

Question Number	Answer
*8(b)(ii)	<p>Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme. The indicative content below is not prescriptive and candidates are not required to include all the material indicated as relevant. Additional content included in the response must be scientific and relevant.</p> <p><u>Description of data</u></p> <ul style="list-style-type: none"> infection with fungus results in increased {tannin/ flavonoid} production increasing the concentration of tannin reduces the leaf damage from herbivores negative correlation / linear decrease increasing the concentration of flavonoids increases the diameter of inhibition zone doubling the concentration of flavonoids increases the diameter of inhibition zone by 28.6% <p><u>Plant</u></p> <ul style="list-style-type: none"> explanation of how tannins reduce leaf damage e.g. herbivores don't like the taste / toxic / poisonous therefore less likely to eat the plant (A) more leaves for photosynthesis and therefore increased growth (A) explanation of what the diameter of inhibition zone shows = link to bactericidal/ bacteriostatic effect of flavonoids (A) reduced plant infections (A) link to why reduced herbivory and reduced plant infection benefits the infected plant e.g. fewer resources goes into growing new leaves and more can go into sexual reproduction (A) disadvantage for plant – increased fungal growth (D) more resources required {to produce tannins / for gene expression} instead of being used for {growth / sexual reproduction} (D) <p><u>Fungus</u></p> <ul style="list-style-type: none"> link to why reduced herbivory benefits the fungus e.g. reduced competition for plant resources from herbivores, more plant resources available to fungus (A) link to why reduced plant infection benefits the fungus e.g. reduced competition for plant resources from {bacteria / other fungi} (A) reduced resources for fungus from plant as more used to synthesise tannins / flavonoids (D)

		<ul style="list-style-type: none"> the fungus might only be able to {influence / live in / complete life cycle in} danel plants (D) 	(6)
			Additional guidance
Level 0	0	No awardable content	
Level 1	1-2	<p>Demonstrates isolated elements of biological knowledge and understanding to the given context with generalised comments made.</p> <p>Vague statements related to consequences are made with limited linkage to a range of scientific ideas, processes, techniques and procedures.</p> <p>The discussion will contain basic information with some attempt made to link knowledge and understanding to the given context.</p>	Information from one section
Level 2	3-4	<p>Demonstrates adequate knowledge and understanding by selecting and applying some relevant biological facts/concepts.</p> <p>Consequences are discussed which are occasionally supported through linkage to a range of scientific ideas, processes, techniques and procedures.</p> <p>The discussion shows some linkages and lines of scientific reasoning with some structure.</p>	<p>level one content plus consideration of advantage(s) and / or disadvantage(s)</p> <p>3 marks = L1+ one from {FA / FD / PA / PD}</p> <p>4 marks = L1+ two from {FA / FD / PA / PD}</p> <p>FA = fungal advantage FD = fungal disadvantage PA = plant advantage PD = plant disadvantage</p>
Level 3	5-6	<p>Demonstrates comprehensive knowledge and understanding by selecting and applying relevant knowledge of biological facts/concepts.</p> <p>Consequences are discussed which are supported throughout by sustained linkage to a range of scientific ideas, processes, techniques and procedures.</p> <p>The discussion shows a well-developed and sustained line of scientific reasoning which is clear and logically structured.</p>	<p>Information from three sections applied to the given context showing a good understanding of the advantages and disadvantages to the infected plant and to the fungus</p> <p>5 marks = L2 + three from {FA / FD / PA / PD}</p> <p>6 marks – all four of {FA / FD / PA / PD} discussed</p>