20. Human influences on ecosystems

20.2 Habitat destruction

Paper 3 and 4

Marking Scheme

Q1.

(a)(i)	*any three from:* 1 (increased area for) housing / urbanisation / industry / factories / buildings ; 2 roads / railways / infrastructure / building dams ; 3 livestock production / AW ; 4 extraction of, (named) natural resources / mining ; 5 freshwater / marine, pollution ; 6 climate change / global warming ; 7 AVP ;	3	 MP3 **A** more meat consumption MP5 **A** acid rain MP7 e.g. natural disaster / war / flooding

(a)(ii)	*any three from:* 1 increased yield ; 2 less space required ; 3 cheaper, production / labour cost OR more profit / AW ; 4 easier harvesting ; 5 fertiliser / pesticides, applied (to all) at the same time OR same, fertiliser / pesticide, is used ; ora 6 AVP ;	3	
(b)	*any two from:* monitoring or tagging / protection, of species ; legislation / law / prevent (over) hunting / prevent poaching ; seed banks / zoos ; captive breeding programmes ; education ; removal of introduced species ;	2	
(c)	**A** ; **A** ; **B and D** ;	3	 either order
(d)	the number of (different) <u>species</u> ; that live in an area ;	2	
(e)	*any one from:* replant when trees are removed / AW ; do not cut down too many trees (at once) ;	1	

Q2.

(a)(i)	(from) 1800 (to) 1900 ;	1	
(a)(ii)	(percentage land used for housing) increases ;	1	
(a)(iii)	1970 ;	1	

(b)	*any three from:* reducing biodiversity ; disruption of food webs and chains ; habitat destruction ; extinction ; loss of soil / soil erosion ; flooding ; increased carbon dioxide in, atmosphere / air ; AVP ;;	3	 e.g. enhanced greenhouse effect / global warming / climate change *ref. to* change in rainfall patterns
(c)	*any one from:* overharvesting (aquatic species) ; (named) pollution / effect of sewage ; mining / extraction of (named) resources / dredging ; (non-biodegradable) plastics ; AVP ;	1	 e.g. tourism / change in temperature (of water)

Q3.

(c)	increase (in carbon dioxide concentration) ; *idea of* (because there is) less photosynthesis ;	2	

Q4.

(c)	*any three from:* voice deepens / AW ; shoulders broaden ; growth spurt / AW ; sexual organs enlarge ; sperm, production / release ; (increased) production of testosterone ; facial hair grows ; pubic / body / underarm, hair grows ; increase in, muscle / bone (mass) ; AVP ;	3	

Q5.

(a)(i)	deforestation ;	1
(a)(ii)	*any two from:* increased area needed for plant crop production ; increased area needed for livestock production ; housing / urbanisation ; extraction of natural resources ; AVP ;;	2

Q6.

(a)	kill / remove, pathogens / microorganisms ; to make it safe to, use / drink ; prevent disease ; to remove, toxic waste / nitrate pollution ; it can harm species in, river / sea / oceans ; AVP ;	2	
(b)	screening ; primary treatment ; secondary treatment ; separation ; aeration ; settlement / sedimentation ; anaerobic / sludge, digestion ; disinfection / chlorination / UV light ; AVP ;	1	
(c)(i)	microorganism / AVP ;	1	
(c)(ii)	decompose / digest / breakdown, (sewage) ;	1	

Q7.

(c)(i)	habitat destruction ; extinction : soil erosion ; flooding ; AVP ;; e.g. landslides / leaching / disruption to food chains or webs or loss of food source / desertification	2	
(c)(ii)	agriculture ; mining / extraction, of resources ; building, houses / factories / industries ; building, transport links / roads ; AVP ; e.g. paper production	2	
(d)(i)	10662.4 ;;	2	A 10662 ecf incorrect total ÷ 5 max one mark
(d)(ii)	deforestation is decreasing / less areas of forest are being removed ;	1	
(d)(iii)	ref. to, education / awareness ; protecting areas / national parks ; legislation ; AVP ;; e.g. idea of alternative, sources of energy used / resources	2	ecf if wrong trend in 5d(ii)

Q8.

(b)(i)	*any three from:*
	1 (total) number of fires in natural ecosystems is higher than (total) number of fires in managed land
	   or
	   idea that the savannah (alone) has more fires than the (total) fires in managed land ;
	2 fires on managed land, have a lower expansion rate / spread more slowly (than other fires) ;
	3 fires on managed land, have a shorter duration / last less time (than other fires) ;
	4 more fires on land being deforested than in natural forest ;
	5 comparative data quote (with units at least once) ;
	
	6 AVP ;
		3	MP5 e.g. approx. 20% of all fires occur on land managed by humans

(b)(ii)	multiply ; number of fires by expansion rate by duration (for each row) ;	2	

(b)(iii)	*any three from:* 1 reduction in population sizes of organisms ; 2 organisms / animals / plants, become endangered ; 3 organisms / animals / plants, become extinct ; 4 loss of biodiversity ; 5 loss of genetic diversity ; 6 ref. to negative effect on, food chains / food webs ; 7 ref. to negative effect on, nutrient / water, cycling ; 8 AVP ;	3	e.g. migration of organisms / flooding / soil erosion / leaching / desertification

Q9.

(b)	*any three from:*	3	
	1 no roots, to absorb water / bind soil / hold soil together ; 2 *idea of:* no canopy / AW, to protect (soil) from rainfall ; 3 increase in run off / AW ; 4 ref. to soil erosion ; 5 loss of, mineral content / ions / nutrients / AW, in the soil ; 6 flooding (in the valleys) ; 7 landslides / mudslides ; 8 ref. to visual pollution / dead tree stumps / bare ground / AW ; 9 loss of biodiversity / disruption of food chains / disruption of food webs / (species) extinction ; 10 AVP ;		

Q10.

(c)	*any three from:*	3	*examples of named threats:* (micro)plastics / litter / sewage / fertilisers / effluent / (named) introduced / alien species / escaped farmed fish / genetically modified fish / (over)fishing / hunting / cyanide fishing / bomb fishing / (named) chemical / nuclear, pollutants / (named) development in sea / coast / (named) development in sea / coast / shipping / (named) tourism
	1 named threat ; 2 **and** 3 detail of how it is a threat to aquatic ecosystems ;; 4 another named threat ; 5 detail of how it is a threat to aquatic ecosystems ;		*examples of detail of threat:* habitat destruction / toxic to (aquatic) organisms / chokes / strangles / traps / blocks digestive systems (of aquatic animals) / accumulates in an organism / passes down a food chain / eutrophication / algal bloom / feminisation of fish / acidification of water / sedimentation in water