



2014 Managing Environmental Resources

Higher

Finalised Marking Instructions

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Part One: General Marking Principles for: Managing Environmental Resources Higher

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

- (a)** Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor.
- (b)** Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

GENERAL MARKING ADVICE: Managing Environmental Resources Higher

The marking schemes are written to assist in determining the “minimal acceptable answer” rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates’ evidence, and apply to marking both end of unit assessments and course assessments.

Part Two: Marking Instructions for each Question

Section A

Question			Expected Answer(s)	Max Mark	Additional Guidance
1	(a)	(i)	B&B and holiday cottages/Ostrich rearing/Steading conversion/replanting woodland	1	Any two
1	(a)	(ii)	To increase income/farming alone not paying/subsidising farming/EU grants	1	
1	(a)	(iii)	Provision of a buffer zone alongside river/ mixed woodland with replanting/stubble left in fields/no ploughing on steep slopes/no overgrazing + Prevents eutrophication/increases habitat/ food source/ shelter for wildlife/prevents erosion which would disturb habitat/food sources	1	Must provide reason
1	(a)	(iv)	Organic farming/crofting	1	
1	(a)	(v)	Diesel/LPG/petrol/biofuel/oil + from crude oil	1	Both Not biomass/fossil fuels
1	(a)	(vi)	Fertiliser – increases yield/improves crop production + overuse can lead to eutrophication Pesticide – increases yield/protects crops from pests + overuse can lead to bioaccumulation Herbicide/fungicide – increases yield/prevents competition from weeds + can be non-selective/affects food supply for wildlife	2	Must have advantage and disadvantage Must provide biological terms or detailed description
1	(b)	(i)	Landowners have a responsibility to reduce the spread of non-native/introduced species which outcompete native species/lowers biodiversity	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
1	(b)	(ii)	Polluters must ensure that they address any pollution issues and they must pay to restore situation to normal if they do not achieve this	1	
1	(c)		Example from table + more biomass products to help reduce fossil fuel use/ improve carbon footprint + reduces production of traditional crops/less food grown	1	
1	(d)	(i)	Increasing	1	
1	(d)	(ii)	Much larger in Germany Reason – larger amount of forestry/more trees planted compared to UK/UK uses more of other sources of energy	2	1 for comparison and 1 for reason
1	(d)	(iii)	Wind	1	
2	(a)		Pie chart completed accurately and labelled correctly	1	Must be accurate + labelled/key
2	(b)	(i)	Ratio 1:7	1	
2	(b)	(ii)	Number of mobile only households will increase/ratio will decrease + Increased demand for natural resources used in mobile phone manufacture may result in more environmental damage obtaining resources/increased price of resources	1	Both
2	(c)	(i)	Life cycle analysis/LCA	1	
2	(c)	(ii)	Impact on natural resources/dealing with waste/transport	1	Any two – not energy

Question			Expected Answer(s)	Max Mark	Additional Guidance
2	(d)		More mobile phone recycling/donate to charity for reuse/change mobile less frequently/share devices	1	
2	(e)	(i)	Recycling copper/use of waste to produce other products or example such as tailings	1	Any two
2	(e)	(ii)	Non-renewable resource – it is finite/cannot be replaced Manufacture – has been processed from ore /purified	2	All four correct 2 marks 2/3 correct 1 mark
2	(e)	(iii)	Smelting/refining + large quantities of energy required/large use of fossil fuels Transport/mining + involves use of fossil fuels producing emissions/produce emissions contribute to climate change or greenhouse gases or acid rain	2	1 for naming two stages 1 for reason
3	(a)		98.86/98.9	1	Not 99%
3	(b)	(i)	Red squirrel and golden eagle/pine marten	1	Both
3	(b)	(ii)	Mouse/vole/capercaillie + wildcat and pine marten/golden eagle	1	
3	(b)	(iii)	C	1	
3	(c)		Movement/heat/undigested waste or an example	1	Not respiration/faeces /reproduction
3	(d)	(i)	Keystone species – one which supports a lot of other wildlife species	1	
3	(d)	(ii)	Leave dead trees in situ/legislation/provide nest boxes/plant more Scots Pine	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
3	(d)	(iii)	Bill curved/crossed to aid access to pine cones to remove seeds	1	Not to break wood
3	(d)	(iv)	Mutualism	1	
3	(e)	(i)	Death of/reduction in number of seedlings by sheep grazing/trampling by humans/ burning of heather or muir burn/washed or blown away	1	Must provide explanation
3	(e)	(ii)	Density dependent factors – space/light/ nutrients/water	1	Any two Not pH
3	(f)		Carrying capacity – max number of individuals that can be supported by a given environment + Homeostasis	2	
4	(a)	(i)	Winter – respiration Spring – photosynthesis Autumn – decomposition	1	All three
4	(a)	(ii)	CO ₂ + H ₂ O and O ₂ + sugar/carbohydrate/ starch/glucose OR word equation	1	
4	(a)	(iii)	Summer + when most sunshine/high light density, so creates most carbohydrate	1	
4	(a)	(iv)	Detritivores	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
4	(b)		Fungi and bacteria (1) + Role to break down organisms chemically/ using respiration (1) Recycle nutrients/release carbon dioxide (1)	3	Both for 1 mark 1 mark each
4	(c)	(i)	Managing woodland/providing facilities or named facility eg pathways, recreation areas/litter/noise	1	Any three – not necessarily taken from diagram
4	(c)	(ii)	Climax community	1	
4	(c)	(iii)	Check to see if they are endangered/ causing problems to the community/possibly indicator species	1	
4	(c)	(iv)	Composting/litter collection/sorting for recycling/energy efficiency scheme	1	Any two
4	(c)	(v)	Give talks/tours around park on wildlife / conservation, encourage care of park eg litter	1	
4	(c)	(vi)	Rare plants/animals found in an area/ unusual habitat/ high biodiversity	1	
5	(a)	(i)	Saw wrack	1	
5	(a)	(ii)	Channelled wrack found at high tide mark so has to survive longest out of water. Shown by results with 23% at high tide mark	1	Must refer to results
5	(a)	(iii)	Quadrat	1	Not transect
5	(a)	(iv)	Wind speed or direction/wave action /oxygen concentration/salinity/water temperature or pH/light intensity	2	Any two Not tide
5	(a)	(v)	Must indicate that measurement of abiotic factor is done under the same conditions eg same instrument/same person doing measurement/same depth or height/time of day	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
5	(b)		Provide litter bins/litter collection/LA clean ups/bye laws/legislation/fine shipping companies/signs/education	1	Any two
6	(a)	(i)	RSPB + SSSI/NNR/RSPB reserve/Cairngorm national park	1	
6	(a)	(ii)	Recreation/leisure/forestry/agriculture/towns /settlements/transport/housing	1	Any three
6	(a)	(iii)	<p>Advantage – increased income from publicity/exposure of park to visitors/jobs/scenery</p> <p>Disadvantage – more congestion on roads/ more litter or graffiti or noise problems/difficulties with planning permission/local housing prices</p>	2	
6	(a)	(iv)	Glaciation/deforestation/afforestation/ sporting estates/Clearances/agriculture/urbanisation	1	Any two
6	(b)		Limit number of/time spent by visitors/ maintain pathways to limit the amount of trampling by visitors to the area/fencing off areas/education of visitors	2	Any two
6	(c)	(i)	SNH	1	
6	(c)	(ii)	Support windfarm/renewable energy developments/use of forestry products and waste/support sustainable access to areas of scenic or recreational value/ eco/housing	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
7	(a)		Label (tonnes in 2010) and scale correct on y axis + Data added	2	Must include zero Distinct, bold lines for data Bars of equal width
7	(b)		Increase as demand increases or stays the same or decreases as more constraints put on production	1	Reason must back up choice
7	(c)		Could cause increased plant growth/greater O ₂ demand/eutrophication + cause death of certain species/decrease biodiversity/disrupt aquatic community	2	
7	(d)		Fish farmers and anglers or fish farmers and netters Conflict over escapes/pollution + Resolution – separate/clearly defined locations/ban fish farming/use quotas/monitoring of fish health	2	
7	(e)		SEPA	1	
7	(f)	(i)	Mainly on west coast and islands + Sheltered inlets/many inlets/sea lochs/ extensive coastline	1	Both
7	(f)	(ii)	Mussels Northern Isles + scallops Highland		Both
7	(f)	(iii)	Transport to markets + use refrigerated lorries	1	
7	(f)	(g)	Social – creation of jobs/improved local facilities/increase tourism Economic – more money to local economy Aesthetic – visual pollution of cages	2	One or two – 1 mark All three – 2 marks

Section B

Question			Expected Answer(s)	Max Mark	Additional Guidance
8	A	(a)	<p>initiatives at local level;</p> <p>Named examples</p> <p>Reference/description of the role of the Local Authority and its role in local environmental protection.</p> <p>Description of the contribution made to environmental protection – described fully. Examples from the following:</p> <ul style="list-style-type: none"> • LBAP for a particular habitat/named species – allows monitoring of endangered species/ communities/protection from humans or specific answer eg protecting nesting sites of Golden/Sea Eagle from nest robbers/ collaboration between various agencies to achieve best outcome • tree planting schemes/community woodland – provides new habitats/ shelter/food sources/nest sites for wildlife, involves local people in protection/ education • recycling schemes for litter/glass/metal/garden waste – saves use of finite resources • fines for fly tipping reduces impacts of dumping • landfill impacts on landscape/wildlife – methane emissions and link to global warming/toxic leachate and damage to soil or pollution of waterways/loss of habitats or food sources • local voluntary schemes eg sustainable gardens/ river clean ups 	5	There may be other acceptable answers

Question			Expected Answer(s)	Max Mark	Additional Guidance
8	A	(b)	<p>national legislation;</p> <p>Named examples</p> <p>NB Do not need to include year of legislation</p> <p>Description of the contribution made to environmental protection – described fully. Examples from the following:</p> <ul style="list-style-type: none"> • Wildlife and Countryside Act – protects certain plants/animals/specific examples. • Town and Country Planning Act – controls areas for development for building/greenfield sites so protects habitats/landscape features. • Landfill Tax – helps to encourage recycling/less rubbish to landfill so fewer habitats or wildlife affected/tax re-invested in conservation. • National Parks and Access to the Countryside Act – protection for selected scenic areas limiting their development/access to the country-side with responsibilities on both land owners and the public to protect environment. • Any other acceptable piece of legislation. 	5	
8	A	(c)	<p>policies of the European Parliament</p> <p>Named examples</p> <p>Examples: CAP/CFP</p> <p>Description of the contribution made to environmental protection – described fully.</p> <ul style="list-style-type: none"> • CAP – changing farming practices towards involving environmental protection or habitat creation/reduced area of land in production/ schemes such as set aside encouraged through monetary incentives/controlled use of pesticides/fertilisers/herbicides to prevent damage to wildlife. • CFP – use of TACs/specific net sizes/exclusion zones to limit the fish caught and protect viable populations of fish. <p>NB Definition of sustainable development/ sustainable use of resources – 1 mark only.</p>	5	
				15	

Question			Expected Answer(s)	Max Mark	Additional Guidance
8	B	(a)	<p>international conferences on the environment;</p> <p>Two named examples</p> <p>Examples – UNCED/Kyoto/any other acceptable answer.</p> <p>Description of the contribution made to reducing the impact of fossil fuels.</p> <ul style="list-style-type: none"> • Limit or target set on greenhouse gas emissions from fossil fuels/achieved by reducing fossil fuel use or examples or more use of renewables/aim to reduce greenhouse gas production or global warming or climate change. • Setting targets to improve contribution from renewable resources/emphasis on increasing use of renewable resources or named renewables reduces reliance on fossil fuels. 	5	
8	B	(b)	<p>legislation such as the Scottish Renewables Obligation (SRO);</p> <p>Two named examples</p> <p>Examples: SRO/Landfill Tax/Clean Air Act</p> <p>Description of the contribution made to reducing the impact of fossil fuels.</p> <ul style="list-style-type: none"> • Commitment to provide more energy from renewable resources. • Investment in wind, tidal, wave, solar energy. • Alternatives to landfill such as recycling/reduce and reuse. • Use of tax for local improvements. 	5	

Question			Expected Answer(s)	Max Mark	Additional Guidance
8	B	(c)	<p>Local Authority initiatives.</p> <p>Two names examples</p> <p>Examples: energy efficiency schemes/tree planting/recycling.</p> <p>Description of the contribution made to reducing the impact of fossil fuels.</p> <p>Reducing environmental impact:</p> <ul style="list-style-type: none"> • less use of non-renewable resources/greater use of renewables • less disturbance of wildlife/habitats during exploitation • less change in the landscape due to dumping of waste eg, coal tips • less air pollution • less greenhouse gases/impact on greenhouse effect • stabilising global warming <p>NB Definition of sustainable development/ sustainable use of resources – 1 mark only</p>	5	
				15	

Question		Expected Answer(s)			Max Mark	Additional Guidance
9	A	Discuss the positive and negative impacts of land use change resulting from urbanisation and transport developments, and how the impacts of these changes are controlled and/or managed.			15	
		Example	+ve and -ve impacts	Reducing or controlling impacts		
		Loss of land from agriculture/ forestry/ woodland/ conservation area/greenfield site/industrial site	+ve Advantages for humans — housing, businesses, amenities, new industry, tourism, faster transport, improvements in scenic value, conservation improvements, new habitats created, more tree planting, re-use of brownfield sites, restoration of sites	Any three if the following explained in relation to the control or management of land use change/ specific example of land use change. <ul style="list-style-type: none"> • Legislation and planning controls • Use of environmental impact assessment • Public consultations • Liaison with statutory agencies eg, SNH and voluntary agencies 		
		Gain of land for new housing/ amenities/ business/ industrial site/hotels/ sports centres/ out of town shopping centre/ revival of town centre	-ve Disadvantages for landscape/ wildlife/rural or traditional activities, reduces scenic value, increased pollution from transport, cost to taxpayer.	Local or national examples to be given credit		
		For transport Gain of land for new road/ motorway/ extension of road, bypass extension to airport/airport facilities/new rail tracks/reopening of old tracks				
Maximum 10 marks or each example and impact			Maximum 5 marks			

Question		Expected Answer(s)			Max Mark	Additional Guidance
9	B	Discuss the impacts of leisure and recreational activities on a named area of land or water and ways in which the impact of these activities are controlled and/or managed.			15	Do not award mark for naming area if candidate then gives examples of both land and water activities
		Recreational/leisure activity	Impact	Reducing/controlling impact		
		Land				
		Land area named 1 mark				
		Hill walking/rock climbing	Damage to landscape or wildlife.	Restricted access.		
		Skiing/mountain biking	Damage to landscape in creation of runs/ providing access to runs.	Designated areas.		
		Caravans/touring vans	Litter pollution damaging wildlife when eaten.	Restricted access/ designated sites/ provision of waste disposal facilities.		
		Horse riding	Trampling damages wildlife.	Guided tracks/ rides.		
		Golf	Land use change may be +ve or -ve eg, destruction of habitat/disturb wildlife or provide new habitats to attract wildlife.	Agreed planning for site with LAs or landowners /protection agreed with statutory/ voluntary agencies.		
		Shooting / clay pigeon shooting/ stalking	Answers as for Golf above	As above restricted access /timing/season/ monitoring of impacts		
Camping/picnics	Litter pollution damaging wildlife when eaten/ erosion of land at sites.	Restricted access designated sites/ bye laws /provision of waste disposal facilities.				

Question			Expected Answer(s)			Max Mark	Additional Guidance
			New sports facilities	Land use change involved.	Agreed planning for site/protection with statutory/voluntary agencies.		
			Bird watching	Disturb nesting birds/steal birds' eggs.	Restricted access/monitoring by rangers/provide hides for public use		
			Maximum 7 marks			Maximum 7 marks	

Question		Expected Answer(s)			Max Mark	Additional Guidance
9	B	(cont)				Do not award mark for naming area if candidate then gives examples of both land and water activities
		Recreational/leisure activity	Impact	Reducing/controlling impact		
		Water				
		Named area of water used for recreation 1 mark				
		Boating/yachts/canoes	Litter pollution damaging wildlife when eaten/erosion of river banks.	Restricted access/time allowed on water/provision of waste disposal facilities.		
		Speed boats/jet skis	Noise pollution disturbs wildlife/kill wildlife.	Restricted areas/engine size.		
		Cruising boats	Pollution from diesel/oil.	Monitoring/fines/loss of license./electric powered boats.		
		Swimming/paddling	Disturb aquatic wildlife.	No swim zones.		
		Angling	Take too many fish/exceed quota/fishing lines.	Anglers checked by stewards/clear up fishing lines.		
		Bird watching	Disturb nesting birds/steal birds' eggs.	Restricted access/monitoring by rangers.		
Maximum 7 marks			Maximum 7 marks			
				15		

[END OF MARKING INSTRUCTIONS]