UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2011 question paper

for the guidance of teachers

0680 ENVIRONMENTAL MANAGEMENT

0680/11 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 must be read in conjunction with the question papers and the report on the examination.

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1 (a) (i) nitrogen; oxygen;

(ii) carbon dioxide

(b) (i) **A** lacks detail/converse/owtte; [1]

(ii) 2 of sulphur dioxide , NO_X, carbon dioxide;
dissolve in rain;
it becomes acid;
which dissolves rock; [max 3]

(iii) temperature inversion;
cold air from below cannot rise;
pollutants cannot get into higher parts of atmosphere;
therefore cannot be dispersed by wind; [3]

[Total: 10]

2 (a) (i) mantle; [1]

(ii) hotter; softer; pliable; high density (A) heavier (ora in any case); named differences in minerals;
(R) molten [2]

(iii) crust thinner under sea/eq; [1]

(b) (i) discovery:
visual search; idea developed; (e.g. remote places, diving);
geological survey idea;
test drill;
extraction:
oil wells drilled;
pumping/natural pressure differences;
pipes; [4]

(ii) double hulls;
detergent/booms/biodegradation/burning; [2]

[Total: 10]

3 (a) (i) N cycle; **A** N_2/nitrogen;
B nitrogen fixation/nitrification;
C protein/amino acids/DNA/nucleic acid;
D denitrification; 3 all, 2-3 2, 1 1

C cycle **A** CO_2/carbon dioxide;
B photosynthesis;
C sugars/starch/named compound with starch;
D respiration/combustion/decomposition 3 all, 2-3 2, 1 1 [3]

(ii) nitrogen

(iii) eutrophication;
algal bloom;
algae die;
bacteria decompose the dead algae;
lower oxygen;
death of suitable organism (i.e. any aerobe); [2]

(b) (i) passed from one trophic level/eq to next;
bioamplification;
tiny amount of applied gets concentrated;
leads to death/some sub lethal effect (e.g. reproductive);
death of non-target species;
e.g. (bees); [2]

(ii) biological control;
using predator/parasite/disease to reduce numbers;
example;
does not pollute;
evolution of resistance avoided;
pest resistant strains; [max 2]

[Total: 10]

4 (a) (i)

Taiga	3;
Tropical Rainforest	4;
Desert	2;

[3]

(ii) 3; [1]

(b) (i) long/deep roots;
widespread roots;
waxy above ground parts;
store water;
succulence/owtte;
spines;
reduced/no leaves;
all above up to 2 marks and then some discussion of at least one of them (i.e. why this helps) for third; [3]

(ii) plant cover gone/reduced/owtte;
erosion;
wind/water;
soil lost; [3]

[Total: 10]

5 (a) (i) the amount of HEAT energy;
striking the Earth;
from the sun; [m

(ii) D;
at low latitudes/eq less heat lost by scattering/reflection/absorption;
because atmos path less/shorter/eq
at low latitudes a ray heats up less ground/ora;
if give A or B allow 2 marks but only with explanation [max 4]

(b) (i) electricity :light; AND
heating :heat; [1]

(ii) fossil fuels/named examples; [1]

(iii) fossil fuels running out;
causing pollution/named examples; [2]

[Total: 10]

6 (a) (i) correct plots;;
addition of labels for IAS 54 *and* Embrapa 16; [3]

(ii) more recent varieties give bigger yield/ora;
(If discuss increasing (ORA) must be related to time) [1]

(iii) plant breeding/genetic engineering;
has selected for /eq higher yields; [2]

(b) (i) USA [1]

(ii) EU; [1]

(iii) No;
because exporters and importers are both in North,
except Aus, which is 'north' and Argentina
which is not enough to say s to n; [2]

[Total: 10]