

CfE Higher Biology

Unit 1 DNA and the Genome

Key Area 7 Evolution

Marking Instructions

1. D
2. C
3. B
4. B
5. A
6. B
7. C
- 8.

(a)	(i)	Sympatric	1	
	(ii)	Prevents/interrupts/stops/blocks... gene flow/gene exchange/breeding/ mating... between populations OR Prevents interbreeding	1	NOT – stops populations from mating/ breeding alone
	(iii)	(DNA) sequence data/genome analysis would be similar OR They/the two populations... can interbreed/breed together... to produce fertile offspring (or converse statement)	1	NOT – they can breed to produce fertile offspring NOT – answers referring to 2 species instead of 2 populations

9. (a)	<p>From 2009/from the start it increases from 10% to 66% in 2015.</p> <p>OR</p> <p>Over the first 6 years it increases from 10% to 66%. (1)</p> <p>Then stays constant (until 2016). (1)</p>	2	<p>Cannot access any marks if 66 and 2015 not mentioned.</p> <p>Must state % unit at least once to gain full marks. All correct values but no % unit = 1.</p> <p>If additional points are correctly described do not negate.</p>
(b)	<p>Resistant plants survive.</p> <p>OR</p> <p>Non-resistant die. (1)</p> <p>Pass resistance-</p> <ul style="list-style-type: none"> • genes/alleles/sequences • to next generation/to offspring/vertically. <p>OR</p> <p>Reproduce/breed</p> <ul style="list-style-type: none"> • and pass on resistance • genes/alleles/sequences. (1) 	2	<p>NOT- pass on characteristic/traits/resistance.</p>
(c)	<p>Bacteria can exchange-</p> <ul style="list-style-type: none"> • genetic material/plasmids • horizontally/in same generation • and charlock cannot/charlock transfers vertically. <p>OR</p> <p>Horizontal gene transfer is faster (or converse).</p>	1	<p>NOT- horizontal gene transfer is fast.</p>

10.	(a)	Horizontal	1	2
		Rapid	1	
	(b)	Resistant survive (or converse) AND transfer/pass on the (antibiotic) resistance gene/allele to next generation OR transfer/pass on resistance gene vertically/horizontally	1	2
	(c)	(i) Growth/bacteria/MRSA/colonies would be present on all plates	1	
		(ii) Vitamins/fatty acids/beef extract	1	NOT - glucose, amino acids, fat

11.

(a)		Geographical (1) Prevents gene flow between populations/groups OR Prevents populations/groups interbreeding (1)	2	Not - Prevents gene flow/exchange between species Not - Prevents gene flow alone
(b)	(i)	5	1	
	(ii)	Behavioural isolation/barrier OR Ecological isolation/barrier OR Sympatric speciation	1	