Question Number	Answer	Mark
1 (a)	1. plants can be {re-grown / sustainable / eq} OR starch {renewable / sustainable} OR oil is { non- sustainable / non-renewable eq} ; 2. idea of biodegradability ; 3. idea of cheapness ;	**(2)**

Question Number	Answer	Mark
1 (b)	<table><tr><th>Statement</th><th>Starch</th><th>Cellulose</th></tr><tr><td>Consists of microfibrils held together by hydrogen bonds</td><td>×</td><td>×</td></tr><tr><td>Found in amyloplasts</td><td>✓</td><td>×</td></tr><tr><td>Made up of ß-glucose monomers</td><td>×</td><td>✓</td></tr></table> 1 mark for each correct row ;;;	**(3)**

Question Number	Answer	Mark
1 (c)(i)	1. chloroplast (s) ;	**(1)**

Question Number	Answer	Mark
1 (c)(ii)	1. (it has) ribosomes {floating / inside membrane / eq}/ in rER {ribosomes not floating / are attached (to membranes) / not inside} / eq ; 2. it has DNA / rER does not contain DNA / eq ; 3. idea of presence of internal membranes e.g. thylakoid membrane, grana ; 4. (it has) a {double membrane / envelope}/ rER does not have a {double membrane / envelope} / eq ; 5. no {flattened sacs / cisternae} / eq ; 6. contains starch / eq ;	**(2)**

Question Number	Answer	Mark
1 (d)	1. <u>both</u> are used for (structural) support / eq ; 2. only xylem (vessels) transport water / eq ; 3. only xylem (vessels) transport mineral ions / eq ; allow converse for 2nd and 3rd marking points	**(3)**

Question Number	Answer	Mark
2(a)(i)	1. both h ose molecules in disaccharide correctly drawn ; 2. i ication that water is formed ; 3. gly sidic bond correctly drawn ;	**(3)**

Question Number	Answer	Mark
2(a)(ii)	condensation / polymerisation ;	**(1)**

Question Number	Answer	Mark
2(a)(iii)	(1, 4) glycosidic (bond / link) ;	**(1)**

Question Number	Answer	Mark
2(b)(i)	A ;	**(1)**

Question Number	Answer	Mark
2(b)(ii)	B ;	**(1)**

Question Number	Answer	Mark
2(b)(iii)	B ;	**(1)**

Question Number	Answer	Mark
2(c)(i)	1. genoty s of parents correctly shown ; 2. alleles present in gametes cor ctly shown ; 3. possible enotypes of offspring correctly shown ; 4. probab ity stated as {0.5 / 50% /1 in 2 / ½ / 50:50} ;	**(4)**

Question Number	Answer	Mark
2(c)(ii)	The same (as the probability is for the first child) ;	**(1)**

Question Number	**Answer**	Mark
3 (a)(i)	**circle labelled G between one glucose monomer and the next ;**	**(1)**

Question Number	Answer	Mark
3 (a)(ii)	circle labelled H placed on diagonal bonds (dotted lines) between adjacent cellulose molecules ;	**(1)**

Question Number	Answer	Mark
3 (b)(i)	1. B ; 2. {most/highest} magnesium (ions) ;	**(2)**

Question Number	Answer	Mark
3 (b)(ii)	1. B ; 2. {most/highest} calcium (ions) ; 3. (calcium) is a component of {middle lamella / primary cell wall/ calcium pectate / pectin} / eq ;	**(3)**

Question Number	Answer	Mark
3 (c)(i)	2.65 to 2.70 ;	**(1)**

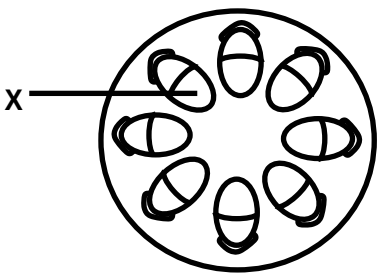
Question Number	Answer	Mark
3 (c)(ii)	Any **one** from**:** 1. {less/reduced} genetic variation/ reduced effect of genotype 2. seeds are the {same age / produced under the same conditions} ;	**(1)**

Question Number	Answer	Mark
3 (c)(iii)	Any **two** from 1. volume of solution ; 2. light / eq ; 3. temperature ; 4. concentration of other mineral ions ; 5. pH ; 6. initial status of seedlings e.g. height ;	**(2)**

Question Number	Answer	Mark
4 (a)	1. (organs) made up of tissues ; 2. (organs) made up of many different cell types / eq ; 3. (organs) can have more than 1 function /eq ;	**max (2)**

Question Number	Answer	Mark
***4(b)(i) QWC**	(QWC – Spelling of technical terms *(shown in italics)* must be correct and the answer must be organised in a logical sequence) 1. both made up of *glucose* / eq ; 2. both {have(1-4) *glycosidic* bonds / made by *condensation* reactions} / eq ; 3. both have 1-4(*glycosidic)* bonds ; 4. starch is α *glucose, cellulose* is β *glucose* ; 5. starch composed of {more than one type of molecule / *amylose* and *amylopectin* ; 6. correct reference to {branching / 1-6 bonds / helix} in starch / straight chain in *cellulose* ; 7. all monomers same orientation in starch / every other one inverted in *cellulose* ;	**max (4)**

Question Number	Answer	Mark
4 (b)(ii)	1. idea of (tensile) strength / flexible / inelastic / eq ; 2. {parallel arrangement / eq} / reference to hydrogen bonding / several layers of fibres / reference to {criss cross / net like} arrangement (of microfibrils) ;	**(2)**

Question Number	Answer	Mark
4 (c)(i)	Any one or more of the inner segments e.g.  ; **Comment** Allow x within appropriate segment(s).	**(1)**

Question Number	Answer	Mark
4 (c)(ii)	1. su ort /stability / eq ; 2. tran ort of water ; 3. tran ort of {minerals / ions / eq} ;	**max (2)**