Question Number	Answer	Mark
1(a)(i)	A anatomical adaptation ;	**(1)**

Question Number	Answer	Mark
1(a)(ii)	C 1976 to 1977 ;	**(1)**

Question Number	Answer	Additional Guidance	Mark
1(b)	1. genetic variation / different alleles / large gene pool ;	1. ACCEPT genetic diversity, different genotypes	
	2. mutations ;		
	3. polygenic inheritance / eq ;	3. ACCEPT more than one gene controls beak size	**(2)**

Question Number	Answer	Additional Guidance	Mark
1(c)	1. selection pressure is { lack of food / tough food /eq} ;		
	2. idea of selection for the { longer / deeper} beaks ;	2. CCEPT they survive	
	3. birds with shorter beaks died / reference to figures in table ;		
	4. birds with { advantageous/ eq } alleles (survive) to breed ;	4&5. IGNORE genes	
	5. { advantageous / eq} allele(s) passed onto offspring / eq ;	6. e.g. increased frequency of alleles for longer and deeper beaks	
	6. change in genotypes over generations / eq ;		**(4)**

Question Number	Answer	Additional guidance	Mark
2(a)	idea of found in only one specific geographical location ;	ACCEPT reference to {one / the} area / place IGNORE habitat or environment	(1)

Question Number	Answer	Additional guidance	Mark
2(b)	1. idea that genetic diversity {will be low / decreases / stays the same } OR idea of smaller gene pool ;		
	2. closely related wolves mating / inbreeding / eq ;	2. NOT inTERbreeding Do not give this mark for "inbreeding depression"	
	3. risk of inbreeding depression / more chance of homozygous recessive genotypes / eq ;	3. ACCEPT gr ter risk of genetic disorders	
	4. risk of genetic drift / eq ;	4. ACCEPT reference to loss of alleles	(2)

Question Number	Answer	Additional guidance	Mark
2(c)	1. idea that this increases the gene pool ;	1. A EPT introduction of genetically different individuals, { new / different } alleles introduced into population	
	2. idea that this increases potential for the species to { adapt / survive } ;	2. A EPT population but not individuals	
	3. description of how this will increase survival e.g. better hunters, disease resistance ;		(2)

Question Number	Answer				Additional guidance	Mark
2(d)(i)					**ACCEPT in the cells indicated a cross or tick**	
	Adaptation for the Ethiopian wolf	Behavioural	Anatomical	Physiological		
	Small sharp teeth widely spaced to cope with small prey		**X**			
	Narrow snout to fit into small gaps when hunting small prey		**X**			
	Hunting alone, as prey too small to share with other wolves	**X**				**(3)**

Question Number	Answer	Additional guidance	Mark
2(d)(ii)	**(QWC– Spelling of technical terms must be correct and the answer must be organised in a logical sequence)** 1. genetic variation in population / variation due to mutation / eq ; 2. description of selection pressure ; 3. idea that some individuals possessed { advantageous / beneficial / eq } characteristics ; 4. (therefore) survived to adulthood / survived to breed ; 5. passing on {advantageous alleles / eq} (to offspring) / eq ; 6. change in allele frequency (over generations) / eq ; 7. idea of {geographical / reproductive} isolation ;	**QWC emphasis is clarity of expression** 2. ACCEPT small prey 5. OT just passing on a characteristic or genes	**(4)**

Question Number	Answer	Additional guidance	Mark
3(a)(i)	idea of secretion of waxy substance ;	ACCEPT presence of oil / lipid	**(1)**

Question Number	Answer	Additional guidance	Mark
3(a)(ii)	1. active at night / inactive in day OR 2. idea of spreading wax over skin OR 3. idea of hunting in trees rather than on the ground ;		**(1)**

Question Number	Answer	Additional guidance	Mark
3(a)(iii)	1. idea of avoiding predation 2. idea of conserving water in dry habitat 3. avoiding high temperatures during the day 4. idea of finding prey more easily at night ;	The answer to 6(a)(iii) must be awarded related to 6(a)(ii) 2. ACCEPT reduce dehydration	**(1)**

Question Number	Answer	Additional guidance	Mark
3(b)	1. idea that it eats insects {at night / in trees} ; 2. {within the community / ecosystem /habitat / environment / eq } / hot, dry areas with trees ;		**(2)**

Question Number	Answer	Additional guidance	Mark
3(c)	***QWC – Spelling of technical terms must be correct and the answer must be organised in a logical sequence.** 1. idea of selection pressure / change in environment / hot and dry habitat ; 2. reference to { competition / predation } ; 3. mutation (in frog) ; 4. idea of advantageous allele e.g. allele for waxy secretions ; 5. idea that individuals with advantageous { alleles / characteristics / eq } survive and breed ; 6. idea of (advantageous) { allele / mutation } being passed on (to future generations) ; 7. idea of increased frequency of advantageous alleles in the population ;	***QWC - Emphasis is logical sequence** 7. CCEPT more individuals with this adaptation in the population /	**(5)**

Question Number	Answer	Mark
4(a)	1. idea of the {role / purpose / interaction / eq} of {organism / sea anemone / species / eq} ; 2. reference to trophic level(s) ; 3. it is a predator/ controls population of prey / eq ; 4. it is prey / provides food for other animals / eq ; 5. provide {shelter / home /eq} for some animals / eq ;	**(3)**

Question Number	Answer	Mark
4(b)	1. idea of reduces surface area (to volume) ; 2. idea of less water loss e.g. dehydration, drying out ; 3. idea of reduces visibility (to predators) ; 4. idea of protection from {predators / carnivores / named eg} ; 5. idea that there is no need for the tentacles to be exposed ; 6. energy {will be conserved /will not be wasted/ eq} ;	**(3)**

Question Number	Answer	Mark
4(c)(i)	C – systematic ;	**(1)**

Question Number	Answer	Mark
4(c)(ii)	1. idea of no indication that temperature has an effect e.g. little variation, only 2°C ; 2. idea that distribution is influenced by height (above low water mark) ; 3. idea of more likely to dry out at higher levels ; 4. idea of food availability differs e.g. less at higher levels, more at lower levels ; 5. idea of more likely to be eaten at lower levels ;	**(3)**

Question Number	Answer	Mark
4(c)(iii)	1. plot graph(s) of numbers of anemones against {height and temperature / abiotic factors / eq} ; 2. reference to correlation ; 3. idea of using statistical analysis ; 4. named appropriate statistical test ;	**(2)**