



Question number	Answer	Notes	Marks
1 (a) (i)	A; (C) B; A;	Only one letter in each box	3
(ii)	1. (le) <u>emulsification</u> / <u>emulsifies</u> ; 2. small(er) d rops / increased surface area / more drops; 3. optimum pH / correct pH / best pH; 4. ipase) is an enzyme; 5. d estion / breakdown; 6. i o <u>fatty acids</u> / into <u>glycerol</u> ;		4
(b)(i)	villus / villi;	allow phonetic spelling	1



(ii)	1. larg surface area; 2. crovilli ; 3. pillaries; 4. vement of blood / concentration gradient / eq; 5. o cell thick / thin wall / thin / short distance; 6. ffusion; 7. active ansport;	1. ignor many villi idea 4. ig re cell wall	5
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Total 13 marks



Question number	Answer	Notes	Marks
2(a) (i)	safety glasses / wear gloves ;	Ignore lab coat / tie hair back / eq	1
(ii)	11/ eleven;		1
(b) (i)	remove starch / solution from surface of syringe / eq;	Ignore get into syringe	1 1
(ii)	mix <u>contents</u> / mix <u>amylase and starch</u> / eq;	Mix alone = 0 Allow enzyme and starch	1
(iii)	keep at correct temperature / keep temperature constant / eq;	Ignore fair test	



(c)	(i)	1. volume / concentration of amylase; 2. volume / concentration of starch; 3. volume / concentration of iodine / drops of iodine; 4. volume / concentration of mixture;	Allow amount only once	2
	(ii)	temperature;	Ignore time	1
(d)		1. 6 minutes / between 5 and 6 minutes / eq; 2. iodine stays yellow / orange / brown / iodine stays same colour / colourless / not blue black; 3. no starch present; 4. digested/broken down ;	Reject 6-7 mins	3

Question number	Answer	Notes	Marks
(e)(i)	1. fewer wells with blue black colour / more wells yellow / orange / brown / colourless / eq; 2. starch digested sooner / quicker / reaction completed sooner / eq;		2
(ii)	1. enzymes work faster at 40°C / ref to optimum / eq; 2. more (kinetic) energy / molecules move faster / eq; 3. more collisions / more enzyme substrate complexes /eq;	Ignore ref to denature	2

Total 15 marks



Question number	Answer	Notes	Marks												
3 (a)	<table border="1"><thead><tr><th>Large food molecule</th><th>Enzyme involved in digestion</th><th>Small food molecule produced</th></tr></thead><tbody><tr><td>starch</td><td>amylase</td><td>glucose / maltose;</td></tr><tr><td>protein;</td><td>protease</td><td>amino acids / polypeptides / peptides;</td></tr><tr><td>lipid</td><td>lipase;</td><td>fatty acids / glycerol;</td></tr></tbody></table>	Large food molecule	Enzyme involved in digestion	Small food molecule produced	starch	amylase	glucose / maltose;	protein;	protease	amino acids / polypeptides / peptides;	lipid	lipase;	fatty acids / glycerol;	Ignore simple sugars	5
Large food molecule	Enzyme involved in digestion	Small food molecule produced													
starch	amylase	glucose / maltose;													
protein;	protease	amino acids / polypeptides / peptides;													
lipid	lipase;	fatty acids / glycerol;													
(b)	<ol style="list-style-type: none">1. large surface area / microvilli;2. thin / short diffusion distance / eq;3. blood / capillaries / eq;4. permeable;5. lacteal;	Ignore many villi / long villi	3												

Total 8 marks



Question number	Answer	Notes	Marks
4 (a)	(trap/absorb) light / eq; chlorophyll; photosynthesis / starch / glucose / eq;	ignore trap energy	2
(b)	A cell wall; B vacuole; C cytoplasm;		3
(c) (i)	C; A;		2
(ii)	starch removed / starch used / no starch / eq; (converted to) glucose; respiration / energy;		2
(iii)	boil (in ethanol) / heat (in ethanol)/ eq; ethanol / alcohol; no naked flame / water bath / hot water / in water / eq;	allow water mark if linked to boil / heat	3
(iv)	iodine / iodide;		1
		Total	13



Question number	Answer	Notes	Marks												
5(a)	1. iodine; 2. bl / black / blue black = starch; 3. Benedict' / eq; 4. heat / se water bath / eq; 5. r / orange / yellow / green = glucose;	if iodine for glucose goes blue black = 0 only award Mp1 and Mp3 if linked to correct test heat must be linked to Benedict's	4 max												
(b)	<table border="1"> <thead> <tr> <th>Group</th> <th>Example from the group</th> <th>Molecule used to store carbohydrate</th> </tr> </thead> <tbody> <tr> <td>animals</td> <td></td> <td>glycogen;</td> </tr> <tr> <td>plants</td> <td>(maize)</td> <td>starch / sucrose;</td> </tr> <tr> <td>fungi</td> <td>mucor / yeast / mushroom / mould / eq;</td> <td>glycogen;</td> </tr> </tbody> </table>	Group	Example from the group	Molecule used to store carbohydrate	animals		glycogen;	plants	(maize)	starch / sucrose;	fungi	mucor / yeast / mushroom / mould / eq;	glycogen;	Ignore in plants sugar / glucose / fructose Allow Fomes formentarius / eq	4
Group	Example from the group	Molecule used to store carbohydrate													
animals		glycogen;													
plants	(maize)	starch / sucrose;													
fungi	mucor / yeast / mushroom / mould / eq;	glycogen;													

Total 8 marks

Question number	Answer	Notes	Marks
6	<p>C plus and minus statin(s) / range / eq;</p> <p>O same gender / same age / same mass / same level of cholesterol / eq;</p> <p>R several people / group of people / repeat the test / eq;</p> <p>M1 measure cholesterol level;</p> <p>M2 at start and at end / time stated / measure change;</p> <p>S1+ S2 same diet / same mass of food / same stress / same exercise / same smoking / eq;;</p>	<p>allow principles if lab based</p> <p>allow if use animals</p> <p>ignore temperature / light / water</p>	6