

Coordination and Response

Mark Scheme 2

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 2

Time Allowed: 63 minutes

Score: /52

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	Notes	Marks
1 (a)	1. cell wall; 2. chloroplasts; 3. vacuole;	ignore cellulose ignore chlorophyll	3
(b)(i)	A receptor; (B sensory neurone) C relay / intermediate / association / inter; D motor; E effector / muscle;	ignore sense organ reject receptor neurone	4
(ii)	synapse(s) / synaptic cleft / synaptic gap;		1
(c)	0.0075 / 7.5×10^{-3} ;;	allow one mark for number \div 120 in working	2

Total 10 marks

Question number	Answer	Notes	Marks
2(a)(i)	none / zero / 0 / 0mg;		1
(ii)	increase / eq;		1
(b)(i)	lots of cows / group / eq;	repeat not qualified = 0	1
(ii)	<ol style="list-style-type: none"> 1. species / breed / type of cow / eq; 2. age / mass / size; 3. food / grass / eq; 4. water; 5. (air temperature; 	Ignore gender Ignore number in group Ignore conditions / environment	2 max
(c)(i)	<u>denatured</u> ;	Ignore broken down / stops working / active site changes shape Reject killed	1
(ii)	<ol style="list-style-type: none"> 1. <u>HCl</u> / <u>hydrochloric acid</u>; 2. enzyme / protease / pepsin; 3. breakdown / digest; 4. (acid) <u>denatures</u> growth hormone; 	Mp1 Ignore low pH / acid	3

(d)	1. gene / allele / DNA for <u>growth hormone</u> ; 2. restriction (endonuclease); 3. ligase; 4. plasmid; 5. ctor; 6. combinant;		4 max
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Question number	Answer			Notes	Marks
3					4
	Health problem	Cause	Label letter		
	conjunctivitis	infection of the conjunctiva	(A)		
	cataract	a cloudy lens	B;		
	blindness	a detached retina	G;		
	glaucoma	increased fluid pressure	F;		
myopia	a change in the shape of the cornea	D;			
				Total	4

Question number	Answer	Notes	Marks
4 (a) (i)	all names present and parakeet in middle; arrows in right direction;		2
(ii)	digested / broken down; amylase / carbohydrase; maltose / glucose / sugar;	ignore enzyme ignore maltase ignore absorbed in small intestine	3
(b) (i)	25.5;;	allow one mark for 2 or 27.5 in working	2
(ii)	increase (volume of oxygen) / eq; (more) respiration; heat loss / eq;	ignore keep warm ignore reference to maintain body temperature	3
		Total	10

Question number	Answer	Notes	Marks
5	pancreas / Islets of Langerhans / eq; insulin; lower levels; glycogen;		Max 3
		Total	3

Question number	Answer	Notes	Marks
6 (a) (i)	hypothalamus / pituitary;		1
(ii)	1. <u>collecting</u> duct; 2. <u>more permeable</u> / eq; 3. (more) water (re)absorbed (into blood) / blood more dilute / eq; 4. <u>osmosis</u> ; 5. urine concentrated / less water urine / less urine;	1. ignore nephron 2. ignore changes permeability 3. allow water potential concept if used correctly	3
(b)	1. fast(er) (versus slow(er)); 2. electrical/impulse (versus chemical); 3. neurones (versus blood); 4. short(er) lasting (versus long(er) lasting); 5. target cells (versus all around body);	nervous / hormone point alone = accept 'it' is faster – assume nerves discussed allow two ways if in same numbered section	Max 2

(c)	light all around: than start; light from side: darkness: than light all days;	straight and taller grows towards light; straight and taller around after two		3
(d)	down / positively geotropic / toward gravity / eq; anchor / hold plant / stability / eq; (obtain) water / mineral ions / nutrients / eq;			3

Total 12 marks