

Biodiversity

Human Effect on Ecosystem

Mark Scheme 1

Level	GCSE (9-1)
Subject	Combined Science – Trilogy - Biology
Exam Board	AQA
Topic	4.7 Ecology
Sub-Topic	Biodiversity – Human Effect on Ecosystem
Difficulty Level	Bronze Level
Booklet	Mark Scheme 1

Time Allowed: 55 minutes

Score: / 55

Percentage: /100

Grade Boundaries:

M1.(a)	the variety of different species on Earth	1
	(b) carbon dioxide	1
	methane	1
	(c) any two from: <ul style="list-style-type: none">• drought• flooding• temperature change <i>allow temperature increase or decrease</i>• rainfall change <i>allow rainfall increase or decrease</i>	2
		[5]
M2.(a)	both plots correct	1
	suitable line of best fit	1
	(b) allow range of 3–7 (units) <i>allow ecf from line of best fit given in 03.1</i>	1
	(c)	

Advantage	Disadvantage
	✓
✓	
	✓

allow 1 mark for 2 correct

2

more than one tick in a row negates a mark

[5]

M3.(a) genes

1

chromosomes

1

(b) (i) higher yield

1

less use of pesticides

1

(ii) any **two** from:

- uncertain about effects on health
- fewer bees
- might breed with wild plant
- seeds only from one manufacturer

2

[6]

M4. (a) 60

correct answer gains 2 marks

if answer incorrect evidence of using 40 gains 1 mark

2

(b) any **two** from

ignore temperature rise / global warming

- climate change / described e.g. hotter summers / drought / seasons change
- rise in sea levels / flooding
allow other environmental effects
- glacier melting / ice caps melting
- forest fires
- habitat destruction
- effect on organisms
- eg extinction / migration

2

[4]

M5. (a) (i) carbon dioxide

1

(ii) sulfur dioxide

1

(b) (i) reduces land available for animals and plants

1

(ii) metals

1

(c) (i) pesticide 1

(ii) kill other animals 1

[6]

M6. (a) warmer / dryer
allow greenhouse effect / global warming
ignore wind 1

(b) (i) genes / alleles / chromosomes / DNA / genetic material / genetics
allow inheritance
allow nutrition / food / metabolism / growth rate
ignore environment 1

(ii) natural selection / evolution
allow survival of the fittest 1

[3]

M7. (a) (i) 40
accept -40 or +40 1

(ii) **Step 1** 92

1

Step 2 18

1

Step 3 74

*correct subtraction of answer in **step 2** from answer in **step 1** gains 1 mark*

correct answer 74 with no working gains 3 marks

ignore sign

1

(b) (i) both animals and plants

1

(ii) microorganisms

1

(iii) carbon dioxide

1

[7]

M8.

(a) fuel / houses / paper

allow any object made from wood

1

farming / agriculture / replanting

allow roads / homes / factories

1

carbon dioxide / greenhouse gas / pollution **or** relative named pollutant

1

warming / temperature increase

1

- (b) (i) none of species left / died out 1
- (ii) may have products useful to humans / examples
*allow preserve for future generations **or** 'still there to look at'*
*allow affect food chains / cycles **or** extinction of other species*
allow non human reasons eg loss of habitat
ignore environmental effects 1
- M9.** (a) (i) (more) habitats / (greater) variety of habitats / range of food
*allow (more) places / trees for homes **or** different places to live*
allow no pesticides / herbicides / chemicals sprayed
allow more food
allow safer / can hide
allow effects of machinery 1
- (ii) any **two** from:
- building / houses / factories / etc
ignore timber / uses of wood
 - roads
 - quarrying
 - waste dumps / landfill
 - grazing
- (b) (i) fertilisers 1

[6]

	(ii)	pesticides	1
	(iii)	pesticide / herbicide / chemicals / sprays <i>allow river (through farmland) polluted</i> <i>allow correct effect of fertilisers on river organisms</i>	1
	(c)	any two from <ul style="list-style-type: none"> • pollution / named pollutant / combustion / cars • dumping waste / litter <i>allow 'not recycling'</i> • raw materials used up or reference to quarries / mines • chopping down trees • building / houses / etc • global warming 	2
			[8]
M10.	(a)	(i) increases	1
		(ii) decreases	1
	(b)	any two from: <ul style="list-style-type: none"> • competition for water • competition for ions / minerals / salts / nutrients <i>accept correct named example</i> <i>do not accept food</i> <i>do not accept <u>all</u></i> • competition for light 	2

- (c) kills / harms other / named organisms

1

[5]