Human Influences on the Environment

Mark Scheme 5

Level	IGCSE(9-1)
Subject	Biology
Exam Board	Edexcel IGCSE
Module	Single Award (Paper 2B)
Topic	Ecology and the Environment
Sub-Topic	Human Influences on the Environment
Booklet	Mark Scheme 5

Time Allowed: **48 minutes**

Score: **/40**

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)	1. (waste) milk; 2. more bacteria (growth) / more microorganism (growth); 3. use of more oxygen / eq;	Reference to the word more must be present ONCE in 2 or 3	2
(b)	1. concentration / strength / dilution / volume / mass released; 2. temperature / light; 3. speed of river flow; 4. nitrate content of pollutant / bacterial content of pollutant;	Ignore quantity / amount	1
(c)	protein / amino acids / lipid / fat / carbohydrate / lactose;	Allow casein Ignore minerals / vitamins / sugar	1
(d)	1. raw has higher B.O.D. / less oxygen available / more oxygen used; 2. more bacteria/microorganisms (in raw sewage) / eq; 3. more respiration; 4. raw sewage has more nutrients / organic material / eq;	Allow converse 2. Ig re organisms	2

Total 6 marks

Question number	Answer	Notes	Marks
2	1. microorganisms / bacteria / viruses / fungi / eq; 2. faeces / urine / urea / named nitrogenous waste; 3. respiration; 4. oxygen ; 5. leaching 6. nitrate / phosphate / potassium /ammonium; 7. algae / plants / producers / eq;	Ignore nitrogen / ammonia	7
			Total 7 marks

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>3 (a)</td><td>
<table>
<tr><th>Description of stage</th><th>Name of stage</th></tr>
<tr><td>Heat from the sun causes liquid water to change into water vapour</td><td>evaporation</td></tr>
<tr><td>Water vapour in the air changes back into liquid water</td><td>condensation;</td></tr>
<tr><td>The liquid water falls to the earth</td><td>precipitation / rain(fall) / snow;</td></tr>
<tr><td>loss / evaporation / diffusion of water from leaves / plant / stomata;</td><td>transpiration</td></tr>
</table>
</td><td>ignore guard cells.

water loss and plant needed for the mark</td><td>3</td></tr>
</table>

Question number	Answer	Notes	Marks
3 (b)	1 (more) bacteria / ungi / microbes / microorganisms; 2 deco position / decompose(rs); 3 respiration; 4 (less) oxygen; 5 fish d e / animals die; 6 mineral ions / named mineral ion / nutrients 7 plant growth / algal bloom / eq; 8 eutro hication;	ignore disease ignore plant death; ignore blocking light / less photosynthesis	4
		Total	7

Question number	Answer	Notes	Marks
4 (a)	A evaporation; B transpiration; C precipitation / rain / snow / eq;		3
(b)(i)	1. less transpiration / less water loss from plants / eq; 2. less loud formation / condensation; 3. less precipitation / rain / less water falls on the ground / eq;	1. Ig re water remains in soil 2. Ig re humidity	Max 2
(ii)	1. (less) photosynthesis; 2. more carbon dioxide in air /less carbon dioxide absorbed; 3. less consumption of plants / eq; 4. less decomposition / decay; 5. burning of trees produces carbon dioxide;		Max 4

Question number	Answer	Notes	Marks
5 (a)	adenine / thymine / guanine / cytosine;	ignore A, T, G and C	1
(b)	1 (kill) bacteria / (kill) pathogens / fungi / microbes / viruses / eq; 2 prevent disease / prevent infection / prevent spread of disease / prevent spread of infection; 3 affect growth (of explant) / (less) competition (for minerals);	allow remove bacteria / get rid of bacteria / eq	max 2
(c)	protein / enzymes / named protein;	ignore other molecules - DNA	1
(d)	organism / bacterium / virus / fungus that causes disease / infection;	ignore harm / illness	1
(e)	1 identical / clones / all same / no variation / eq; 2 large quantities / more / high yield / eq; 3 fast / faster / eq; 4 free from disease / free from pathogens / eq; 5 all year production / prevent extinction / eq;	ignore quality and characteristics being controlled ignore cost /cheaper ignore conservation	max 2

Question number	Answer	Notes	Marks
(f)	never runs out / renewable / can be replaced / can be grown again / unlimited supply / eq;	ignore never dies out ignore reproduced ignore reused	1
(g)	1 leaching / eutrophication / run off / eq; 2 soil erosion / flooding / eq; 3 rain(fall) / water cycle effect / less transpiration / drought / desertification / eq; 4 global warming / greenhouse (effect) / (more) CO_2 in air / less CO_2 removed / eq; 5 loss of medicinal plants / eq;	ignore extinction / food chain effect ignore loss of habitat ignore loss of species / less biodiversity ignore climate change ignore loss of wood resource ignore aesthetic appearance	max 3
		Total	