Question number	Answer	Notes	Marks
1(a) (i)	A combustion / burning / eq; B respiration; C photosynthesis; D death / decay / decomposition / rotting / eq; E respiration;		5
(ii)	C;		1
(b)	1. global warming / earth warms / atmosphere heats up / temperature rises / traps heat / eq; 2. ice caps melt / eq; 3. flooding / rise in sea level; 4. climate change / extreme weather / hurricanes / drought / eq; 5. habitat destruction / desertification / eq; 6. extinction / disruption of food chains / loss of species; 7. migration / distribution of organisms / distribution of pests / spread of disease / affects plant growth;	Mp6 ignore death of organisms	4 max

(c)	1. burn less fossil fuels / drive less cars / use hybrid cars / use public transport / cycling / low energy light bulbs / eq; 2. plant more trees / reduce deforestation; 3. use renewable energy / wind / solar / wave / nuclear / eq; 4. reduce cattle farming / fewer paddy fields / less aerosols / eq;	Ignore catalytic converters	2 max

Total 12 marks

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>2 (a) (i)</td><td>(-)10.62 / (-)10.6;;
allow one mark for 9.76 or 1.16 in working however used</td><td>ignore minus sign
ignore additional decimal places</td><td>2</td></tr>
<tr><td>(ii)</td><td>idea of <u>less</u> oxygen /eq;
(less) respiration / energy;
low yield / less growth / smaller fish / eq;</td><td>ignore idea of high oxygen needed for growth
ignore death
ignore number</td><td>Max 2</td></tr>
<tr><td>(b)</td><td><table><tr><th>Method</th><th>method increases fish production</th></tr><tr><td>adding antibiotics to the water</td><td>control disease / kill bacteria / parasites / pathogens / eq;</td></tr><tr><td>using nets to cover tanks</td><td>protect fish being eaten by predators / named predator / prevent escape;</td></tr><tr><td>feeding small quantities of food frequently</td><td>all eaten / no waste / no decay / less eutrophication / less bacterial growth / eq;</td></tr></table></td><td>ignore competition
ignore ref to energy / nutrients ignore overfeeding
ignore pollution</td><td>3</td></tr>
</table>

(c)	digested / broken down; amino acids / (poly)peptides; stomach; protease / named protease enzyme (ONCE); HCl / acid / low pH / eq; small intestine / duodenum / ileum; bile / neutralise /alkaline / eq; optimum pH (ONCE)	ignore pepsinogen / trypsinogen accept name of enzyme if in incorrect part of gut	Max 5

Total 12 marks

Question number	Answer	Marks
3 (a) (i)	oxygen; respiration / energy; active uptake;	Max 2
(ii)	no light / keep dark; roots; (no) photosynthesis; (growth) water plants / algae;	Max 2
(b) (i)	any answer in the range 105 to 125; any answer in the range 80 to 95;	2
(ii)	repeat / eq;	1
(iii)	temperature; light; carbon dioxide; humidity; volume of solution / liquid; Ignore water ion concentration;	Max 2
(c)	(nitrates) soluble / dissolve; rain / water / run off; leaching / leached; algal growth / plant growth / algal bloom / eq; block light / sun / eq; plants die / less photosynthesis / eq; less oxygen / anoxic / eq; bacteria / fungi; decomposers / decomposition / rot / decay / eq; respiration; fish / animals die; eutrophication;	Max 6

Total 15 Marks