2012 Managing Environmental Resources

Intermediate 2

Finalised Marking Instructions

Managing Environmental Resources

Intermediate 2

SECTION 1

Question 1

(a)	**(i)**	Air or atmosphere or manure		**(1)**
	(ii)	Petrol or diesel or plastic		**(1)**
	(iii)	Litter or habitat destruction or death of wildlife		**(1)**
	(iv)	Coal or uranium or rocks or natural gas		**(2)**
	(v)	Resource which cannot be made again or once it is finished, no more can be made or finite		**(1)**
(b)		Algal, oxygen, decreases	**3 correct – 2 marks** **1 or 2 correct – 1 mark**	**(2)**

Question 2

(a)	**(i)**	17%		**(1)**
	(ii)	32,000		**(1)**
(b)	**(i)**	Methane or biogas, sun and wind**.(not mini hep)**		**(1)**
	(ii)	Fertiliser and irrigation water		**(2)**
	(iii)	Wood used for cooking etc		**(1)**
(c)		Transport, industry, domestic	**(Any 2)**	**(1)**
(d)		France – nuclear, Iceland – geothermal; Sweden – biofuel	**All correct for 1 mark**	**(1)**

Question 3

(a)	Glass, garden, plastic, cans, paper, jewellery	**(Any 2)**	**(1)**
(b)	Different coloured bins have been given, kerb-side collections, Community Amenity sites open every day	**(Any 2)**	**(1)**
(c)	Plants do not grow in the winter or no garden waste in winter		**(1)**
(d)	Composting		**(1)**
(e)	Plastic to fleeces or any correct example		**(1)**
(f)	It is satisfying the needs of the present, by making electricity/ but does not compromise the future as it uses a waste product	**1 mark** **1 mark**	**(2)**
(g)	Agenda 21		**(1)**
(h)	Car share or bicycle hire or efficient light bulb promotion		**(1)**
(i)	1,200		**(1)**

Question 4

(a) (i) 4 **(1)**

(ii) Both eat shore crab, but duck also eats cockle, whereas heron eats trout or both have different alternative food **(1)**

(iii) Decrease, because sea eagle will eat them or sea eagle eats cockles so less food for eider ducks **(1)**

(b) (i) Osprey at top, then sea trout or plaice, then mud shrimp and plant plankton on the bottom.

1 mark for labels for correct organisms
1 mark for correct position **(2)**

(ii) Sun or sunlight. **(1)**

(iii) As heat, movement or indigestible food. **(Any 2)** **(2)**

(c) A relationship in which one organism is harmed **1 mark**
Human and tapeworm. **Any 2 correct organisms for 1 mark** **(2)**

(d) (i) 1 - Mud dweller without a shell — go to 2
Mud dweller with a shell — go to 3

2 – Approximate adult size 30 cm — lugworm
Approximate adult size 10 cm — ragworm

3 – Spiral shell — mud snail
Shell in 2 parts — go to 4

4 – Pink shell — Tellin
Blue/black shell — Mussel

I mark for each correct paired statement **(3)**

(ii) Lugworm lives in u shaped burrow, ragworm lives in a vertical burrow. **(1)**

Question 5

(a) (i) 1 – scale, 0 to 15 **1 mark**
2 – percentage area of bare ground and 0 to 65 **1 mark**
correct bars **1 mark** **(3)**

(ii) Inverse relationship or as % bare ground increases, number of species decreases **(1)**

(iii) Yes, fewest plants on the path or No, few plants at cliff-edge. **(1)**

(b) Named instrument pH probe or pH paper
Method of reading scale - read printout or compare colour on chart
Both for 1 mark
Repeat and average **1 mark** **(2)**

(c) Wind or aspect or salinity or soil moisture **(1)**

(d) Put up fencing or warning signs or have wardens or designated paths
(Any 1) **(1)**

Question 6

(a) **(i)** More food on the seashore **(1)**

(ii) Otter lives on seashore or riverbank/, eats fish/, and man is its biggest threat. **(Any 2)** **(2)**

(iii) Bio-accumulation along a food chain results in otters getting large amounts in their tissue or eating contaminated fish leads to a build-up of pesticide in otters which kills them **(1)**

(iv) Special tunnels or bridges or speed restrictions or warning signs **(Any 2)** **(2)**

(v) Legislation or specific named measure or conservation organisation. **(1)**

(b) Horse – domesticated, mink – feral, red squirrel – native, rhododendron – naturalised. **All for 2 marks, 2 or 3 correct for 1 mark** **(2)**

(c) When there is not one organism of a specific species left in the world, then that species is extinct or equivalent. **(1)**

Question 7

(a) **(i)** In new area, restocking (with conifers) and replanting with Scots Pine (**not natural regeneration**) **(1)**

(ii) Recreation or tourism (**not car park**) **(1)**

(iii) New trees are planted **(1)**

(iv) Variety of plants will provide more food and shelter **1 mark**
which results in supporting many different species **1 mark** **(2)**

(b) **(i)** Applying fertiliser, thinning, logging then restocking **(1)**

(ii) Furniture, building **Two correct uses for 1 mark** **(1)**

(iii) Allows them to exercise in the fresh air or provides opportunities for recreation **(1)**

(iv) Clearing for roads or wind farms or agricultural land or to provide resources for war **(1)**

(c) **(i)** 0.64m or 640,000 **(1)**

(ii) No, far too few trees are being planted **(1)**

If candidates make a mistake in part (i) and then give a correct response based on this in part (ii), award the mark.

Question 8

(a) 9280, agriculture, 9287, energy industry and mineral resource

All correct 3 marks, 4 correct 2 marks and 3 or 2 correct 1 mark **(3)**

(b)
1 – Roman fort, etc + correct GR **1 mark**
2 – museum, clay mine, etc + correct GR **1 mark**
3 – golf course, National Cycle Route etc + correct GR **1 mark** **(3)**

(c)
Natural feature - Flat land (**not trees for screening**) **1 mark**
Man-made - sited close to motorway **1 mark** **(2)**

(d) **(i)** Coal and oil **(1)**

(ii) Electricity **(1)**

(iii) Scrubbers **(1)**

(iv) Advantage - jobs, money to spend in the community
Disadvantage - extra traffic, looks unsightly **(2)**

(e) 3.5 - 4 square kilometres **(1)**

(f) Might flood. **(1)**

(g) Any suitable example, eg
Anglers and canoeists, **1 mark**
Canoeing disturbs the fish. **1 mark**
Separate zones or allocated different times. **1 mark** **(3)**

(h) Conservation with the animals in the nature reserve and the shipping from industry coexist in the estuary.
(9384) (9585) **(2)**

SECTION 2

Option A Describe and explain the effects on landscape and wildlife of generating electricity using:

(a) Nuclear power

- Mining and transporting uranium to nuclear power plant involves the danger of accident and contamination of land and seas – danger to wildlife
- Loss of land and wildlife habitats when building nuclear plant
- Accidental releases of radioactive material can contaminate land and seas – danger to wildlife
- Water used for cooling not treated for waste and run off contaminates beaches
- Leakage of radioactive waste can pollute rivers, beaches, soils – danger to life
- Danger of explosion eg Chernobyl transport of radioactive dust in the air – Lake District farmers – contaminated livestock, contaminated soils for farming
- Danger of transporting radioactive material by rail to reprocessing plant – Sellafield – contamination land
- Storage of spent fuel – radioactive material lasts a long time – where do you put it and leakage can endanger wildlife
- Nuclear power stations – blot on landscape – visual pollution

(5)

(b) Wind power

- Wind farms spoil the look of the landscape – visual pollution
- Migratory birds – turbines can disturb migration path and feeding ground
- Putting in access roads and widening roads to get turbines in situ means loss of countryside and wildlife habitats
- Removal of forestry to locate wind farm means loss of habitats for owls, deer, etc
- Connecting to National Grid to take electricity away, to consumer means putting in new pylons and bases in so more loss of land
- The noise pollution from commercial wind turbines is sometimes similar to a small jet engine/wildlife disruption
- Off shore wind farms – difficult for fishers to navigate around BUT means an increase in biodiversity as trawler nets not disturbing sea bed

(5)

Note the points made have to explain the effect on landscape or wildlife

Option B

Carbon dioxide

- Carbon enters the atmosphere as carbon dioxide from respiration
- Carbon dioxide is absorbed by producers to make carbohydrates in photosynthesis
- Animal feed on the plant passing the carbon compounds along the food chain
- The dead organisms are decomposed and the carbon in their bodies is returned to the atmosphere as carbon dioxide
- Marine animals may convert some of the carbon in their diet to calcium carbonate to limestone
- Volcanic action may also release carbon dioxide
- Fossil fuels when burned releases carbon dioxide
- Carbon dioxide is one of the greenhouse gases
- CO_2 is created by burning fuels (eg oil, natural gas, diesel, organic-diesel, petrol, organic-petrol, ethanol when these fuels are burned)
- The proportion of carbon dioxide in the atmosphere has been increasing since the industrial revolution
- The destruction of forests which use carbon dioxide also contributes to the increase in carbon dioxide
- Heat energy comes from the sun and enters the atmosphere. Reflects off the Earth's surface and some heat escapes back into space
- Increase in greenhouse gases creates a blanket. Some heat (LW radiation) is trapped by this blanket of greenhouse gases (reradiated back down) hence global temperatures rise

(10)

Option C

Include: Relief, soils, climate (temps, length of growing season and precipitation), aspects plus specialisation as appropriate

Example

1. East = arable
2. West = pastoral including dairying, sheep
3. Central = mixed
4. Crofting = West Highlands and Islands

- U shaped valley – flat valley floor arable farming – cereals, root crops. Use of farm machinery
- Steep slopes – pastoral farming – sheep. Hardy sheep can cope with rough grazing and fleece for keeping warm, short legs for low centre of gravity
- Alluvium deposited by rivers on flood plain (carse) – rich fertile soils for arable farming
- Well drained soils – arable
- Forestry on steep slopes – short growing season, thin acidic soils, stabilise landslides
- Relief Rainfall – west coast – plenty of rain for lush pasture and dairy farming
- Rain shadow – drier – East of Scotland – arable
- South facing slopes – crops ripen more quickly
- Machair – grazing

(10)

[END OF MARKING INSTRUCTIONS]