

Question Number	Answer	Additional Guidance	Mark
1(a)	sclerenchyma – B ; xylem - D ;	Allow lower case b and d	(2)

Question Number	Answer	Additional Guidance	Mark															
1(b)	<table border="1"> <thead> <tr> <th>Statement</th> <th>True</th> <th>False</th> </tr> </thead> <tbody> <tr> <td>Both tissues have a structural function</td> <td><input checked="" type="checkbox"/></td> <td></td> </tr> <tr> <td>Both tissues have a transport function</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>End plates are missing in xylem vessels</td> <td><input checked="" type="checkbox"/></td> <td></td> </tr> <tr> <td>Xylem vessels have tapered ends</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table>	Statement	True	False	Both tissues have a structural function	<input checked="" type="checkbox"/>		Both tissues have a transport function		<input checked="" type="checkbox"/>	End plates are missing in xylem vessels	<input checked="" type="checkbox"/>		Xylem vessels have tapered ends		<input checked="" type="checkbox"/>		(4)
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1*(c)	<p>(QWC – Spelling of technical terms must be correct and the answer must be organised in a logical sequence)</p> <ol style="list-style-type: none"> idea of <i>cellulose</i> (molecules) { in bundles / as <i>microfibrils</i> / held together by <i>hydrogen</i> bonds } ; layers of <i>microfibrils</i> (in the primary cell wall) / mesh of <i>microfibrils</i> (in secondary cell wall) ; reference to presence of <i>lignin</i> in the cell wall ; distribution of <i>lignin</i> described ; presence of (bordered) pits ; presence of { <i>pectin</i> / <i>hemicellulose</i> } in the cell wall ; 	<p>QWC emphasis is on correct spelling of biological terms (Note – only penalise once for an incorrect spelling)</p> <ol style="list-style-type: none"> ACCE net or criss-cross arrangement instead of mesh ACCE <i>lignified</i> or <i>lignification</i> e.g. rings / spirals / annular / helical IG RE pores and plasmodesmata IG RE middle lamella 	(4)

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

Question Number	Answer	Mark												
2 (b)	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Statement</th> <th>Starch</th> <th>Cellulose</th> </tr> </thead> <tbody> <tr> <td>Consists of microfibrils held together by hydrogen bonds</td> <td style="text-align: center;">x</td> <td style="text-align: center;">x</td> </tr> <tr> <td>Found in amyloplasts</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">x</td> </tr> <tr> <td>Made up of B-glucose monomers</td> <td style="text-align: center;">x</td> <td style="text-align: center;">✓</td> </tr> </tbody> </table> <p>1 mark for each correct row ;;;</p>	Statement	Starch	Cellulose	Consists of microfibrils held together by hydrogen bonds	x	x	Found in amyloplasts	✓	x	Made up of B-glucose monomers	x	✓	(3)
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Consists of microfibrils held together by hydrogen bonds	x	x												
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Question Number	Answer	Mark
2 (c)(i)	1. chloroplast (s) ;	(1)

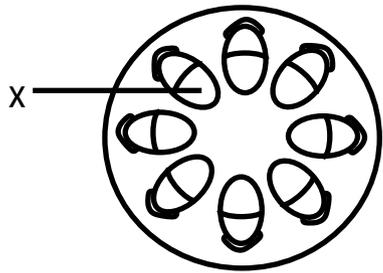
Question Number	Answer	Mark
2 (c)(ii)	<ol style="list-style-type: none"> 1. (it has) ribosomes {floating / inside membrane / eq}/ in rER {ribosomes not floating / are attached (to membranes) / not inside} / eq ; 2. it has DNA / rER does not contain DNA / eq ; 3. idea of presence of internal membranes 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
2 (d)	<ol style="list-style-type: none"> 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 ; <p>allow converse for 2nd and 3rd marking points</p>	(3)

Question Number	Answer	Mark
3 (a)	<ol style="list-style-type: none"> 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)

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*3(b)(i) QWC	<p>(QWC - Spelling of technical terms (<i>shown in italics</i>) must be correct and the answer must be organised in a logical sequence)</p> <ol style="list-style-type: none"> 1. both made up of <i>glucose</i> / eq ; 2. both {have(1-4) <i>glycosidic</i> bonds / made by <i>condensation</i> reactions} / eq ; 3. both have 1-4(<i>glycosidic</i>) bonds ; 4. starch is α <i>glucose</i>, <i>cellulose</i> is β <i>glucose</i> ; 5. starch composed of {more than one type of molecule / <i>amylose</i> and <i>amylopectin</i> ; 6. correct reference to {branching / 1-6 bonds / helix} in starch / straight chain in <i>cellulose</i> ; 7. all monomers same orientation in starch / every other one inverted in <i>cellulose</i> ; 	max (4)

Question Number	Answer	Mark
3 (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
3 (c)(i)	Any one or more of the inner segments e.g.  ; Comment Allow x within appropriate segment(s).	(1)

Question Number	Answer	Mark
3 (c)(ii)	1. support / stability / eq ; 2. transport of water ; 3. transport of {minerals / ions / eq} ;	max (2)

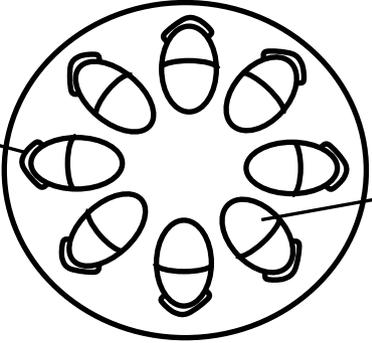
Question Number	Answer	Mark
4(a)	<ol style="list-style-type: none"> 1. some people with (new) drug and some without (new) drug / eq ; 2. use placebo / description (e.g. sugar-coated dummy pill) /old drug ; 3. {doctors / eq} and {subjects / eq} do not know who is on (new) drug or who is not /eq ; 4. to see if new drug works better than {placebo / old drug}/eq ; 5. reduces bias /eq ; 	max (3)

Question Number	Answer	Mark
4 (b)(i)	glycosidic ;	(1)

Question Number	Answer	Mark
4(b)(ii)	{ α / alpha } glucose ;	(1)

Question Number	Answer	Mark
4(b)(iii)	<ol style="list-style-type: none"> 1. {bioplastic / starch} comes from {plants / eq} ; 2. {plants / starch} are renewable ; 3. oil-based plastic is from non-renewable resource / eq ; 	max (2)

Question Number	Answer	Mark
4(b)(iv)	will not accumulate / not contribute to landfill / can be decomposed / eq ;	(1)

Question Number	Answer	Mark
4(c)	 <p>The diagram shows a circular cross-section of a stem. It features a central pith surrounded by a ring of vascular bundles. Each vascular bundle consists of a primary xylem on the inner side and a primary phloem on the outer side. A ring of sclerenchyma is located between the vascular bundles. Labels with leader lines point to a sclerenchyma ring and a xylem vessel.</p> <p>sclerenchyma ;</p> <p>xylem ;</p>	(2)