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

TOTAL 5 MARKS

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

(c)	1. pollen tube; 2. st e; 3. ary; 4. (pollen tube / male gamete into) ovule; 5. m e nucleus / male gamete / male sex cell; 6. fertilisation / fertilised / fertilize / fuses / joins / eq; 7. femal nucleus / female gamete / female sex cell / ovum / egg; 8. <u>ovary</u> becomes fruit;	5. ignore pollen pollen fertilises the ovum = 2	Max 5

Question number	Answer	Notes	Marks
4 (a)	S y axis scale linear and at least half grid; L line straight, neat and through points; A1 axes correct way; A2 axes labelled (time in) <u>months</u> + <u>% fire ant</u> (population); P po nts plotted accurately; K key shown;	no L if not to origin or beyond 30 if bar graph no L and no P allow plots to within one square	6
(b)	1. killed / poisoned / eq; 2. me have mutation / are resistant; 3. reproduce / breed / mate / produce offspring; 4. pass on gene / DNA / allele; 5. pesticide degrades / washed away / some areas missed / eq;	1. gnore not survived 2. gnore immune 3. gnore generations / increase in number 4. gnore pass on mutation unless defined / characteristic	Max 3

(c)	1. greater decrease in pest numbers / kills more ants / eq; 2. lasts longer / ant numbers stay low / eq; 3. 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;	ignore cheaper 5. gnore less harm to people / environment / ecosystem / pollution	Max 2
(d)	1. adrat / trap / jar / plate with food / eq; 2. several / average / repeat; 3. andom; 4. count / number / how many / amount; 5. multiply to get total (for area);	quadrats = Mp1 and Mp2 random samples = Mp2 and Mp3	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