2010 Managing Environmental Resources

Intermediate 2

Finalised Marking Instructions

Managing Environmental Resources

Intermediate 2

SECTION 1

Question 1

(a) **(i)** Soil/moorland/mountain. Oil poisoning bird/animal/wildlife or plants unable to photosynthesise. Land/beach. Increased radiation/animals suffering radiation sickness **(3)**

(ii) CO_2, any nitrogen oxide or sulphur dioxide **(1)**

(iii) Reduced car use or catalytic converters or low sulphur fuel (any 2) **(2)**

(b) eg mayflies indicate high oxygen content or no pollution in freshwater – 1
absence of mayflies indicates pollution or low oxygen content – 1
OR
eg lichens, crusty ones indicate higher air pollution – 1
hairy ones indicate low or no air pollution – 1 **(2)**

(c) Put up more bins/empty them more often/enforce fines (any 2) **(2)**

Question 2

(a) **(i)** Labels 1 and correct sectors 1 **(2)**

(ii) 23.31 or 23.3 **(1)**

(iii) Any bio-fuel or solar or geothermal **(1)**

(b) **(i)** 5 000 → 6 000 **(1)**

(ii) Nuclear **(1)**

(iii) Increasing **(1)**

(c) **(i)** Supplies (fish for) food, provides water and electricity
3 for 2 marks or 2 for 1 mark **(2)**

(ii) Only used to produce electricity at night – 1
Water returned to river after use -1 **(2)**

(iii) It is meeting the needs of the present without using up resources which will be required for future generations. Must mention future for 2 **(2)**

(d) Transport and industry **(2)**

(e) Do not use standby, switch off lights when not in room, only heat up required volume of water etc
Any 2 for 1 mark **(1)**

Question 3

(a) **(i)** Grass or bramble or oak tree **(1)**

(ii) Snail or earthworm or rabbit or grey squirrel – 1, omnivore – 1, carnivore – 1
3 for 2 marks, 1 or 2 for 1 mark **(2)**

(iii) Thrush **(1)**

(iv) Grass → snail → thrush → buzzard **(1)**

(v) C **(1)**

(b) Any 2 from indigestible food, movement and heat **(1)**
2 for 1 mark

Question 4

(a) **(i)** Area A **(1)**

(ii) The path in B may allow disturbance or disruption into the habitat or equivalent **(1)**

(iii) Samples were taken from 5 sites and averaged or an average was found **(1)**

(b) Use a quadrat, throw at random, count the plants inside (any 2) **(2)**

(c) **(i)** A species which has always been found there **(1)**
(answer must indicate a long period of time)

(ii) Grey squirrel **(1)**

Question 5

(a) **(i)** Barn Owl hunts in grassland or preys on mice, voles and shrews or roosts in farm buildings (any 2) **(2)**

(ii) Low light intensity **(1)**

(iii) 1 : 5 **(1)**

(iv) Local Authorities and S.W.T. **(1)**

(v) Numbers decreased because there will be more vehicles to kill them or fewer roosting sites **(1)**

(vi) Pesticides **(1)**

(b) Food availability or disease **(1)**

(c) Mainly brown, **Barn Owl;** Other colour of eyes, **Tawny Owl;** yellow eyes, orange eyes
1 mark per complete branch. **(3)**

Question 6

(a) Grassland or tall grass or damp meadows **(1)**

(b) Halved **(1)**

(c) In danger of extinction **(1)**

(d) The bird could not escape the cutting machine, because it stayed in the grass to hide or equivalent **(1)**

(e) They could always have food -1 they would not have the mink as predator -1 **(2)**

Question 7

(a) **(i)** Machinery or buildings or fuel (any 2) **(1)**

(ii) Sand or water or land **(1)**

(iii) Light or carbon dioxide or oxygen **(1)**

(b) 30 **(1)**

(c) Composting **(1)**

(d) Agenda 21 **(1)**

(e) Slow growing fescue − won't have to cut it so often or drought resistant − does not require watering
Hard wearing rye − will withstand all the walking or bright green − can see golf ball
Soft texture − will not impede the passage of the ball or shade tolerant − can grow in shade
3 for 2, 2 for 1 **(2)**

(f) Increased traffic − give plenty of warning
− have temporary car parks
Cannot access golf course − give free golf rounds in off season **(2)**

Question 8

(a) (i)

Grid reference	Description of slope
1499	Flat
1505	Gentle slope
1804	Steep slope

(1)

(b) (i)

Soil description	Grid reference
A. Thin rocky soil, free draining	1803
B. Good fertile soil, but may be prone to flooding	1900

(1)

(ii) Reason 1: very flat land

Reason 2: large number of small tributary streams **(2)**

(iii) 'River' is un-naturally straight, looks man-made, 'canalised' or other appropriate answer **(1)**

(c) (i) National Nature reserve (text at 1401, 1402) or nature reserve (sign)
(GRs not essential for this answer) **(1)**

(ii) Wide variety: large number of habitats from banks, shallow water to deeper areas – 1
Large number: large area of shallow water, good light and conditions for growth –1 **(2)**

(iii) No people or access, no disturbance, foxes or other predators can't get there

(Answer two from above) **(2)**

(iv) Information, displays, interpretation, rangers **(1)**

(d) (i) Golf course, Kinross House private land, Loch Leven

(Any two from three) **(2)**

(ii) Best site is Orwell – good road access and flat land **(1)**

(e) (i) Hills (eg Bishop Hill) provide up-draughts
Flat land (eg Portmoak) for runway
Or similar answer − must give reference to map either a grid reference or place name **(1)**

(ii) Electricity pylons or mast or hill top **(2)**

(f) (i)
1. Reedbed
2. Bund **(1)**

(ii) Allows access for several different user groups or access for at least two named user groups **(1)**

(g) Answers will depend on use chosen

(i) eg Tourism − Benefit 1: Jobs for local area eg Hotels, restaurants **(1)**
Benefit 2: Income supports local businesses eg taxis, farm produce **(1)**

(ii) eg Canoeing (Recreation) may disturb the wildlife (Conservation at Vane Farm Nature Centre)
or
Felling trees (Forestry) may close footpaths for walkers (Recreation) **(1)**

(iii) Conflict could be avoided by giving access guidelines for canoeists which avoid the most sensitive parts of the Loch
or
Advance notice of timber operations could be given and alternative routes sign-posted **(1)**

SECTION 2

Option A

NB Answer must relate to title − the reduction of non-renewable resources

(a)
- Non renewable resource cannot be made again
- Recycling non-renewables will make them last longer
- Recycling schemes for metals/tins/aluminium cans/glass/mobile phones/TVs/white goods (any 2 for 2 marks)
- Some recycled material easily reused
- Other recycled material difficult to be reused eg glass
- Recycling reduces waste to landfill
- Recycling plastics cuts down fossil fuel extraction **(6)**

(b)
- Environmental education programmes inform the general public about non-renewables
- Can reach large numbers to increase reduction
- Eco schools/inform students about reducing non-renewables/and energy **(2)**

(c)
- Labelling of white goods (A → H)
- Boiler scrappage scheme
- Loft instructions schemes
- Energy efficiency schemes will use less energy so less non-renewable resources/ coal/oil used **(2)**

Option B

(a)
- Nitrogen fixation from air to soil by bacteria
- Nitrification in soil by bacteria
- Ammonia → nitrites → nitrates
- Denitrification as soil nitrates → nitrogen
- Nitrates built up by plants to protein
- Animals eat plant protein
- Legumes have nitrogen fixing bacteria in root nodules **(5)**

(b)
- Natural fertilisers, dung/compost
- Increase nitrate content
- Improve soil structure
- Artificial fertilisers excess may pollute water
- May lead to eutrophication
- Explanation of eutrophication
- Artificial fertilisers made from oil
- Artificial fertilisers contain N, P and K
- Used to increase crop yield **(5)**

Option C

NB This investigation must be on land use <u>not</u> land users.

(a)
- Use large scale map of area
- Land use/capability maps
- Questionnaire to landowners
- Field survey/access
- Building survey and classify
- Estimate area
- Use Internet and library
- R.I.C.E.P.O.T.S. **(5)**

(a)
- Describe results
- Quantify/qualify results
- Relate land use to relief
- Relate land use to buildings
- Relate land use to local area

All references to be local **(5)**

[END OF MARKING INSTRUCTIONS]