

Question Number	Answer	Additional Guidance	Mark
5(a)(i)	<ol style="list-style-type: none"> 1. cellulose molecules linked by hydrogen bonds ; 2. reference to microfibrils ; 3. idea of sheets / layers (of microfibrils) ; 4. (microfibrils) arranged in {net / mesh / criss-cross / eq }; 	4.ACCEPT at different angles (to each other)	(3)

Question Number	Answer	Additional Guidance	Mark
5(a)(ii)	<ol style="list-style-type: none"> 1. vessels are hollow tubes ; 2. lignin needed to add {strength / support} to the vessels ; 3. xylem involved in transport of water ; 4. lignin needed to waterproof the vessels ; 	<p>ALLOW xylem as eq to vessels throughout ACCEPT cell walls as being in context of vessels</p> <p>2.ACCEPT provides rigidity to the vessels / prevents vessels collapsing</p> <p>4. e.g.to make vessels impermeable to water / to prevent water loss from vessels</p>	(3)

Question Number	Answer	Additional Guidance	Mark
5(a)(iii)	C	<i>A is incorrect because it is the sclerenchyma</i>	

		<p><i>B is incorrect because it is the phloem</i> <i>D is incorrect because it is the parenchyma</i></p>	(1)
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Question Number	Answer	Additional Guidance	Mark
5(b)(i)	<ol style="list-style-type: none"> 1. 230-180 / 50 ; 2. 22 / 21.7 / 21.74 (%) ; 	<p>Correct answer with no working shown gains both marks</p> <p>ACCEPT answer as positive or negative value</p>	(2)

Question Number	Answer	Additional Guidance	Mark
5(b)(ii)	<ol style="list-style-type: none"> 1. idea that the genetically modified plants are drooping ; 2. because there is less {lignin in the cell walls / secondary thickening} ; 3. therefore less support to the {stems / leaves} ; 4. xylem vessels collapse ; 5. idea that plant is not being supplied with sufficient water ; 	<p>ACCEPT converse answers for non-GM plants</p> <p>1. ACCEPT wilting / withering 1. e.g. they are less upright / cannot stay upright / the unmodified plants are more upright 1. IGNORE reference to height</p> <p>2.context of cell wall needs to be stated</p> <p>3.IGNORE ref to supporting the plant</p>	(3)