

ERC 2023
P6 Standard Science
Answer Key
Section A

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

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

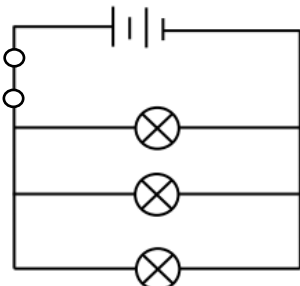
Section B

Qn	Acceptable Answers	Marks
29	Concept: Factors affecting rate of photosynthesis	
a	Oxygen	1m
b	As the temperature increases from 10°C to 30°C, the rate of photosynthesis increase. As the temperature increases from 30°C to 40°C, the rate of photosynthesis decreases./ After 30°C, the rate of photosynthesis decreases as temperature (increases).	1m
30	Concept: Factors affecting germination	
a	He will observe that the <u>roots</u> started to grow first.	1m
b	Temperature of surrounding. OR Location where the bags are kept.	1m
c	Yes. Light is not needed for germination. OR Yes. B has all the conditions needed for germination.	1m

Qn	Acceptable Answers	Marks
	OR Yes. B has oxygen, warmth/right temperature and water to germinate.	
31	Concept: Movement of substances in human circulatory system.	
a	X: carbon dioxide Y: Oxygen	1m 1m
b	Blood in A is poorer/lower in carbon dioxide (while blood in B is richer/ higher in carbon dioxide.) OR Blood in A has less carbon dioxide (while blood in B has more carbon dioxide.)	1m
c	D. The digested food is absorbed/ take in into the blood stream in the small intestine. OR D. Small intestine absorb/ take in digested food into the blood stream. OR D. Digested food passes through the wall of the small intestine into the blood stream.	1
32	Concept: Structural and behavioral adaptation	
a	Sharp teeth OR	1

Qn	Acceptable Answers	Marks
	Strong claw OR strong jaw	
b	Saliva/ moist in his mouth gained heat from the surrounding air and evaporated. (1/2m) The crocodile body lost heat (1/2m) and became cooler. OR Saliva/ moist in his mouth gained heat from his body and evaporated. The crocodile body lost heat (1/2m) and became cooler.	1
c	Benefit for X: X teeth can be cleaned. OR X teeth will not decay. Benefit for P: P can obtain food (more easily)	1 1
33	Concept: Plant transport system	
a	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)	1

Qn	Acceptable Answers	Marks
	Function: Allows the plant to transport food. (1/2M)	
b	<p>A. The depth of root of A is the deepest (1m), so the plant is most able to absorb water from underground (1m)</p> <p>OR</p> <p>A. Roots of A grew the deepest (1m), plant is most likely to get water to survive (1m)</p> <p>OR</p> <p>A. Plant is able to get most water to survive (1m)</p>	2
c	<p>The roots will become smaller (1/2m)</p> <p>The plant uses the food store in the roots / Food in the root is being used(1/2m)</p>	1
34	<p>Concept: Investigate the effect of some variables on the current in a circuit and communicate findings.</p> <p>a</p> <p>Connie is right. When bulb Z fused, it remains as an open circuit ($\frac{1}{2}$) and electricity cannot flow through bulb X and Y ($\frac{1}{2}$).</p> <p>OR</p> <p>Connie is right. Y is fused, X and Z will still light up ($\frac{1}{2}$) as current flows through the close circuit ($\frac{1}{2}$)</p> <p>b</p>	1

Qn	Acceptable Answers	Marks
		1m parallel 1m correct connection, circuit parts
35	<p>Concept: Electrical flow in circuits</p> <p>a When a bird lands on P, the spring will compress/ rod R is lowered ($\frac{1}{2}$) which causes A and B to touch each other ($\frac{1}{2}$). This creates a closed circuit / electrical current flows through ($\frac{1}{2}$) and the camera takes a picture/allow the camera to work ($\frac{1}{2}$).</p> <p>b Use a shorter/<u>less stiff</u> spring / use longer contacts A and B, bring A and B nearer to each other . This will mean a lesser force is needed to push down the rod to close the circuit.</p>	 1 1 1 1
36	<p>Concept: Understanding of the roles of evaporation and condensation in the water cycle.</p> <p>a colourless / no colour / transparent</p> <p>b The water in the mixture gained heat from the flame and evaporated to form warm water vapour (1m). The warm water vapour comes into contact with the cool surface of the funnel, loses heat and condenses into liquid W (1m).</p>	 1 2

Qn	Acceptable Answers	Marks
c	Clouds	1
37	Concept: Investigate energy conversion from one form to another and communicate findings.	
a	A and B or C and D	1
b	By comparing the set-ups, <u>the ball in A caused a deeper dent than the ball in C</u> (1m) because it has <u>a greater amount of potential energy that can be converted to more kinetic energy</u> (1m). That is why Fruit Q will have a greater amount of potential energy.	2
38	Concept: Impact of water pollution on Earth's water resources	
a	Q, the <u>soil/fertilizer from the vegetable farm</u> was washed into the river.	1m
b	There were still (odourless and colourless) <u>chemicals from the factory</u> in the water sample.	1m
c	i) Polluted water is unfit for consumption ii) It is difficult to filter off pollutants so availability of clean water for consumption is reduced.	1m 1m
39	Concept: Energy conversion	
a	solar → electrical → kinetic	1

Qn	Acceptable Answers	Marks
b	10 a.m. and 2 p.m.	2
c	Y	1
	Either the fan or the lightbox can still work if the other device has malfunctioned.	1
40		
a	Gravitational and Frictional Force (1/2m each)	1
b	The mass of the ball was different (1m) Height the ball was released was different (1m)	2
c	Change the mass of the ball to be the same Change the height to the same	1/2m each