

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

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

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.

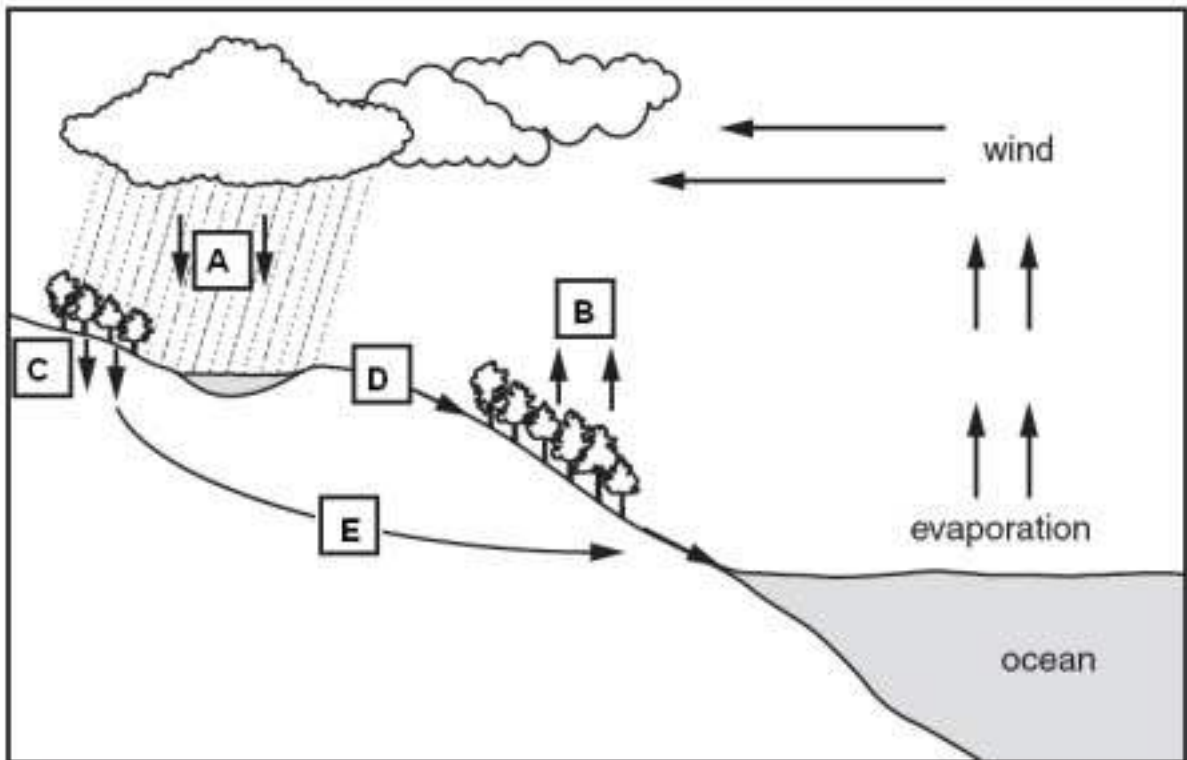
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1 (a)



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<sup>2</sup>;

[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]**