Question Number	Answer	Acceptable answers	Mark
1(a)(i)	**B** ☒ arrow head		**(1)**

Question Number	Answer	Acceptable answers	Mark
1(a)(ii)	**A suggestion including two of the following** hunting/fighting/defence (1) {preparing/ cooking/foraging for} food (1) making clothes (1) construction of {shelters/new tools/sharpening tools} (1) making fire (1)	 accept weapons accept skinning animals for food/scrapping bones accept skinning for clothes accept chopping wood	**(2)**

Question Number	Answer	Acceptable answers	Mark
1(b)	**An explanation linking two of the following** **higher** abundance (1) **more** stable over time/**less** susceptible to decay (1) high mutation rate (1) inheritance down female line (1)	 accept **easier** to extract accept idea of maternal inheritance accept no recombination (1)	**(2)**

Question Number	Answer	Acceptable answers	Mark
1(c)	**A description including two of the following** show **changes** in body structure (1) **changes** in stone tools (1) a specific example eg Ardi/Lucy/*Homo erectus* (1)	 accept development of named structural changes	**(2)**

Total for Question 1 = 7 marks

Question Number	Answer	Acceptable answers	Mark
2(a)	A description including **three** of the following points: • all have digits/fingers (1) • all have { similar bones /radius / ulna / carpals} (1) • all have a humerus bone (1) • <u>pentadactyl</u> limb (1)	 accept: phalanges for fingers accept: same bone structure	 **(3)**

Question Number	Answer	Acceptable answers	Mark
2(b)	An explanation including **two** of the following points: • soft tissue of organisms does not form fossils (1) • some fossils are yet to be found (1) • fossils may be damaged (1) • conditions not correct for fossil formation (1) • fossils may only be fragments / not whole organisms (1)	accept: references to plant or animal tissue accept: reasons why they may not be found accept: reasons for damage e.g. earthquakes accept: named conditions e.g. pH	**(2)**

Question Number	Answer	Acceptable answers	Mark
2(c) (i)	D 9.0%		**(1)**

Question Number	Answer	Acceptable answers	Mark
2(c) (ii)	• lowered the level of carbon dioxide / carbon dioxide {removed / taken in} (1) • increased the level of oxygen / oxygen {produced / made}(1)	accept: percentage for level If CO_2 written must be correct, do not accept CO^2	**(2)**

Question Number	Answer	Acceptable answers	Mark
2(c) (iii)	Any **two** from: • large organisms {more complex/carry out greater number of functions / more cells} • for (more aerobic) respiration • for (more) energy		**(2)**

Question Number	Answer	Acceptable answers	Mark
3a(i)	Genus – Geospiza Species -conirostris	**accept geospiza** **accept Conirostris**	**(2)**

Question Number	Answer	Acceptable answers	Mark
3a(ii)	A suggestion including two of the following: • (different beak sizes/adapted) enable different finches to feed on different food types (1) • less competition between species (1)	eat different foods accept comparison between 2 beaks and food source more species are able to co-exist (1)	**(2)**

Question Number	Answer	Acceptable answers	Mark
3a(iii)	**B** ☒ geographic isolation		**(1)**

Question Number	Answer	Acceptable answers	Mark
3b	A suggestion linking **three** of the following points: • variation between species/ beak sizes/ shapes (1) • due to mutation(1) • competition for resources (1) • survival of the fittest /those best adapted to the environment survived (1) • those who survive pass their genes/characteristics onto their offspring (1) • natural selection (1)		**(3)**

Total for question 3 – 8 marks

Question Number	Answer	Acceptable answers	Mark
4(a)(i)	A – adaptations		**(1)**

Question Number	Answer	Acceptable answers	Mark
4(a)(ii)	Any one from the following: • large surface area to facilitate heat loss (1) • insulating/fat layer (1) • correct adaptation of skin / fur / hair(1)	(thick layer) of bacteria credit observable valid 'suggestions' from the photo ref to not needing to regulate temperature as poikilothermic (1)	**(1)**

Question Number	Answer	Acceptable answers	Mark
4(a)(iii)	A explanation to include **two** of the following points: • publishing the evidence and results in scientific journals (1) • getting other scientists to review their experiment / repeat the experiment (1) • scientists to investigate hydrothermal vents (1) • participating in scientific conferences to discuss experiment / results (1) • taking samples of organisms in hydrothermal vents for comparison (1)	use peer review (1) scientists searched the ocean (1) comparing notes/meeting with other scientists (1)	**(2)**

Question Number	Answer	Acceptable answers	Mark
4(b)(i)	An explanation to include **two** of the following: • competition (occurs between members of a species) (1) • best suited / better adapted members out-compete and survive (1) • these members will reproduce (more times) (1) • the members who cope less well will die / extinction occurs (1) • reference to natural selection (1)	idea of survival of the fittest (1) reference to passing on genes to help them survive (1) reference to species interbreeding to form hybrids (1)	**(2)**

Question number	**Answer**	**Acceptable answers**	**Mark**
4(b)(ii)	A description to include the following: • the formation of a new species / new characteristics (1) • due to geographical isolation (1) • no longer able to breed with the original species	{development / evolution} of a {different type / new type} of species (1) due to separation from the original species / change of habitat (1)	**(2)**

Question Number	Answer	Acceptable answers	Mark
5(a)(i)	650 ÷ 100 (1) x 40 = 260 (1)	10% of 650 = 65 65 x 4 = 260	**(2)**

Question Number	Answer	Acceptable answers	Mark
5(a)(ii)	discontinuous (variation)	**Ignore** genetic variation (as not shown in the graph) **Accept** discrete	**(1)**

Question Number	Answer	Acceptable answers	Mark
5(b)(i)	C		**(1)**

Question Number	Answer	Acceptable answers	Mark
5(b)(ii)	A description including the following points: • continuous variation / data (1) • normal distribution curve (1) • correct interpretation of data from the graph (1)	bell shaped curve e.g most common height range 150 – 15	**(3)**

Question Number	Answer	Acceptable answers	Mark
5(c)	An explanation linking **three** of the following points: • most individuals within a population vary slightly from one another (1) • most organisms produce more young than will survive to adulthood / overproduction (1) • there is much competition within and between species (1) • those organisms with advantageous characteristics will survive (1) • the advantageous characteristics will be inherited / better adapted organisms are more likely to survive to reproduce (1)	taller animals outcompete smaller animals for food survival of the fittest the genes for the characteristics will be passed on / offspring will have the desired characteristics	**(3)**