CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

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

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CAMBRIDGE
International Examinations

1 (a) (i) *Plate moving north:*
African, Indo-Australian;
Oceanic plate:
Pacific, Nazca, Cocos; [2]

(ii) Because it is not on / near a plate boundary; [1]

(iii) 30 × 440 = 13 200 km;
1 km is 100 000 cm so 10 000 lots of 10 cm;
to move 1 km would take 10 000 years,
so 13 200 km;
is 13 200 × 10 000;
132 000 000 years; [3]

(b) fertile soil;
plus development point, e.g. to give good crop yield;
minerals / precious stones;
plus development point, e.g. sold for money or some point about money;
geothermal energy;
plus development point, e.g. used for electricity generation, used in heating homes, hot water supply;
tradition;
plus development point, e.g. no option;
scenery;
plus development point, e.g. tourism / creates jobs;
Max. two marks for any single point in italics developed. [4]

2 **(a)** Sun's (energy);
causes water to evaporate (from sea surface)
leaves salt behind;
vapour condenses;
then falls as rain;
clouds form; [3]

(b) **(i)** 7 / 25 × 100;
= 28%; [2]

(ii) (water-related) disease or named;
correct detail (name or caused by bacteria, cholera, typhoid);

pollution;
detail;; (heavy metal, named heavy metal, correct sewage)

Max. two marks for any one of these. [3]

(iii) dig well / borehole;
detail, e.g. water clean due to filtering by rocks;

desalination;
detail methods;

water collection (e.g. off roofs);
detail may need some treatment, e.g. chlorination tablets;

install pipes;
from relevant safe source;

bottled water / tanks of water;
is filtered / UV treated; [2]

3 **(a)** **(i)** nitrogen;
oxygen;
carbon dioxide;
ozone;
Three correct for one mark. Four correct for two marks. [2]

(ii) UV can cause cancer;
eye problems / cataracts / blindness;
mutations; [2]

(b) **(i)** lead particles can enter atmosphere when petrol is burnt;
causes brain damage in developing children;
Accept any correct effect of lead poisoning for one mark but must be in air for second mark. [2]

(ii) burning petrol causes net addition of carbon dioxide to atmosphere;
which is a greenhouse gas / causes global warming;
ethanol made from plants;
(so its production is) carbon neural;
ethanol causes less global warming; [4]

4 **(i)** overgrazing;
details of effects;;; e.g. vegetation removed, soil erosion;
deforestation;
details of effects;;; e.g. binding effect of roots, reduction of run-off, increase of interception
overcultivation;
detail of effects;;;
ploughing downhill / eq.;
leading to run-off;
and soil erosion

Four marks available for any one well described. [4]

(ii) 1 500 000 / 250 000;
6 times; [2]

(iii) terracing;
reduces run-off, prevents erosion;
tree planting;
roots bind soil, lower run-off and thus less erosion; [4]

5 **(a)** **(i)** 3.9 + 29.2 = 33.1, 2.2 + 13.8 = 16;
33.1 – 16 = 17.1 tonnes; [2]

(ii) farmers cannot afford:
fertiliser;
pesticides;
GM crops;
HYVs;
irrigation;
mechanisation;

ref. lack of education (about agriculture);
power of the landlords in stopping improvement; [3]

(iii) ref. to ways that any of the following can be encouraged / facilitated / eq.:

plant breeding;
improved pest control;
mixed cropping;
genetic engineering;
irrigation;
fertiliser use;

*Credit any suggestion which will help with a problem identified in **(aii)** which is correct but not in the above.* [3]

(b) crops grown for food no longer available;
land for food production reduced;
starvation / malnutrition;
health issues;
economic issues (e.g. less food to export); [2]

6 **(a)** **(i)** 15%; [1]

(ii) choice to be discussed clearly stated;

intensive:
high yield for low area idea;

which requires:
so lots of agrochemical / named agrochemical use;
monocultures common;
overuse of soil causes erosion;
loss of traditional varieties;
loss of habitats;

extensive:
loss of habitats; [5]

(b) *The following marks can be given if associated with correct organisation:*

CITES about species not habitats, however expressed;
UNEP provides information / data;
WWF raises money; has education programmes;
IUCN encourages partnerships between countries; publishes red list; the creation of innovative solutions to conservation issues;

These generic marks can be given anywhere:

educational initiatives (once only);
data supply / research;
encourage / fund etc. establishment of protected areas / eq.;
promulgate laws / collect fines; [4]