

Coordination and Response

Mark Scheme 3

Level	IGCSE(9-1)
Subject	Biology
Exam Board	Edexcel IGCSE
Module	Double Award (Paper 1B)
Topic	Structure and Functions in Living Organisms
Sub-Topic	Coordination and Response
Booklet	Mark Scheme 3

Time Allowed: 44 minutes

Score: /36

Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	10%

Question number	Answer				Marks	
1 (a) (i)	Distance pins apart				2	
	Area	0.5 cm	1.0 cm	2.0 cm		
	Finger tips	✓ ✓ ✓ ✓ X ✓ ✓ X X	✓ ✓ ✓ ✓ ✓ X ✓ ✓ X	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		
	Percentage correct	70	(8	(100)		
	Back of hand	✓ X ✓ X X X X ✓ X	✓ ✓ X ✓ X ✓ X ✓ X	✓ ✓ ✓ ✓ ✓ X ✓ X ✓		
	Percentage correct	(40)	60	(80)		
	Wrist	X X ✓ X X X X X X	✓ X ✓ X ✓ ✓ X ✓ X	X ✓ X ✓ ✓ X ✓ ✓ ✓		
	Percentage correct	10	(60)	70;;		

3 or 4 correct = 2
1 or 2 correct = 1

Question number	Answer	Marks
1 (b)	S size at least half grid; A1 axis labelled %/percentage (correct); A2 axis with % correct linear; K1 finger, hand and wrist / F,H and W; K2 0.5, 1, and 2;	5
(c)	finger tips; more correct answers / most success / eq; at each distance apart / at 0.5 apart;	3
(d)	nerve endings / receptors / nerves / neurones / eq; more / closer together / closer to skin surface / eq; skin thickness; used for touch / to feel / use of fingers / eq;	2
(e)	fair test / easier or harder to detect / valid (comparison) / eq; Ignore control / reliable / accurate;	1

Total 13 Marks

Question number	Answer	Notes	Marks
2 (a) (i)	thistle;		1
(ii)	song thrush;		1
(b) (i)	A iris / cornea; B pupil;		2
(ii)	1. sclera / sclerotic; 2. optic nerve; 3. lens / cornea;		3
(c) (i)	number/amount/group/all of organisms of same <u>species</u> ;	allow correct binomial name of a species ignore type	1

(c)(ii)	<ol style="list-style-type: none">1. <u>variation / variety</u>;2. <u>mutatio</u>3. (white snails) <u>survive</u> / <u>survival</u> / <u>survival of the fittest</u>;4. not seen/camouflaged / not eaten / not killed;5. reproduce / breed;6. pass on gene/allele/DNA (for light shell) to offspring;	allow converse for black snails ignore do not die	Max 5
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Total 13 marks

Question number	Answer	Notes	Marks
3 (a)	1 <u>human</u> gene / <u>human</u> DNA / <u>human</u> allele; 2 restriction enzyme; 3 <u>plasmid</u> ; 4 <u>vector</u> ; 5 <u>same</u> restriction enzyme; 6 <u>ligase</u> ; 7 <u>recombinant</u> plasmid / <u>recombinant</u> DNA;	allow gene that codes for growth hormone	Max 5
(b) (i)	released from gland / endocrine; travels in blood; to target (cells/organs) / eq; effect / response / coordination / controls / causes change / eq;	allow described effect	2
(ii)	1 cow with high milk yield / eq; 2 male/bull with high milk yield daughters or high milk yield mother / eq; 3 reproduce / mate / breed / AI / eq; 4 repeat process with high milk yield offspring / many generations / eq;	cows with high yield milk are allowed to reproduce = 2 use sperm from bull	Max 3
		Total	10