#### ERC 2024

#### **Standard Science**

## Answer Key

# Section A: MCQ (28 x 2 marks = 56 marks)

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

## Section B: Open Ended (44 marks)

Qn	Acceptable Answers	Marks	Remarks
29 (a)	Structural	1	
(b)	Part X	1	
(c)	Part X contains air spaces which enable the plant to float.	1	
30 (a)	fungi	1	<b>Do not accept</b> : Fungi and bacteria
(b)	The outer surfaces are exposed to more air /surrounding / moisture / humidity / water vapour	1	<b>Do not accept:</b> vapour
	so the conditions are more favourable for more mould to grow.	1	
(c)	Toast the bread / Put the bread in the fridge / Vacuum seal the bread	1	
31 (a)	decomposition	1	
(b)	carbon dioxide.	1	
(c)	used as fertiliser for plants	1	Do not accept:
			To fertlise the soil

Qn	Acceptable Answers	Marks	Remarks
(d)	Add water / more bacteria / more oxygen Add detritivores	1	Do not accept earthworms or termites
32 (a)	At stage R, it does not feed / eat / moult / move from place to place	1	
(b)	To ensure that the larva has food when they hatch.	1	
(c)	When temperature increases, the number of days needed to hatch decreases. There will be <b>more A feeds on B</b> and the <b>population of C increases.</b>	1	
33 (a)	Mark 1: breathing rate increasesBody needs more oxygen (½) and more carbon dioxide is produced (½).Mark 2: Heart rate increasesHeart pumped blood faster / more blood to the rest of the body .	1	<b>Do not accept:</b> Heart pumped oxygen faster to the rest of the body.
(b)	The water <b>gains heat from his body</b> and <b>evaporates,</b> cooling Ahmad's body.	1	

Acceptable Answers	Marks	Remarks
Reason 1: Plants absorb heat / block heat / provide shade [1/2]	1	Note: evaporative cooling
so there is lesser heat to reach the model house so less heat is gained by the air in the house $[\frac{1}{2}]$		accepted
<b>Reason 2:</b> There is lesser surface area of the house exposed to heat [½], so less heat is conducted to the air in the house. [½]	1	
The plants take in carbon dioxide to make food	1⁄2	
so less carbon dioxide in the air, so less heat will be trapped.	1⁄2	
Plastic structures are poorer conductors of heat so will not gain heat easily	1	
<u>Partial</u>		
Plastic is poor conductor of heat	1⁄2	
i) C ii) A iii) B	1	1/2 for one correct
Light travels in a straight line. OR Light can be blocked by an object.	1	
	Reason 1: Plants absorb heat / block heat / provide shade [½]   so there is lesser heat to reach the model house so less heat is gained by the air in the house [½]   Reason 2: There is lesser surface area of the house exposed to heat [½], so less heat is conducted to the air in the house. [½]   The plants take in carbon dioxide to make food so less carbon dioxide in the air, so less heat will be trapped.   Plastic structures are poorer conductors of heat so will not gain heat easily   Partial   i) C   ii) A   iii) B   Light travels in a straight line. OR	Reason 1: Plants absorb heat / block heat / provide shade [½] 1   so there is lesser heat to reach the model house so less heat is gained by the air in the house [½] 1   Reason 2: There is lesser surface area of the house exposed to heat [½], so less heat is conducted to the air in the house. [½] 1   The plants take in carbon dioxide to make food so less carbon dioxide in the air, so less heat will be trapped. ½   Plastic structures are poorer conductors of heat so will not gain heat easily 1   Plastic is poor conductor of heat ½   i) C 1   ii) A 1   iii) B 1   Light travels in a straight line. OR 1

Qn	Acceptable Answers			Marks	Remarks
(c)	Move the object closer to the torch / move the screen further from the object / move the torch closer to the object			/ 1	
36 (a)	Object X is a non-conductor/insulator of electricity.			1	
(b)		Bulb that is replaced by X	Number of bulb(s) that remain lit		
		S	2	1/2	
		Т	2	each row	
		U	3		
		V	None/ 0/ nil		
(c)	In a parallel circuit, even if one of the bulbs fuses, the other bulbs will still light up the classroom.			<sup>nt</sup> 1	
37 (a)	Mar	k 1: Displacement Meth	od	1	
	Fill water into measuring cylinder and place the figurine into water to find the volume				
	Fill <u>same</u> (critical word) amount of water and place the clay into water to find the volume				
	Met	hod 2: Compare		1	

Qn	Acceptable Answers		Remarks
	The volume should be the same		
	Alternative answer	2	
	A beaker filled with water (method)		
	and see if it reaches the same height (compare)		
(b)	120g	1	Unit is needed
(c)	Spring balance is used to measure weight	1	
38 (a)	Amount/ volume of boiling water in each container.	1	
(b)	C. The temperature of water in C decreases fastest $(\frac{1}{2})$ which shows that C is the best conductor of heat $(\frac{1}{2})$ and the ice cream will gain heat and melt the fastest to be easily shaped (1).	2	
39 (a)	Reduces friction between the floor and shoe	1	Do not accept:
	Lesser friction between the floor and shoe		No mention of 2 surfaces
	Partial		
	Water is a lubricant	1⁄2	

Qn	Acceptable Answers	Marks	Remarks
(b)	X, moved the least distance / roughest	1/2	
	Greatest / most amount of friction between object and material	1⁄2	
(c)	The amount of force applied affects the distance moved	1	Do not accept: Conduct fair test
40 (a)	Potential energy Kinetic energy Heat energy + Sound energy   of the compressed spring of the moving ball ball hitting the ground	½ each	
(b)(i)	The distance moved by the ball will <u>increase/ be greater</u> The ball will move further.	1	
(b)(ii)	The compressed spring possessed more potential energy which was then converted to more kinetic energy, allowing the ball to travel further.	1	