

Question number	Answer	Notes	Marks
1 (a) (i)	respiration / energy;		1
(ii)	active transport / active uptake; low to high conc. / against conc. gradient / eq;	ignore across concentration gradient	2
(iii)	chlorophyll / chloroplasts; photosynthesis / absorb light / eq;		2
(b)	1. variation (in Ash borers) / eq; 2. <u>mu</u> tion / <u>mutate</u> (s) / <u>mutated</u> ; 3. not eaten / not attacked / avoided / eq; 4. <u>s</u> vive(s) / <u>survival</u> / <u>survived</u> ; 5. r oduce / breed / mated / multiply / eq; 6. pass on gene(s) / allele(s) / eq; 7. process continues over time / eq;		Max 4

Total 9 marks

Question number	Answer	Marks
2 (a) (i)	pork;	1
(ii)	210;; allow one mark for 21 however expressed	2
(b)	pork;	1
(c)	energy; Ignore food store protection / padding / eq; insulation / prevent heat loss / keep warm / eq; cell membranes; myelin sheath;	Max 2
(d)	Iron / Fe; R ion	1

Total 7 Marks

Question number	Answer						Marks
3 (a)	C H O only / carbon, hydrogen and oxygen only;						1
(b)	Carbohydrate	Soluble	Found in animal cells	Broken down by amylase	Small molecule	Absorbed in the stomach	5
	Starch	X	X	√	X	X	
	Glucose	√;	√;	X	√;	X	
A tick cross = zero							
(c) (i)	Benedicts / eq; heat / water bath; red / orange / yellow / green / eq;						3
(ii)	water bath / avoid direct heat / point away / eq; goggles / lab coat / tongs / tie hair / tuck tie away / gloves;						2

Total 11 Marks

Question number	Answer	Notes	Marks
4 (a)	grass;		1
(b)	(i) 1600;; (ii) 1. anaerobic (respiration); 2. less oxygen; 3. lactic acid / low pH; 4. affects enzymes / denatures enzymes; 5. less energy / less ATP;	allow one mark for 96 000 or 1.6 or $\div 60$ in working ignore oxygen debt ignore muscle fatigue / cramp / pain	2 Max 3

(c)	<ol style="list-style-type: none"> 1. <u>variation</u> / <u>variety</u>; 2. <u>mutation</u> <u>mutates</u>; 3. <u>survive</u> / <u>survival</u> / <u>survival</u> of the fittest; 4. reproduction / breed / mate / produce offspring; 5. pass on gene / DNA / allele; 	<p>allow converse</p> <ol style="list-style-type: none"> 3. ignore several generations / increase in number 4. ignore pass on mutation unless defined / characteristic 	<p>Max 4</p>
-----	--	--	--------------

	<p>(d)(i) light passes through retina twice / retina again / more light through retina / more detection by retina / more stimulation of retina / more retina cells stimulated / reflects back through retina / eq;</p> <p>(ii) large(r) pupil / dilated pupil / expanded pupil / <u>more</u> rods / larger hole in iris / radial muscles contract more / eq;</p>		<p>1</p> <p>1</p>
	<p>(e)(i) 1. lion eats <u>protein</u> / meat is <u>protein</u>; 2. amylase cannot digest <u>protein</u>;</p> <p>(ii) 1. increase surface area / increase surface area to volume ratio; 2. <u>protease</u> / <u>pepsin</u>;</p>	<p>1. allow lion does not eat <u>starch</u> / meat has no <u>starch</u></p> <p>2. low amylase digests <u>starch</u></p> <p>ignore enzyme</p>	<p>2</p> <p>2</p>

Question number	Answer	Notes	Marks
5 (a)	C;	Ignore ureter	1
(b)	1. (protein molecules are) large / too big / eq; 2. leave glomerulus / leave capillaries / enter Bowman's / enter renal capsule / eq; (ii) 1. <u>reabsorbed</u> / (absorbed) back into blood; 2. <u>proximal</u> / <u>first</u> (convoluted) tubule / eq; 3. active transport / active uptake / against concentration gradient / eq; (iii) 1. urea; 2. minerals / ions / salts / named mineral ion / hormones / vitamins;	Accept converse linked to small molecules Ignore if into glomerulus Ignore other named parts of nephron	2 2 max 2
(c)	1. no insulin / not enough insulin; 2. high blood glucose levels; 3. cannot reabsorb (all) glucose;		max 2

(d)	1. (more) ADH; 2. increased permeability; 3. collecting duct; 4. (re)absorption of water;		3 max
-----	--	--	-------

Total 12 marks

Question number	Answer		Notes	Marks
6 (a)	name of process	description of process		5
	<u>ingestion</u> ;	food enters the mouth		
	digestion	break down <u>large</u> molecules / large molecules to small molecules / insoluble to soluble molecules;		
	<u>absorption</u> ;	small molecules move from small intestine into the blood		
	<u>assimilation / synthesis</u> ;	small food molecules are used to build large molecules		
	egestion	removal of undigested food / faeces / waste from <u>anus</u> ;		
(b)	1. mylase; 2. starch; 3. maltose / glucose; 4. physical digestion / mechanical digestion / chewing eq;		ignore carbohydrase	3
(c)	(yes) A is starch; B is glucose;		max 1 if A starch and B glucose but say no one is starch and one is glucose =1 mark	2

(Total for Question 1= 10 marks)