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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

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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]

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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]

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(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]

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(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]

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