

Question Number	Answer
*6(a)	<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> <ul style="list-style-type: none"> • description of table data e.g., the more dominant alleles present in the zygote increases the darkness of the skin, • description of polygenic inheritance • recognition that {3 genes / 6 alleles} involved with this phenotype / each gamete contains 3 alleles involved with this phenotype <ul style="list-style-type: none"> • description of graph data • e.g., phenotype shows normal distribution / phenotype shows continuous variation • e.g., offspring have highest probability of inheriting {3 dominant alleles/medium skin colour} <ul style="list-style-type: none"> • consideration that large variation due to crossing over of {genetic material / allele / DNA} in prophase I • description of crossing over <ul style="list-style-type: none"> • consideration that large variation due to random assortment of chromosomes in metaphase I • description of random assortment <ul style="list-style-type: none"> • consideration that random fertilisation of genetically different gametes increases variation <ul style="list-style-type: none"> • consideration of probability of different types of mutation e.g., silent • consideration of {environmental variation / mutation} increasing variation e.g. sun tan, DNA methylation • explanation of how {environmental variation / mutation} would increase variation e.g. pigment production

(6)

			Additional guidance
Level 0	0	No awardable content	
Level 1	1-2	Limited number of the most important or relevant scientific factors from the data/information provided are synthesised. No judgement is made.	1-2 sections
Level 2	3-4	Some of the most important or relevant scientific factors from the data/information provided are synthesised. A limited accurate judgement is made.	3-4 sections
Level 3	5-6	Most of the important or relevant scientific factors from the data/information provided are synthesised. A detailed and accurate judgement is made.	5-6 sections

Question Number	Answer	Additional guidance	Mark
6(b)	<p>An answer that makes reference to two of the following points:</p> <ul style="list-style-type: none"> • {increased/ more} exposure to {UV/sun} light (would result in a darker skin tone) (1) • mutation could result in {production of a protein which would result in a darker skin tone / fewer melanocytes} (1) • limited food source containing materials for pigment synthesis / disease killing pigment cells (1) 	<p>ignore different exposure to sunlight ignore may be using fake tan (unless qualified with a drug form)</p> <p>ACCEPT mutation may have occurred ACCEPT epigenetic modification</p> <p>ACCEPT skin cancer / disease</p>	(2)