Question number	Answer	Notes	Marks
1 (a) (i)	helps combustion / helps burning / eq;		1
(ii)	1. crease surface area / more surface / longer distance / longer time / eq; 2. (tter) heat transfer (to water) / heat more of the water / heat water better / eq;		2
(iii)	distribute heat / spread heat / spread temperature / even out temperature / make all the water the same temperature / eq;		1
(b) (i)	7.5;		1
(ii)	6300;	if not 6300 use number from (i) to calculate correct answer in (ii) eg 7140 is acceptable if 8.5 in (i)	1
			Total 6 marks

Question number	Answer	Notes	Marks
2 (a) (i)	pigeons/birds in middle; arrows correct;	ignore sun	2
(b) i)	ewer pigeons more hawk success / eq; less chance to see or spot hawk / less chance to warn / eq;	allow converse ignore ref to distance	2
(ii)	ciliary muscle / ciliary body; contracts / eq; ignore constrict suspensory ligaments; slacken / relax / eq; lens; fat(ter) / thick(er) / wider / rounder / eq;	assume near but allow converse if ref to hawk far away only accept words linked to width ignore pupil / iris / radial circular muscles eg do not award contract mark if ref to radial / circular	max 4
(iii)	digested / broken down / large to small molecules; protease / pepsin / enzyme; amino acids / peptides; HCl / acid / low pH;	allow ref to digestion break down anywhere only allow the term enzyme if in stomach reject trypsin	max 3

TOTAL 11 MARKS

Question number	Answer	Notes	Marks
3 (a)	6 to 7;	Allow 0.6 to 0.7 cm	1
(b)	retina / fovea / yellow spot / macula;		1
(c)	1. radial muscles contract; 2. circular muscles relax; 3. pupil gets bigger / wider / dilates / expands / eq; 4. more light enters eye;	Ignore references to iris size Reject ciliary muscles	Max 3

Total 5

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>4(a)</td><td>1. amylase;

2. digests starch / breaks down starch;

3. maltose;

4. lubricates / moisten / soften food / eq;</td><td>

Mp 3 allow glucose

Mp 4 ignore makes it easier to swallow</td><td>2 max</td></tr>
<tr><td>(b)</td><td><table><tr><th>Sense organ</th><th>Stimulus</th></tr><tr><td>eye</td><td>sight
(of food / sight of lab attendant / eq);</td></tr><tr><td>ear</td><td>sound
(of food arriving / sound of lab attendant / tuning fork / eq);</td></tr><tr><td>nose</td><td>smell
(of food / eq);</td></tr></table></td><td></td><td>2 max</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

(c)	1. fast(er) / quick / rapid / immediate / eq; 2. involuntary / unconscious / without thinking / automatic / does not involve brain/ eq; 3. instinctive / inherited / inborn / innate / not learnt; 4. protects the body from damage / eq;		2 max
(d) (i)	closer to B / similar to B / closer to original stimulus / eq;	Ignore cannot hear E and F	1
(ii)	1. measure <u>volume</u> / <u>mass</u> / <u>weight</u> of saliva; 2. measuring cylinder / suitable scaled container / scales / syringe / eq;	Ignore reference to time Allow idea of cotton wool being weighed by scales	2 max
(e)	1. different behaviours / different responses / respond to different stimuli / eq; 2. different nervous systems / brains / eq;	Mp 1 Allow different hearing ability / different sensitivity Mp 2 Ignore different intelligence	2 max

(f)	1. receptors; 2. impulse / signal; 3. sensory neurone; 4. to spinal cord / grey matter / CNS; 5. synapse; 6. relay neurone / intermediate neurone / interneurone ; 7. motor neurone; 8. muscle / effector;	Mp 2 ignore message	5 max

Total 16 marks

Question number	Answer	Notes	Marks
5 (a)	A lens; B cornea; C retina;	A. llow lense C. ignore rods/cones/receptors/fovea	3
(b) (i)	same/similar cells / cells with the same function / all muscle <u>cells</u> / eq;	ignore group of cells alone allow group of cells working together	1
(ii)	1. radial muscles contract / circular muscles relax; 2. <u>pupil</u> dilates / widens / gets bigger / <u>iris</u> gets smaller / eq; 3. more light can enter;		3

(Total for Question = 7 marks)

Question number	Answer	Notes	Marks
6 (a)	1. (ears) large surface area / increases SA:VOL; 2. heat loss / cools / eq; 3. have a blood supply / capillaries; 4. <u>vasodilation</u>; not if linked to capillaries/veins 5. flapping / fanning / eq;	ignore shade / thin 2. allow sweating / evaporation	3
(b)	1. nzymes/active site denatured / destroyed; 2. affects reactions / affects metabolism / affects digestion / affects respiration /eq;	ignore dehydration	2

(Total for Question = 5 marks)