Question number	Answer	Notes	Marks
1 (a)	1. cell wall; 2. hloroplasts; 3. acuole;	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 x 10^{-3};;	allow one mark for number ÷ 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)	1. ecies / breed / type of cow / eq; 2. a / mass / size; 3. od / 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)	1. <u>H</u> / <u>hydrochloric</u> acid; 2. enzy / protease / pepsin; 3. br kdown / digest; 4. cid) <u>denatures</u> growth hormone;	Mp1 Ignore low pH / acid	3

(d)	1. gene / allele / DNA <u>for growth hormone</u> ; 2. striction (endonuclease); 3. gase; 4. p smid; 5. ctor; 6. combinant;		4 max

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>3</td><td>
<table>
<tr><th>Health problem</th><th>Cause</th><th>Label letter</th></tr>
<tr><td>conjunctivitis</td><td>infection of the conjunctiva</td><td>(A)</td></tr>
<tr><td>cataract</td><td>a cloudy lens</td><td>B;</td></tr>
<tr><td>blindness</td><td>a detached retina</td><td>G;</td></tr>
<tr><td>glaucoma</td><td>increased fluid pressure</td><td>F;</td></tr>
<tr><td>myopia</td><td>a change in the shape of the cornea</td><td>D;</td></tr>
</table>
</td><td></td><td>4</td></tr>
<tr><td></td><td></td><td>Total</td><td>4</td></tr>
</table>

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. collecting duct; 2. re permeable / eq; 3. (more) water (re)absorbed (into blood) / blood more dilute / eq; 4. mosis; 5. urine concentrated / less water urine / less urine;	1. ig re nephron 2. ig re changes permeability 3. a ow water potential concept if used correctly	3
(b)	1. st(er) (versus slow(er)); 2. e ctrical/impulse (versus chemical); 3. neur es (versus blood); 4. s rt(er) lasting (versus long(er) lasting); 5. ta et 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: straight and taller than start; light from side: grows towards light; darkness: straight and taller than light all around after two days;		3
(d)	down / positively geotropic / toward gravity / eq; anchor / hold plant / stability / eq; (obtain) water / mineral ions / nutrients / eq;		3

Total 12 marks