Unit 3 Sustainability & Interdependence

Key Area 7 & 8 Components of Biodiversity & Threats to Biodiversity

1.

ai	Number of alleles **OR** frequency of alleles	1
aii	More chance of harmful alleles meeting in offspring **OR** less diversity reduces chances of survival in changing environment = **1** Leads to low reproductive success = **1**	2

bi	Habitat fragmentation	1
bii	Establish habitat corridors **OR** captive breeding **OR** National Parks	1

2. A

3.

(a)	**(i)**	25	**1**	
(a)	**(ii)**	9	**1**	
(a)	**(iii)**	$130 – 132 \times 10^4$ 1.3 – 1.32 million	**1**	
(b)		**1** allows gene flow between fragments **OR** allows groups/populations to interbreed **OR** increases chance of finding mates **OR** increases number of possible mates **OR** allow movement to other fragments to mate **2** allows movement to other fragments for food **3** allows recolonisation/ re-inhabiting of a new area following local extinction **Any 2, one mark each**	**2**	

4.

estion	Acceptable answer(s)	Max Mark	Unacceptable answer
(a)	events 4 and 5 (and events 2 and 3)	1	
(b)	fossils (evidence/record)	1	
(c)	some (groups) survive (mass extinction) **AND** radiate/speciate/evolve **(1)** to fill vacant niches/exploit unoccupied habitats **(1)**	2	
(d)	agriculture/farming/ deforestation/road construction/river course alteration/damming **(1)** increase CH_4/CO_2 level in atmosphere **OR** increase greenhouse gases **OR** global warming **(1)**	2	climate change

5.

a	**i**	Number/frequency of alleles in a population	**1**
a	**ii**	Small populations may lose the genetic variation necessary to enable evolutionary responses to environmental change **or** the loss of genetic diversity can lead to inbreeding which results in poor reproductive rates	**1**
b		Edge species may invade the interior of the habitat and compete with interior species	**1**
c	**i**	Area of natural habitat linking fragments	**1**
c	**ii**	individual members of the locally extinct species can move into the fragment and recolonise	**1**