

Question number	Answer	Notes	Marks
1 (a)	1. housing / building / construction / eq; 2. agriculture / farming / farming cattle / palm oil plantations / eq; 3. transport / roads / railways / eq; 4. king furniture / making paper; 5. refuel / cooking / charcoal / to burn / eq;	ignore for logs / wood / employment	2
(b) (i)	1. less oxygen / more carbon dioxide / eq; 2. (less) photosynthesis; 3. more burning;		2
(ii)	1. soil erosion / less roots to hold soil in place / loose soil; 2. leaching / loss of minerals / loss of nutrients / loss of fertility / eq;		2

(c)	1. laws to protect / prevent / limit deforestation / make deforestation illegal / eq; 2. replant / replace each tree felled / plant more trees / use sustainable wood sources / eq;		2
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Total 8 marks

Question number	Answer	Notes	Marks
2 (a)	1. lower production / fewer fruit / less growth / eq; 2. (fewer) chloroplasts / less chlorophyll; 3. (less) photosynthesis; 4. (less) carbohydrate / glucose / starch;		3
(b) (i)	1. variation; 2. mutation; 3. rare / random; 4. survive / not killed; 5. reproduce / mates; 6. pass on <u>gene</u> / <u>allele</u> / eq;	4. Ignore resist 6. Ignore characteristic	4
(ii)	inside leaf / not reach all parts / eq;		1
(c)	<u>biological</u> ;		1
(d)	1. no sperm / less reproduction / less breeding / eq; 2. fewer eggs/females fertilised / fewer larvae; 3. sterile male compete for resources / mates;		2

Question number	Answer	Notes	Marks
(e)	<p>C plus pheromone/smell and minus pheromone/smell / traps in field / no traps / eq;</p> <p>O same species of insect/males (trapped) / same species/size of crop / eq;</p> <p>R several traps / repeat / many fields;</p> <p>M1 count number trapped / measure damage / measure yield / eq;</p> <p>M2 time period <u>stated</u>;</p> <p>S1 and S2 same temperature / light / water / time of year / location/size of field / number of plants / size of trap / eq;;</p>		6

Total 17 marks

Question number	Answer	Notes	Marks																		
3 (a) (i)	removal/loss/cutting down of trees/ forest / eq;		1																		
(ii)	idea of more CO ₂ / eq; (less) photosynthesis; idea of less O ₂ / eq;		3																		
(b)	<table border="1"> <thead> <tr> <th>Gas</th> <th>Source</th> <th>Effect on the environment</th> </tr> </thead> <tbody> <tr> <td>methane</td> <td>(cattle farming)</td> <td>greenhouse effect / global warming / eq;</td> </tr> <tr> <td>(water vapour)</td> <td>(combustion)</td> <td>greenhouse effect / global warming / eq;</td> </tr> <tr> <td>sulphur dioxide / nitrogen oxides;</td> <td>(burning fossil fuels)</td> <td>(causes acid rain)</td> </tr> <tr> <td>carbon monoxide;</td> <td>(incomplete combustion)</td> <td>(affects transport of oxygen in blood)</td> </tr> <tr> <td>(CFC)</td> <td>(refrigerators and air conditioning units)</td> <td>affect ozone layer / greenhouse effect / global warming / eq;</td> </tr> </tbody> </table>	Gas	Source	Effect on the environment	methane	(cattle farming)	greenhouse effect / global warming / eq;	(water vapour)	(combustion)	greenhouse effect / global warming / eq;	sulphur dioxide / nitrogen oxides;	(burning fossil fuels)	(causes acid rain)	carbon monoxide;	(incomplete combustion)	(affects transport of oxygen in blood)	(CFC)	(refrigerators and air conditioning units)	affect ozone layer / greenhouse effect / global warming / eq;	<p>Allow increase in temperature</p> <p>Ignore rain</p> <p>Ignore carbon dioxide</p>	5 max
Gas	Source	Effect on the environment																			
methane	(cattle farming)	greenhouse effect / global warming / eq;																			
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sulphur dioxide / nitrogen oxides;	(burning fossil fuels)	(causes acid rain)																			
carbon monoxide;	(incomplete combustion)	(affects transport of oxygen in blood)																			
(CFC)	(refrigerators and air conditioning units)	affect ozone layer / greenhouse effect / global warming / eq;																			
			Total 9 marks																		

Question number	Answer	Notes	Marks
4 (a) (i)	burning fossil fuels / biomass / plants / wood or factories / industry / power stations or exhaust fumes / car/petrol/diesel engines or fertiliser / denitrification / decomposition of manure / sewage treatment;		Max 1
(ii)	water <u>vapour</u> / CFCs / Ozone ;		1

(b)(i)	$94.3 \div 590.3 = 16.0 / 15.97;;$ ignore negative sign	allow one mark for 15.975 / 15.9749 / 15.97493 / 15.974928 allow one mark for 94.3 or $\div 590.3$ in working (15.9 Not correct but look for working mark)	2
(ii)	1. planting of trees / less deforestation / eq; 2. less burning of fossil fuels / eq; 3. fewer cars / public transport / more efficient cars / hybrid cars / electric cars / cycling / walk more / eq; 4. legislation; 5. renewable energy / wind farms / wave energy / solar energy / low power lighting / nuclear fuels / eq;	3. ignore catalytic converters / carbon neutral 4. eg congestion charge 5. ignore less electricity / less energy	Max 3

(iii)	<ol style="list-style-type: none">1. decreased by 2.5 (million tonnes) / decrease is more than half / 2.1 is less than half / decreased from 4.6 to 2.1 / eq;2. large decrease between 1990 and 2005 / eq;3. small decrease between 2005 and 2010 / eq;		Max 2
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Question number	Answer	Notes	Marks
(c)	1. reduce <u>greenhouse effect</u> / less heat reflected / less heat re-radiated / less heat trapped; 2. less global warming / less temperature rise; 3. less ice caps melt / rise in sea level / flooding; 4. less habitat destruction / less coral destruction / eq; 5. less death / extinction / affect food chain; 6. less migration / change in distribution; 7. less climate change / less extreme weather / less desertification / drought / soil erosion / eq;	4. ignore loss of home	Max 5

Total 14 mark