

Fossils 2 MS

QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	(remains of) an organism / a bone / a shell / hard part of an organism / part of organism that does not decay / impression of an organism / footprint / burrow / rootlet trace further detail – eg in rock / ice/ amber / mineralisation or from a long time ago / many years ago	if number, > 1000 years ignore hundreds	1 1
a)ii)	older fossils are simple(r) or fossils show change / adaptation with time	must make ref to change and time allow deeper fossils are simple(r)	1
b)i)	18 to 30	allow 30 to 18 ignore units	1
b)ii)	small sample	allow only 49 shells / not representative / not enough evidence allow not all fossils found	1
c)	example of a physical factor such as flooding, volcanic activity (allow volcanoes) asteroid collisions, drought, ice age / temperature change or example of a biological factor such as predators / disease / competition / lack of food or mates / cyclical nature of speciation / isolation / lack of habitat or habitat change	allow natural disaster / climate change / weather change / catastrophic event / environmental change ignore human factors eg hunting / pollution	1
Total marks			6

QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	lack of fossils / fossils destroyed (due to soft parts) decaying / geological activity	allow lack of evidence allow an example – eg vulcanism or earth movements or erosion allow converse points re skeletons, shells, hard parts	1 1
b)i)	A and B did not mate successfully	'A and B did not mate' insufficient allow did not produce fertile offspring	1
b)ii)	any two from: <ul style="list-style-type: none"> •may not be mating season •A and B may not find each other attractive •this is just a one-off attempt / an anomaly / need repeats •may be juvenile / immature •may be the same sex 	allow other sensible suggestion eg were put in unfavourable environment or one / both could be infertile	2
Total marks			5

QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	fossils show change over time		1
b)	covered in sediment / mud or sinks into the mud soft parts decay / are eaten or bones / hard parts / shell do not decay minerals enter bones / parts are replaced by minerals / mineralisation	accept turns to rock allow 'is an impression' / 'imprint' / 'cast'	1 1 1
c)	skin is soft / skin not preserved / not fossilised / skin decays		1
d)	any two examples of: physical factors such as volcanic activity (allow volcanoes) / earthquakes / asteroid (collision) / ice age / temperature change and / or biological factors such as	accept 2 physical factors or 2 biological factors or one of each for full marks ignore pollution if no other answers given allow	2

	predators / disease / named pathogen / competition/ lack of food / mates / cyclical nature of speciation / isolation / lack of habitat or habitat change	natural disaster / climate change / weather change / catastrophic event / environmental change for 1 mark	
Total marks			7

QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	any two from: <ul style="list-style-type: none"> • (dead) animal buried in sediment • hard parts / bones do not decay or soft parts do decay • mineralisation (of hard parts / bones) 	allow imprint in mud allow (one of) the conditions for decay is missing – accept example, eg oxygen / water / correct temperature / bacteria allow replacement by other materials	2
a)ii)	any two from: <ul style="list-style-type: none"> • conditions not right for fossilisation • geological activity has destroyed fossils / has destroyed evidence • fossils not yet found 	ignore references to soft-bodied allow a named / described example – eg vulcanism / earth movements / erosion allow description of why not yet found	2
b)	any four from: <ul style="list-style-type: none"> • separation / isolation (of different populations) • different environmental conditions (between locations) • mutation(s) occur or genetic variation (within each population) • better adapted survive or natural selection occurs • favourable alleles passed on (in each population) • eventually different populations unable to breed successfully with each other 	allow 'survival of the fittest' ignore animals adapt to their environment ignore reference to stronger survive allow genes for alleles allow unable to produce fertile offspring	4
Total marks			8

QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	any two from: <ul style="list-style-type: none"> • trapped / held (since sticky) • engulfed / covered by resin • prevented decay 	allow engulfed / covered by amber	2
a)ii)	any two from: <ul style="list-style-type: none"> • animal / plant (dies and) body covered in sediment / mud • bones / shells / hard parts do not decay • minerals enter bones / parts are replaced by other materials / mineralisation • preserved traces / footprints / burrows / rootlet traces / impressions / casts 	ignore ref to rock allow covered in tar / ice	2
b)i)	New technology provides more valid evidence.		1
b)ii)	any three from: examples of physical factors, eg <ul style="list-style-type: none"> •flooding •drought • ice age / temperature change examples of biological factors, eg <ul style="list-style-type: none"> •(new) predators (allow hunters) • (new) disease / named pathogen •competition for food •competition for mates • cyclical nature of speciation •isolation • lack of habitat or habitat 	accept 3 physical factors or 3 biological factors or some of each for full marks competition must be qualified if no other answers given allow natural disaster / weather change / catastrophic event / environmental change / climate change for 1 mark	3
Total marks			8