

**MARK SCHEME for the May/June 2010 question paper
for the guidance of teachers**

0680 ENVIRONMENTAL MANAGEMENT

0680/12

Paper 12, 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) magma chamber D
lava E
crater C
ash B
- (ii) 1. B
2. E [2]
- (b) (i) any three from:
breathing related problems (suffocation / poisoning);
physical if living at top (buried / hit etc.);
caught by lava flow, incinerated;
floods / mud slides due to ice / snow melt;
consequent collapse of buildings in context [3]
- reject knock on effects about food supply
- (ii) any two from:
earthquakes: no warning / ora;
sudden / quick / happens all at once / ora;
widespread / ora;
volcano: more often very remote / ora; [2]
(ora – or reverse argument)
- (iii) better stronger buildings / any aspect of improved after care / evacuation of prone areas; [1]
- 2 (a) (i) domestic C, E, G, F
agricultural G, A, B
industrial D, E [3]
- (ii) BOX 1 growth / bloom (eq) of algae – accept plants grow;
BOX 2 algae die / give organic matter;
BOX 3 uses up oxygen / oxygen levels fall / no oxygen; [3]
- (b) detergent substitutes;
sewage treatment;
regulation;
education;
regulate fertiliser addition;
reduction of acid rain causing gases; [4]
- either four ideas stated or any developed for another mark in each case
- reject answer which just talk about **not** doing things like use fertiliser, pesticides, farm near rivers
- reject just prevent without a how

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- 3 (a) (i) numbers / variety of species / types of plants, animals, living things eq;
variety of ecosystems / habitats;
genetic variety;
- (ii) wild strains of cultivated species contain genes;
which might give drought resistance;
could be bred into cultivated ones;
genetically engineered into cultivated ones;
call internationally for strains already available; [2]
- (b) (i) any two from:
physical destruction by building / roads;
(increased) pollution (must be qualified);
trampling owtte;
possible degradation of habitats / wildlife for tourist entertainment; [2]
- (ii) environment:
fees charged for conservation / eq;
(possibility / existence of ecotourism encouraged) habitat conservation;
local people:
money from tourists to locals;
money to local amenities e.g. hospitals;
provides jobs for locals; [2]
- (c) any two from:
always replant after felling;
selective logging;
laws / checks on loggers; [2]
- 4 (a) (i) soil: water, minerals;
atmosphere: carbon dioxide; [2]
- ignore water in atmosphere box (i.e. still award carbon dioxide mark if water is there too)
- (ii) As N goes up, growth goes up / they are directly proportional / eq;
then levels off / reaches optimum / peak;
manipulation of figures – reject just quoting figures; [2]
- (b) (i) overcultivation E
natural hazards B
more people A
desertification F
deforestation D
overgrazing C ½ each, round down [3]
- (ii) terracing; developed;
contour ploughing; developed;
wind breaks / shelter belts; developed;
afforestation; developed;
add manure / mulch / organic material;
leave fallow / give time to recover;
- allow any three ideas for 3 or any development of any of the points for up to 3 [3]

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- 5 (a) (i) coastal;
(nearly all) N Hemisphere;
- (ii) shallow;
(so) plenty of light;
plenty of nutrients;
so plenty phyto- / zooplankton / food (for fish);
(because of winter) sea stirring / mixing;
reject upwelling [2]
- (iii) upwelling / convection currents;
brings plenty of nutrients; [2]
- (iv) any two from:
El Nino occur;
(so) current which causes upwelling reverses;
water warmer;
less oxygen;
less nutrient;
fish die;
algae / plankton grow less well;
fish starve; [2]
- (b) demand exceeds supply / hunger / greed / AVP / any modern technology point;
laws qualified / quotas / net size / AVP; [2]
- 6 (a) 20.97 % (by difference (100 – [78 + 1 + 0.03]), (accept 21 % as fact);
carbon dioxide used in photosynthesis / plant food making / natural greenhouse effect /
provides insulation idea;
water needed for plant food making / photosynthesis / forms rain / irrigation / avp;
ozone provides protection from UV / harmful rays from sun; [4]
- (b) (i) 1. burning fossil fuels, in any sensible context / deforestation / afforestation;
2. afforestation / deforestation / recycling / CFC destroying ozone;
3. using fridges, air conditioning, aerosols / growing rice / keeping cattle / any acid rain
gas producing activity; [3]
- (ii) carbon dioxide [1]
- (c) best because more wind / eq;
less controversy because less intrusive, thus fewer complaints / out of sight out of mind /
avp; [2]