

Question Number	Answer
*7(c)(iii)	<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.</p> <p>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>Grow more plants produced via asexual reproduction in botanical gardens</p> <ul style="list-style-type: none"> • increasing population • but all genetically identical / no effect on genetic diversity • low genetic diversity could lead to decreased chance of survival if environment changes • more plants mean more opportunities to collect pollen / pollinate other Titan arum plants <p>Collecting pollen when an individual plants flowers and storing it in a seedbank</p> <ul style="list-style-type: none"> • pollen available (for artificial pollination) when an individual plant flowers • consideration of local seedbank in Sumatra and others in strategic locations around the world as transporting pollen around the world may {delay / prevent} successful fertilisation • ability to select pollen which comes from individuals with different alleles / consideration of possibility of collecting pollen with {same alleles / low genetic diversity} • consideration of viability of stored pollen / cost to store pollen <p>Studbook for the species</p> <ul style="list-style-type: none"> • consideration of analysing the genetic material of all of the individual plants throughout the world • decide which pollen would be used to fertilise which flowering plant • selective breeding could increase genetic diversity <p>Artificially pollinate plants in the wild and in botanical gardens</p> <ul style="list-style-type: none"> • individual plants may not be able to be fertilised naturally / more successful than relying on insect pollination • possible reasons why e.g. only Titan arum plant in the botanical garden • so artificially pollinating would result in population increasing faster • consideration of {short timescale for pollination / cost / labour intensive method} • ability to select pollen which comes from individuals with different alleles / could increase genetic diversity

(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>	<p>consideration of one or two of the scientists suggestions</p> <p>1 mark = basic consideration of one suggestion</p> <p>2 marks - basic consideration of two suggestions or detailed consideration of one suggestion</p>
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>3 marks - basic consideration of three suggestions or detailed consideration of two suggestions</p> <p>4 marks - more detailed consideration of three suggestions</p>
Level 3	5-6	<p>Demonstrates comprehensive knowledge and understanding by selecting and applying relevant biological facts / concepts.</p> <p>Consequences are discussed which 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>5 marks - basic consideration of four suggestions</p> <p>6 marks - detailed consideration of four suggestions</p>