used by the plants for photosynthesis.	1	

Qn	Acceptable responses	Marks	Remarks
35a)	Boiling occurs at a fixed temperature but evaporation occurs at all temperatures.	1	
35b)	The water on the damp cloth gained heat <u>from Susan's forehead</u> and evaporated.	1	No partial marks given. Answer must (1) mention concept of evaporation and (2) convey the idea that the heat gained for evaporation came from Susan, and so she felt cooler.

Qn	Acceptable responses	Marks	Remarks
36a)	1000cm ³	1	
36b)	Air can be compressed	1	
36c)	Increase <ul style="list-style-type: none"> Air has mass. Since air was pumped into the ball, the mass of the ball will increase. 	1	No marks for "increase". Both points must be mentioned to get 1 mark. No partial marks given.

Qn	Acceptable responses	Marks	Remarks
37a)	Strips 1 and 2 are touching the aluminium foil in the tunnel to form a closed circuit so	1	

	that electrical current/ electricity/ current can flow through.		
37b)	Cardboard is an insulator of electricity / electrical insulator (1/2m) and hence no current flows through the open circuit (1/2m).	1	Do not accept poor conductor of electricity or not a conductor.
37c)	<p>Push strip 2 towards strip 1. (Award for the concept that the distance to close the circuit is smaller but only changing the location of strip 1. Moving Strip 1 does not make the circuit close faster.)</p> <p>Other possible answers: Make the distance between strip 1 and strip 2 closer (1/2m)</p>	1	Do not accept change to a better conductor of electricity

Qn	Acceptable responses	Marks	Remarks
38a)	<p>Like poles of both magnets are facing each other (1/2m) hence they repel (1/2m).</p> <p>OR</p> <p>As both the magnets faced each other with their like poles (1/2m), magnetic force of repulsion caused magnet A to move upward away from magnet B (1/2m).</p>	1	Like poles repel (1/2m)
38b)	<p><u>First mark is given for the correct comparison/ inference.</u> The magnetic strength of magnet C is greater than magnet A.</p> <p>(Answer must make the correct comparison between C and A)</p> <p>Other possible answers: Magnet C is the strongest of the three magnets/ magnet C is stronger (1/2m)</p> <p><u>Second mark is given for the correct explanation on magnetic repulsion.</u></p> <p>Magnet C was able to repel magnet B by 3cm, which is greater than 2cm by magnet A(1/2m). Hence the magnetic force of repulsion is stronger (1/2m).</p> <p>Magnet C was able to repel magnet B further/ further away/ longer distance (1/2m), hence the magnetic force of repulsion is stronger than A (1/2m).</p> <p>Other possible answers: Magnet C repelled magnet B by 3cm (0 m) hence the repulsion is greater than A(1/2m).</p>		<p>First mark can only be awarded if there is a comparison.</p> <p>Second mark can only be awarded when there is evidence.</p>
38c)	<p><u>First mark is given for correct method/ suggestion/ way (1m)</u> She can stack magnet B above object D.</p> <p>OR</p> <p>She can invert the container with object D/ She can flip container with object D.</p> <p>OR</p> <p>She can invert the container with magnet B/ She can flip the container with magnet</p>	1	<p>Do not accept any answer that introduces new items such as bar magnets.</p> <p>First mark can be awarded if the</p>

	<p>B.</p> <p>OR</p> <p>She can place magnet B close to the other end/side/pole of object D.</p> <p><u>Second mark is given for the correct explanation to prove that magnet D is a magnet (magnetic repulsion) (1m)</u></p> <p>She observed the object D repels magnet B (1m) as like poles repel. Hence object D must be a magnet.</p> <p>OR</p> <p>She observed that magnet B repels object D (1m) as like poles repel. Hence object D must be a magnet.</p>		<p>suggestion allows <u>different ends to come close to each other.</u></p> <p>Second mark must have mention of <u>magnetic repulsion</u>, as the only test for magnets is repulsion.</p>
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Qn	Acceptable responses	Marks	Remarks
39a)	<p>To ensure that the only changed variable is the thickness of the wall and not the amount of water.</p> <p>OR</p> <p>To ensure that the water in 3 containers gains heat evenly.</p> <p>OR</p> <p>To ensure that the only changed variable is the thickness of the wall and all other variables stay the same.</p> <p>OR</p> <p>To ensure that any difference in the change of temperature is due to the thickness of the wall and not the amount of water.</p>	1	
39b)	<p>Container Y. The temperature increased the least as it has the thickest wall with most air as air is a poor conductor of heat.</p>	1	

	<p>OR</p> <p>Container Y. The temperature is the lowest at the end of the experiment hence the water in container Y gained heat the slowest.</p> <p>OR</p> <p>Container Y. The temperature is the lowest at the end of the experiment hence the water in container Y gained the least heat during the 30minute.</p> <p>(Answer must have mention about the experimental data in the table)</p>		
39c)	<p><u>First mark is given to quoting experimental data. Mark is only given when there is reference to air/ air spaces and not about the thickness of wall. (1m)</u></p> <p>Based on Afiq's experiment, a thicker layer of wall had <u>more air spaces</u> which slows down the heat gain. (1m)</p> <p>OR</p> <p>Based on Afiq's experiment, container Y had the thickest wall which has <u>most air spaces</u> that reduces heat gain the most. (1m)</p> <p>OR</p> <p>Based on Afiq's experiment, container Y had the thickest wall with the <u>most air spaces</u> and gained heat the slowest. (1m)</p>	1	

Second mark is given when there is mention of more air and also the mention of slower heat loss. (1m)

A wider gap in between the windows trap more air (1/2m) which will prevent heat loss to the outside faster (1/2m) and make the temperature of the room higher.

OR

A wider gap in between the windows trap more air (1/2m) which will cause heat to be lost more slowly to the outside (1/2m) and make the temperature of the room higher.

Other possible answers:

Air is a poor conductor of heat. More air in between glass will slow down heat loss to the outside (1m)

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Qn	Acceptable responses	Marks	Remarks
40a)	Coal	1	
40b)	<u>Chemical potential/ potential</u> energy, OR <u>heat</u> energy of coal <u>Heat</u> energy <u>Kinetic</u> energy <u>Kinetic</u> energy (i) (1/2m each; independent marking)	2	
40c)	Burning of fuels produce more carbon dioxide (1/2m) (which is a greenhouse gas) that traps more heat from the Sun (1/2m) and results in rise in Earth's average temperature.	1	