Question number	Answer	Marks
1 (a) (i)		2

Distance pins apart			
Area	0.5 cm	1.0 cm	2.0 cm
Finger tips	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✗ ✗	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✗ ✓ ✓ ✓ ✓ ✗	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
Percentage correct	70	(8	(100)
Back of hand	✓ ✗ ✓ ✓ ✗ ✗ ✗ ✗ ✗ ✓ ✗	✓ ✓ ✗ ✓ ✗ ✓ ✗ ✓ ✓ ✓ ✗	✓ ✓ ✓ ✓ ✓ ✓ ✗ ✓ ✗ ✗ ✓
Percentage correct	(40)	60	(80)
Wrist	✗ ✗ ✓ ✗ ✗ ✗ ✗ ✗ ✗ ✗	✓ ✗ ✓ ✗ ✓ ✓ ✗ ✓ ✓ ✗	✗ ✓ ✗ ✓ ✓ ✗ ✓ ✓ ✓ ✓
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)	th stle;		1
(ii)	song thrush;		1
(b) (i)	A iris / cornea; B pupil;		2
(ii)	1. sclera / sclerotic; 2. ptic 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)	1. variation / variety; 2. mutatio 3. (white snails) survive / survival / survival of the fittest; 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

Total 13 marks

Question number	Answer	Notes	Marks
3 (a)	1 human gene / human DNA / human allele; 2 restriction enzyme; 3 plasmid; 4 vector; 5 same restriction enzyme; 6 ligase; 7 recombinant plasmid / recombinant 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**