

The Organisms in the Environment

Mark Scheme 1

Level	IGCSE(9-1)
Subject	Biology
Exam Board	Edexcel IGCSE
Module	Double Award (Paper 1B)
Topic	Ecology and the Environment
Sub-Topic	The Organisms in the Environment
Booklet	Mark Scheme 1

Time Allowed: 63 minutes

Score: /52

Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	10%

Question number	Answer	Notes	Marks
1 (a)	correct tally 1 mark; (15, 2, 1, 2) correct transfer of tally to number 1 mark;		1 1
(b)	S scale linear on y axis and half grid used on both axes; P bars plotted correctly; A1 axis labelled <u>number</u> ; A2 names of organisms; K key for night and day;		5
(c) (i)	more organisms at night (in total); more woodlice; correct reference to one other organism;		3
(ii)	nocturnal; less predators (at night) / not seen (at night) / less chance of being eaten (at night) / eq; cool (at night) / damp (at night) / eq; less dehydration (at night)/ eq;	allow converse for day ignore safer idea alone	2
(d)	results would be different / inaccurate / changed / described difference / eq; escape; eaten; reproduce / eq;	ignore death	2

Question number	Answer		Marks
1 (e) (i)	number of named organism / number of <u>an</u> organism / number of <u>a</u> species / eq;	number of organisms = 0 allow amount as eq to number	1
	(ii) different types / different species / different organisms;		1
	(iii) (place) where an organism lives / (place) where organism lives described;		1
		Total	17

Question number	Answer	Notes	Marks
2	<p><u>mutation</u>;</p> <p><u>competition</u>;</p> <p>tail attractive (to female) / selected (by female) / chosen (by female);</p> <p>reproduce / mate / eq;</p> <p>offspring have larger/more colourful tails / pass on characteristic;</p> <p><u>gene/allele</u> (passed on / inherited);</p> <p>process continues / tail changes over time / evolution / eq;</p> <p>survival / fittest / <u>extinction</u>;</p>	<p>ignore camouflage</p> <p>allow points if predation discussed</p> <p>allow converse</p>	max 5

TOTAL 5 MARKS

Question number	Answer	Notes	Marks
3 (a) (i)	November <u>and</u> December;		1
(ii)	(grass / yew) 1. most months / 7 months /longest/longer duration / eq; 2. largest/highest count / highest/higher peak / most pollen / eq;	allow Mp1 for yew ignore many months	2
(b)	1. rain / precipitation / humidity; 2. temperature; 3. wind;	1. ignore weather / water / time of day / slide size / amount of jelly 3. ignor fans / eq	Max 2

(c)	<ol style="list-style-type: none">1. pollen tube;2. style;3. ovary;4. (pollen tube / male gamete into) ovule;5. male nucleus / male gamete / male sex cell;6. fertilisation / fertilised / fertilize / fuses / joins / eq;7. female nucleus / female gamete / female sex cell / ovum / egg;8. <u>ovary</u> becomes fruit;	<p>5. ignore pollen</p> <p>pollen fertilises the ovum = 2</p>	<p>Max 5</p>
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Question number	Answer	Notes	Marks
4 (a)	<p>S y axis scale linear and at least half grid;</p> <p>L line straight, neat and through points;</p> <p>A1 axes correct way;</p> <p>A2 axes labelled (time in) <u>months</u> + <u>% fire ant</u> (population);</p> <p>P points plotted accurately;</p> <p>K key shown;</p>	<p>no L if not to origin or beyond 30</p> <p>if bar graph no L and no P</p> <p>allow plots to within one square</p>	6
(b)	<p>1. killed / poisoned / eq;</p> <p>2. some have mutation / are resistant;</p> <p>3. reproduce / breed / mate /produce offspring;</p> <p>4. pass on gene / DNA / allele;</p> <p>5. pesticide degrades / washed away / some areas missed / eq;</p>	<p>1. ignore not survived</p> <p>2. ignore immune</p> <p>3. ignore generations / increase in number</p> <p>4. ignore pass on mutation unless defined / characteristic</p>	Max 3

(c)	<ol style="list-style-type: none"> 1. greater decrease in pest numbers / kills more ants / eq; 2. lasts longer / ant numbers stay low / eq; 3. no resistance; 4. no need to reapply; 5. specific / only kills pest / does not kill other living organisms / less effect on food chains / no bioaccumulation / eq; 	<p>ignore cheaper</p> <p>5. ignore less harm to people / environment / ecosystem / pollution</p>	Max 2
(d)	<ol style="list-style-type: none"> 1. quadrat / trap / jar / plate with food / eq; 2. several / average / repeat; 3. random; 4. count / number / how many / amount; 5. multiply to get total (for area); 	<p>quadrats = Mp1 and Mp2</p> <p>random samples = Mp2 and Mp3</p>	Max 4

Question number	Answer	Notes	Marks
5(a) (i)	(student B) 1. random / spread out / scattered / eq; 2. used 10 quadrats / repeated use of quadrats / several / eq;		2 max
(ii)	<u>number / all / total / amount</u> of named species / of a species / of one species;	number of species = 0 number of organisms = 0 number of same organism = 1 number of an organism = 1 Ignore group	1
(b) (i)	(student) B;		1
(ii)	(student) D;		1

Total 5 marks