CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2013 series

5014 ENVIRONMENTAL MANAGEMENT

5014/11 Paper 1, maximum raw mark 120

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

General notes

Symbols used in Environmental Management mark schemes.

/ separates alternatives for a marking point – other valid ways of expressing the same idea are also credited

; separates points for the award of a mark

[3] indicates the number of marks available

italic indicates that this is information about the marking points and is not required to gain credit
italic text is also used for comments about alternatives that should be accepted, ignored or rejected

ora or reverse argument – shows that an argument from an alternative viewpoint will be credited

AW alternative wording, sometimes called 'or words to that effect' –
AW is used when there are many different ways of expressing the same idea

( ) the word / phrase in brackets is not required to gain marks but sets the context of the response for credit
e.g. (nuclear) waste – nuclear is not needed but if it was described as a domestic waste then no mark is awarded

<u>volcanic</u> underlined words – the answer must contain exactly this word

ecf error carried forward – if an incorrect answer is given to part of a question, and this answer is subsequently used by a candidate in later parts of the question, this indicates that the candidate's incorrect answer will be used as a starting point for marking the later parts of the question

Section A

1 (a) (i) three;

(ii) in rock;
deep;
in a single rock layer;

(the last statement would score two marks, as it incorporates the first point) **[2]**

(iii) high level waste;
dangerous;
radioactive;
remains dangerous/radioactive for a very long period of time;
needs to be where it cannot affect people/the environment;
needs to be where it cannot contaminate water sources/rivers etc.; **[3]**

(b) earthquake damage/plate movement could cause leaks of radioactive material/damage power station;

accept tsunami damage if given **[1]**

(c) leaks into ocean and moved by ocean currents;
leaks into rivers which pass into another country;
leaks into the atmosphere and wind carries it;
can fall in rain in another country;
therefore soil can become contaminated when rain contains radioactive material;
therefore radioactivity can enter the food chain/contaminate vegetation eaten by animals; **[3]**

[Total:10]

2 **(a)** **(i)** it originates in low latitudes/near the Equator;

(ii) it originats from polar regions/the Arctic/more northerly lattitudes;

(iii) T, Nanortalik will be colder than the Shetland Islands in winter; **[1]**

(b) cooled;
condensation;
decreases; **[3]**

(c) **(i)** the North Atlantic Drift/warm current will keep the sea ice free off Norway; sea ice will form off Greenland in winter; **[2]**

(ii) the Gulf Stream/North Atlantic Drift will carry the waste northwards; the Canary Current will bring it to the Canary Islands' beaches;

if both currents are not mentioned allow the idea that the waste will be moved by ocean currents for 1 mark. **[2]**

[Total:10]

3 **(a)** **(i)** bar at 48 million tonnes and exports at 10 million tonnes; **[1]**

(ii) the production in 2010 was higher than that in 2000;
it has increased by 18–19 mt/from 34/35 to 53;

or same style of marking for year 2000–2008; **[2]**

(iii) *explanations of how new techniques increase yields, such as:*
irrigation allows crop growth in dry seasons/droughts/where too dry;
fertilisers encourage healthy growth;
pesticides/insecticides kill pests which would harm the crop;
herbicides clear weeds which compete with the crops for nutrients and water;
mechanisation allows greater productivity;
use of new higher yielding varieties/GM seeds;
subsidies/more capital input allows the above to be used;
there is better/more widespread knowledge of good farming techniques;
biological controls reduce pests; (4 × 1 mark) **[4]**

(iv) 2003/2006; **[1]**

(b) *reward any credible ideas, such as:*
yield provides more/less than is needed for the domestic market;
price changes on the world market;
producers can get more/less for it on the world market than if they sold it in the country;
variations in demand because of competition; **[2]**

[Total: 10]

4 **(a)** taiga/coniferous forest;
conical/tall and thin/wedge shaped trees;
dense;
evergreen/uniform;
grass;
some colonising the lake edge; **[3]**

(b) allow feature linked to climate, such as;
conical shape allows snow to slide off;
flexible trunk allows sway in strong winds;
shallow roots because only a shallow layer thaws in summer;
thick bark protects from cold;
needle leaves to reduce transpiration;
evergreen because short growing season; *(would not allow time for new leaf growth)* **[3]**

(c) **(i)** by a lake/on lower slopes (of mountains)/in valley; **[1]**

(ii) too cold for growth;
too steep for growth/soil (to form);
bare rock/no soil;
(some parts) snow/ice-covered all year;

Max. 2 for answers without locations on photo **[3]**

[Total: 10]