SCOTTISH
QUALIFICATIONS
AUTHORITY

2005 Managing Environmental Resources

Intermediate 2

Finalised Marking Instructions

These Marking Instructions have been prepared by Examination Teams for use by SQA Appointed Markers when marking External Course Assessments.

Managing Environmental Resources

Intermediate 2

SECTION 1

Question 1

(a) Trees or wood **1**

(b) Building or furniture or paper production or bark (any two) **1**

(c) Machinery or trucks or buildings or fuel **1**

(d) 1. exhaust fumes or particles (either) **1**

2. fuel run off or run off from filled area or leaves (any) **1**

(e) indicator species or named species present in stream;
changes in numbers of such species will indicate changes in the stream or level of pollution **2**

(f) 1. provide ear protection or rules about use of protection

2. agree to limit operations to a certain time or soundproof cottages **2**

(g) Sawdust or woodchips or biomass (any) **1**

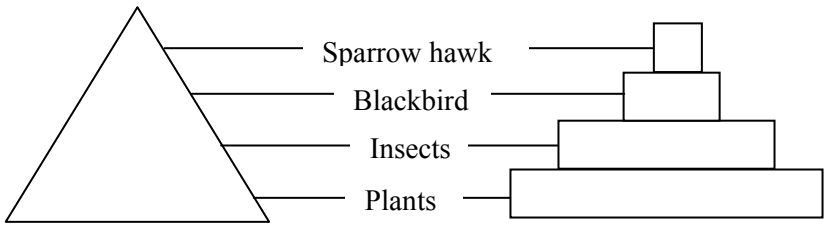
(h) As areas of forest are felled new planting occurs to replace the trees **1**

Question 2

(a) (i) 1. Blackbird or house sparrow (fox – possible),

2. Sparrow hawk or fox or shrew (both for) **1**

(ii)



One for correct labelling or one for drawing either pyramid shape **2**

	(iii)	House sparrow can feed on plants and bird seed Wood pigeon on bird seed and remains of human food		**1**
	(iv)	There is more than one producer or consumer or alternative food sources or many food chains		**1**
	(v)	2 from movement, indigestible waste, heat		**1**
(b)		Breakdown organic matter or dead or decaying bodies		**1**
(c)		Decrease - fewer food sources available or competition for limited food supply **Or** Stays the same - would find alternative food sources		
		One mark for opinion with supported reason		**1**

Question 3

(a)		Numbers have decreased by 95% or decreased a lot		**1**
(b)		Eats waterside vegetation or herbivore eaten by mink and brown rat lives near or on river banks	(any two)	**1, 1**
(c)		Wildlife and Countryside Act or any correct alternative		**1**
(d)	(i)	Alien or naturalised		**1**
	(ii)	Feral		**1**
(e)	(i)	Maintain food source or maintain habitat	(any one)	**1**
	(ii)	Cull minks and rats		**1**

Question 4

(a)	(i)	Increase		**1**
	(ii)	240 000		**1**
	(iii)	Greater transport involved in getting to recycling sites or not enough recycling points		**1**
(b)		Education programme or promotion of recycling facilities or kerbside pick-up or incentives or fines	(any one)	**1**
(c)		Will not compromise needs of future generations		**1**

Question 5

(a)	(i)	Any two from water, soil, carbon dioxide, sun potatoes		**1**
	(ii)	Machinery or buildings or fertilisers		**1**
	(iii)	Cultivated		**1**
	(iv)	Greenhouse gas emissions or smoke problems or air pollution	(any one)	**1**
(b)		Herbivore or parasitism		**1**
(c)	(i)	Nitrogen		**1**
	(ii)	Methane		**1**
	(iii)	Fixation or lightning or nitrification	(any one)	**1**
(d)		excess fertiliser in run off causes excessive algal growth		
		when this algae dies, oxygen is used up		
		lack of oxygen kills water animals		
		lack of light kills other plants		
		Any three for 3 marks. <u>Must have explanation</u>		**3**

(e) (i)

2	Claret	
.....	Sovereign	**1**
3	Tay	
.....	go to 4	**1**
4	Montrose	
Pink eyed	Millennium	**1**

(ii) Either Tay or Millennium with appropriate reason
Disease resistant, good yield. **1**

Question 6

(a)	(i)	Any two from soil temperature, light intensity, slope, aspect, wind speed, wind direction	**1**
	(ii)	Support – soil moisture readings show a pattern or description of pattern	**1**

Challenge – other factors which could explain the distribution were not recorded eg light **1**

(iii) The soil pH does not vary greatly or very similar or does not relate to significant changes eg slope, path **1**

(iv) Speedwell – greater abundance at top of slope **1**
Docken – less abundance near path at bottom of slope **1**

(v) Name equipment and how to take a reading eg use scale or colour comparison **1**

(vi) Use a quadrant divided into 25 squares
Count the number of squares the plant species occupies
Convert to percentage cover **1**

(b) plant trees or bushes or hedges or plants to provide habitats or food sources

special plants to attract certain species eg butterflies

bird seed to attract a variety of birds

nesting boxes or bat boxes to attract certain birds or bats

build a pond and introduce freshwater organisms

leave area to go 'wild' (any three) **3**

Question 7

(a) (i) To offset global warming or <u>cut down</u> greenhouse gas emissions or signed up to Kyoto Agreement **1**

(ii) Renewable or sustainable **1**

(iii) Local **1**

(iv) 240 000 **1**

(v) Install solar panel or recycle more for council to produce energy **1**

(b) Interferes with migration paths or habitat disturbance **1**

(c)

Named Country	*Energy Source*	*Sustainable*	*Energy*
Eg UK	Oil or nuclear	No	High
Eg Burkina Faso	Wood	Yes	Low

Marks per column
One correct 1 mark
Two or three correct 2 marks
Four correct 3 marks **3**

Question 8

(a) (i)

1125	Loch
0928	Mountains
0826	Natural woodland
1222	Conifer plantation

All four correct 2 marks, any correct 1 mark **2**

(ii) St Conan's Kirk, Kilchurn Castle, Power Station, Ardanaiseig Gardens, Golf course Dalmally **1**

(b) (i) 1. (Restricted by) steep mountains

2. (Restricted by) loch **1**

(ii) Two reasons from:

avoids marshy ground

takes narrow bridging point

route of least gradient – flat land **2**

(c) (i) Corrie is easily damned
Reservoir makes use of natural basin shape (corrie)
Natural drop in height from reservoir to power station (any two) **2**

(ii) Rain is plentiful resource or which constantly can be replaced **1**

(d) (i) Correct labelling 1
Correct scale 1
Correct drawing 1 **3**

(ii) October, November, January **1**

(iii) 7.6 or 7.7°C **1**

(iv) June or April
Driest Month
Mild temperature

1 mark for each correct reason **2**

(v)

Cairn	132254
Monument	144258

1 mark for each column **2**

(e) (i) 1. Stob Diamh

2. Beinn a Chochuill **1**

(ii) One from:

Litter:

Problem: unsightly, long time to decay, attracts vermin (rats, gulls, crows)
Management: education 'please take your litter home' signs in carpark, provide litter bins

Footpath erosion:

Problem: unsightly, can lead to rainwater channelling down, footpath and even more erosion, if not improved, leading to wider and wider path, damage to vegetation
Management: board walks, boulder steps, drainage on hillside adjacent to paths, work parties

Disturbance to ground nesting birds:

Problem: nests abandoned, eggs cold, birds move to nest elsewhere, population suffers
Management: education (stay on path, dogs on leads), information leaflets, restricted access at particular times of year **1**

(iii) Walker - can use safe routes – still has access to hills.
Deer stalker - deer won't be disturbed, stalker will get income, shooting parties or deer cull **1**

(iv) Possible examples may be commercial timber production and recreational forests, or loch sailing and nature reserve

Must be integrated

Eg – sailing only on part of a loch, away from the nature reserve part
– timber only cut down on certain days, with well publicised information, public access on certain days, again well publicised **2**

SECTION 2

Answer only ONE question – Option A or B or C

Option A

(a)
- Greenhouse gases include CO_2, CH_4, H_20
- increased concentration of these gases increases the greenhouse effect
- this results in more heat retained in the atmosphere
- leading to global warming
- ice caps melting and sea levels rising
- loss of habitat, loss of food sources, extinction of species (any five) **5**

(b)
- decrease use of fossil fuels to produce energy
- increase use of renewable sources of energy
- stop cutting down tropical forest
- stop devastation of coral reefs
- plant more trees
- stop wasting energy in the home
- use public transport
- increase fuel tax
- factories cutting down on emissions by use of scrubbers
- cleaner fuels
- catalytic converters (any five) **5**

Option B

Carbon cycle diagram to be given marks if the following points can be extracted.

- carbon is absorbed by plants as carbon dioxide
- with water this gas is photosynthesised
- equation of photosynthesis
- starch is eaten by animals
- both plants and animals break down starch for energy
- description of respiration or equation
- carbon dioxide released back into atmosphere
- combustion releases carbon dioxide
- effect of deforestation
- combustion is the burning of fossil fuels eg coal
- fossilisation takes many years
- eg dead trees, great pressure → coal or dead sea plants or animals → natural gas or oil
- decomposition, breakdown of dead plants, animals by a decomposer to release CO_2
- example of decomposer (any ten) **10**

Option C

(a) The technique must be described

- questionnaire
- example and description
- traffic count
- example and description
- traffic surveyed
- example and description
- tourist information centre or survey
- e-mail site survey
- advertisement response analysis **5**

(b) The description must include at least two natural features and at least two man made ones

eg – named loch + description
eg – named mountain + description
eg – named building + description
eg – named sports facility + description

and one other **5**

[END OF MARKING INSTRUCTIONS]