Question number	Answer	Notes	Marks
1 (a)	S scale linear and at least half grid; L lines neat and through points; A1 axes correct way round; A2 axes labelled temperature and midpoint/period/year; U °C; P 1795 and 1995 plotted correct;	annotate using the letters provided extrapolation loses P mark	6
(b)	695-1720;		1
(c) (i)	water vapour / carbon dioxide / nitrous oxide / methane / CFCs / ozone;	allow any oxide of nitrogen	1
(ii)	traps heat / reflects infra red / reflects long wave radiation / contributes to global warming / eq;	ignore contributes to greenhouse effect	1
(iii)	1. burn g / combustion / eq; 2. ssil fuels / coal / oil / gas; 3. rs / planes / factories / trains / power stations / eq; 4. ttle farming / rice farming; 5. forestation; 6. idges / aerosols (CFCs);	 ignore petrol	3

Total 12 marks

Question number	Answer	Notes	Marks
2 (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
2 (e) (i)	number of named organism / number of an organism / number of a 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
3 (a)	1. individual fish) can control size / age / mass / species / growth / faster production / grow faster / control health / control disease / control protein content / control feeding / control quality of fish; 2. can s ectively breed / genetically modify; 3. reduce overfishing / does not reduce wild stocks / sustainable / less risk to food chains / less chance of catching other species / less chance of catching rare fish / prevent extinction; 4. hig yield / large numbers of fish / guaranteed harvest / regular supply / available all year; 5. sa r / less risk for fishermen / eq;	ignore cheaper 4. ignore ess time consuming / easier to catch	Max 2

(b)	(i)	fewer pathogens / bacteria / algae / less eutrophication / less fertiliser / less sewage / less human waste / less faeces / less chance of disease / less chance of infection / eq;	ignore cleaner / less minerals / less waste / less pollutants / less contamination	1
	(ii)	1. humans do not want to eat antibiotics; 2. passes along food chain / bioaccumulation; 3. less chance of (bacteria) resistance;	ignore safer to eat / cost / rivers / environment	Max 2

Question number	Answer	Notes	Marks
3 (c) (i)	37.9 / 38 / 38.0 %;;	allow if in table allow one mark for 1.1 as numerator / 2.9 as denominator in working / 37.93;	2
(ii)	C traditional and new type of farm; O (waste from) same species / same fish / same number / mass / age / size / same size of fish farm / eq; R repeat experiment; M1 (what is measured): mass of algae / mass of pondweed / oxygen level / CO_2 level / nitrate level / phosphate level / mineral level / turbidity / biodiversity / number of species / number of fish / number of organisms / eq; M2 same time of day / same time of year / each month / same length of sampling time / eq; S1 same mass of food (in farm / tank) / same type of food / same diet / same antibiotics; S2 same distance from farms / same depth in water / same light / temperature;	allow amount	Max 6