

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2014 series**

**0680 ENVIRONMENTAL MANAGEMENT**

**0680/13**

Paper 1, maximum raw mark 60

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.

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Page 2	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0680	13

- 1 (a) (i) taiga extreme N, not S;  
tropical rainforest equatorial;  
monsoon tropics away from equator; [3]
- (ii) conical; branches lower down; needle leaves; thick bark; [2]
- (b) (i) clearance for fuel-wood;  
subsistence and cash crop farming;  
settlement;  
timber extraction;  
grazing; [2]
- (ii) agro-forestry;  
community forestry;  
reforestation;  
sustainable harvesting of hardwoods;  
fuel-wood planting;  
genetic engineering; [3]
- 2 (a) (i) wave; [1]
- (ii) water enters tube / eq. and pushes air out;  
turns turbine;  
sucks air out;  
turns turbine; [3]
- (iii) advantages:  
renewable;  
little / no pollution;  
uses of lake;
- disadvantages:  
expensive;  
loss of habitat / flooding / eq.;  
silting up;  
methane emissions from reservoirs;  
possible dam failure;  
increase water borne disease risks;  
earthquakes; [4]
- (b) the source of energy is not used up;  
so will be available for future generations; [2]

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0680	13

3 (a) (i) from top:

boilers / other;  
waste incineration;  
metal industries;  
manufacturing;  
boilers / other;  
leaded aviation gas;

*All six for two marks, three – five for one mark, zero – two for zero marks.* [2]

(ii) falls throughout;  
except 1994 until 1995;  
any development such as manipulation;  
reduction in use of leaded petrol;  
other feasible environmental protection suggestion;  
*Allow numerical answers.* [4]

(b) (i) when inverted pollutants cannot escape;  
because hot air stops cold air below it from rising;  
so pollutants accumulate near ground;  
tend to happen in areas where lots of cars / eq.; [2]

(ii) any ref. to increased use of public transport;  
ref. to insulation or other domestic energy saving measures;  
car sharing / number plate rota; [2]

4 (a) (i) top warm, bottom cold; [1]

(ii) cold currents are found where rainfall is low on land;  
places adjacent to warm currents warmer in winter;  
examples from the maps to exemplify; [2]

(iii) ref. upwelling;  
of cold water;  
rich in minerals / named mineral(s);  
cause great plant / phytoplankton growth;  
fish use these as food; [3]

(b) ref. to human population growth;  
need for food;  
ref. to greed / eq.;  
desire for money;  
ref. modern technology;  
any relevant detail; [4]

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0680	13

- 5 (a) (i) it is  $100 - (25 + 45 + 25)$ ;  
= 5%; [1]
- (ii) water; [1]
- (iii) irrigation;  
development;  
  
addition of fertilisers;  
development; [4]
- (b) addition of humus / organic matter to soils;  
mixed cropping;  
crop rotation;  
tree planting;  
land drainage;  
bunds; [4]
- 6 (a) (i) *reservoir*:  
  
carbon dioxide gas;  
nitrogen gas;  
  
*fixed by*:  
  
bacteria;  
  
*in living things*:  
  
starch;  
  
*removed by*:  
  
respiration;  
denitrification;  
  
*All six for three marks, four – five for two marks, two – three for one mark, zero – one for zero marks.* [3]
- (ii) A light;  
B heat; [2]

<b>Page 5</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge IGCSE – October/November 2014</b>	<b>0680</b>	<b>13</b>

- (b) (i) wetland drainage:  
loss of fish/aquatic animals;  
as food for humans/other animals;  
loss of their ability to clean water;  
increased floods;  
loss as site for recreation;

deforestation:

- biodiversity loss;  
source of food/raw materials;  
they protect soils;  
carbon sinks;

[4]

- (ii) sustainable harvesting of wild plant and animal species/national parks/wildlife reserves/  
world biosphere reserves/gene banks [1]

**[Total: 60]**