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Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0680 ENVIRONMENTAL MANAGEMENT

0680/23 Paper 2, maximum raw mark 80

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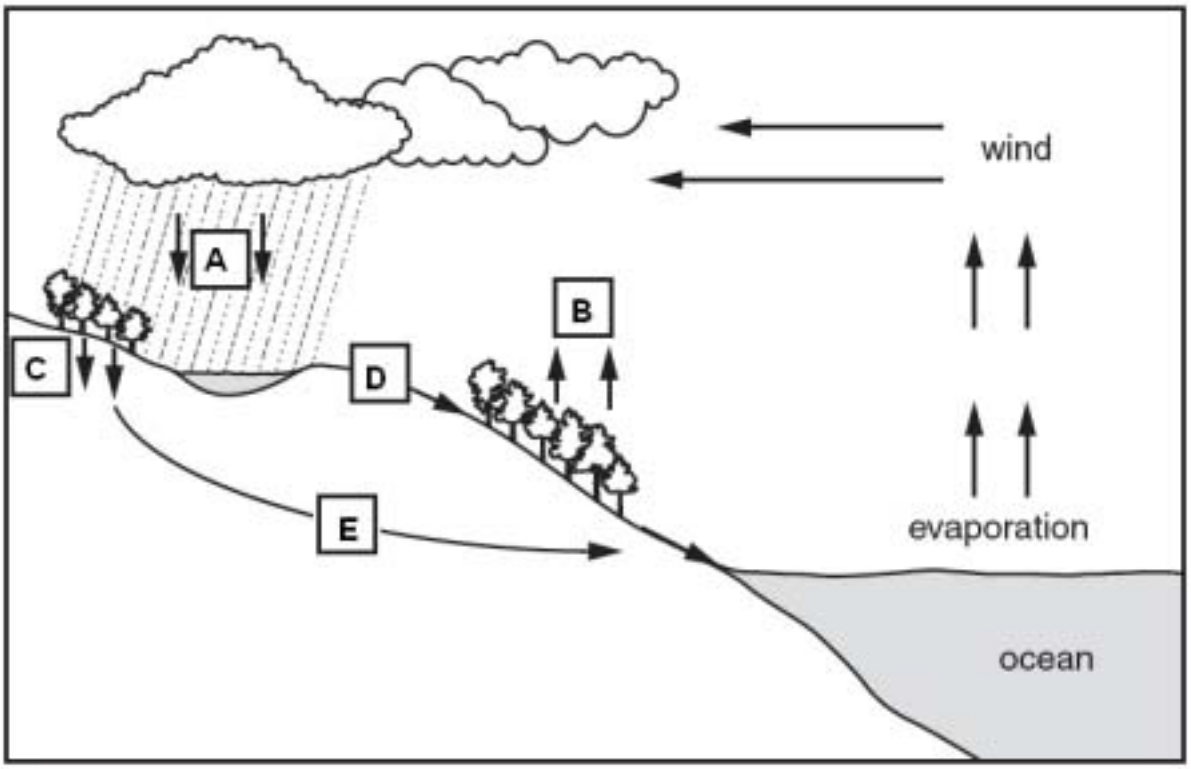
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1 (a)



Credit one mark per correct box. [4]

(b) (i) *Four correct bars for two marks.*
Two or three correct bars for one mark. [2]

(ii) 89 000 – 20 000;
69 000 km^2; [2]

(iii) attempt to reduce / prevent soil erosion / increase soil fertility;
attempt to reduce / prevent desertification;
to provide more amenity / tourism;
government policy / laws, etc.;
as a conservation initiative to increase biodiversity;
to help reduce global warming;
responding to need for more wood products, e.g. paper; [2]

(c) (i) Vietnam; (*Accept Thailand.)* [1]

(ii) Cambodia; [1]

(iii) use of wood for fuel / building / furniture;
clearing of land for agriculture / mining / transport / settlement; [2]

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(d) (i) more run-off;
due to reduced interception;
reduced water take-up by plants;
less infiltration;
nothing to hold soil / sediment together;
O.R.A. [3]

(ii) sediment raises the bed of the river / reduces channel volume / raises water level;
reducing the amount of water it can hold;
water gets into river more quickly than before, so higher peak flow;
water gets into river in a larger quantity; [3]

(iii) reduces fertility of the land / loss of minerals;
needs soil to grow crops / fodder; [1]

(iv) terracing;
contour ploughing;
strip farming;
planting tree crops (as a barrier to water flow);

Development mark available for each.
Max. two marks for names only. [3]

(e) (i) fertiliser added / excess used / is not all taken up by plants;
when it rains washed through / over soil to river; [2]

(ii) algal bloom blocks sunlight,
so no light for photosynthesis [2]

(iii) algae die;
respiration of bacteria / decomposition reduces oxygen levels;
reduced oxygen so fish suffocate;
food stocks decline so predators die; [2]

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(iv) *farmers:*
reduce use of fertilisers;
use organic fertilisers;
use fertilisers at the right time / conditions / controlled;
prevent animal slurry from washing into groundwater / rivers;
drainage channels direct run-off away from streams, etc.;

people:
sewage should be treated, so only clean water is put into the river;
pass laws / fine to stop untreated sewage being put into the river;
provide better sanitation;
remove algae; [4]

(f) *for clearance:*
already food shortages;
which may get worse due to climate change;
loss of land to rising sea levels;
soil erosion / exhaustion;
people deserve to be fed (properly) / current land cannot support more people;

against clearance:
can make better use of land we have;
such as GM crops;
more arable / less animals;
need to reduce population growth;
tropical rainforest soils are not very fertile, so a waste of time using them for farming;
the environmental reasons, e.g. species, loss of habitats and biodiversity, etc.;

Level 3 5–6 marks
Answers the question by recognising both sides of the argument, at least two reasons for or against. Reasons are well explained.

Level 2 3–4 marks
At least two points well explained or a number of points lacking detail.

Level 1 1–2 marks
Simple statements with little or no explanation.

No response or no creditable response, 0 marks. [6]

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2 **(a)** round Pacific ring of fire;
with details of east Asia or western Americas;
many on islands between Asia and Australia / Oceania;
a few in east Africa;
only one in (southern) Europe;
on plate boundaries;
(one in middle of) Pacific;
Central America;
coastal;
between the tropics; [4]

(b) **(i)** Mount Pelée; [1]

(ii) Philippines; [1]

(iii) highest: ashflows
mudflows
lowest: disease; [1]

(c) lavas are slow moving;
localised;
quite easy to avoid;
sufficient advance warning;
less people live (on the steep slopes) where lava flows fastest;
not always present; [2]

(d) **(i)** risk / danger,
from breathing in or sinking into ash / soft mud;
from more volcanic activity / eruptions; [2]

(ii) *people:*
loss of life;
loss of property / home;
loss of income / job;
less food / land for cattle grazing/agriculture;
air pollution / health effected from ash;

economy:
businesses destroyed / closed;
cost of evacuation / housing evacuees;
rebuilding roads / airport / port;
relocating government;
cost of importing food / goods;
tourists reduce;

Max. four marks on either people or economy. One mark per point but credit development. [5]

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(iii) axes correctly orientated;
y axis correctly titled;
four or five points correct and joined up;;
Allow one mistake so three correct plots for one mark.
Incorrect scale loses the plot marks. [4]

(iv) $\frac{12\,500 - 2700}{12\,500} \times 100$;

78.4%; [2]

(v) plants / animals / fish killed;
leaves covered in ash so plants cannot photosynthesise;
as plants die primary consumers have no food / ref. to food chain;
predators then lose their food supply;
animals suffocate in the ash;
birds lose nesting sites;
rivers / seas polluted with ash;
coral reefs covered in ash so no light and die; [4]

(e) (i) plot;
key; [2]

(ii) Africa; [1]

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(iii) *spread:*
by contaminated drinking water;
food washed / cooked in contaminated water;
water contaminated due to poor sanitation;
so cholera bacteria from faeces get into water;

after disasters:
(contaminated) flood water gets into water supply / food;
sanitation system / water supply system destroyed;
people forced to live in camps / poor sanitation;
so very close together / overcrowded; [5]

Max. four marks on either spread or after disasters.

(f) (i) mosquitoes (carry the protozoan);
and can only lay eggs in water;
where larvae hatch;
and produce next generation of mosquitoes;
which carry the infection; [2]

Award one general mark for breed in water.

(ii) eradicating anopheles mosquitoes – spraying pesticides;
stopping the breeding process – getting rid of stagnant water for breeding;
preventing infection – use of mosquito nets, drugs;;
education – linked to either of the latter two; [4]

[Total: 80]

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