

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0680 ENVIRONMENTAL MANAGEMENT

0680/12

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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Page 2	Mark Scheme	Syllabus	Paper
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- 1 (a) (i) number / variety of animals and plants / types of living organisms / species;
variety of habitats / niches / ecosystems;
genetic variety; [2]
- (ii) ref. to between (most in) tropics / on Equator / ORA;
on coasts;
ref. to correct proportions on different continents around the world, e.g. (most South America, least Europe, most Southern Asia, not in Antarctica / S pole (not poles);

ref. to specific places correctly and specifically described, e.g. Brazil / (central / western) south America / Far east / Malaysia / southeast Asia / (island off east coast of Africa / Madagascar) / central America / west coast of North America / south west Africa / east coast of India / south west coast of (Australia / Oceania) / southern Europe;; [3]
- (b) (i) ref. genetic resource;
for crops / farm animals / etc.;
ref. medicines / drugs;
aesthetic argument;
duty of care argument;
economic impact / tourism; [2]
- (ii) sustainable harvesting of wild plant and animal species;
ref. indigenous peoples;
ref. taking less than or no more than equal to the surplus produced within the wild population over time;
ref. allowing reproduction at suitable rate;

national parks / wildlife reserves / world biosphere reserves / eq.;
ref. cessation of damaging activities, e.g. logging / deforestation / drainage of land / damming / poaching;
ref. penalties punishments / laws;
ref. access to public;
ref. education of public;
tourist codes of conduct / ecotourism or described;
ref. structure (core / buffer / transition zones);
international recognition and funding;
co-operation of local people;
allowing scientific research;

gene banks;
seed banks;
sperm banks;
freezing;
zoo / breeding programmes; [3]

Page 3	Mark Scheme	Syllabus	Paper
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- 2 (a) (i) geothermal; [1]
- (ii) hot rocks;
turn water to steam;
this turns / moves turbine; [3]
- (iii) wind / H.E.P. / wave / solar;;
Accept sun, tidal, biomass (fuel) or nuclear.
- ECF geothermal if not given above.* [2]
- (b) (i) a source of energy which is not a fossil fuel / (overall) does not emit carbon dioxide when used / renewable (not just pollution); [1]
- (ii) because existing sources increase CO₂ / SO₂ / eq.;
global warming / acid rain / eq.;
- limited fossil fuel resources;
will not have any in the future / cost more to obtain / industry will not have energy;
increased demand;
due to increased population / increase technology;
energy security idea developed; [3]
- 3 (a) (i) correct plot;
2 lines joining points; [2]
- (ii) some data supports it but some does not / accept idea of partially agree;
so 3 out of 5 support giving more evidence for than against ORA;
ref. Mato Grosso / Tocantins / Maranhao support;
Rondonia / Amazonas do not fully;
ref. to not given the scale / not given all the areas of the Amazon / relative scale of increase and decrease;
correct use / interpretation of data / figures; [4]
- (b) burning wood gives off CO₂;
(CO₂) is greenhouse gas / causes greenhouse effect;
absorbs / traps heat;
heat is re-radiated back to the Earth;
loss of trees reduces CO₂ intake;
by photosynthesis; [4]
- 4 (a) (i) 4600; [1]
- (ii) A 119 000
B 72 000
C 47 000
All three correct for two marks. One or two correct for one mark. [2]

Page 4	Mark Scheme	Syllabus	Paper
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- (b) (i) simple statement implying there are areas where run-off is low but population is high and/or run-off is high but population is low;
examples given;

simple statement implying there are areas where run-off is low and population is low and/or run-off is high and population is high;
examples given;

ORA. [4]

- (ii) large numbers of people living close to each other;
so it makes economic sense/there is more money available for/investment in water treatment/supply;
such as chlorination/filtration/sewage treatment/piping;
piped water in urban/eq.;
urban water uses are kept separate;
political influence of urban populations;
water/drainage/purification/bottles water/desalination;

ORA for rural. [3]

- 5 (a) (i) copper ore;
iron ore;
iron;

[2]

- (ii) ref. organisms/plants/animals;
ref. to a long period of time (minimum thousands of years if time quoted);
(high) pressure;
buried in sediment;

[3]

- (b) (i) B rapid consumption
A conservation
C conservation plus recycling

Two marks for three correct. One mark for two or one correct. [2]

Page 5	Mark Scheme	Syllabus	Paper
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- (ii) no:
 all non-renewable;
 take a long time to be made;
 used faster than they are made;
 increased demand;
- yes:
 lifespan can be extended;
 through reuse / recycling;
 use of alternatives;
 limit their use by using alternatives / legislation;
 development of different ideas;
 less use qualified, e.g. use more public transport; [3]

- 6 (a) (i) heather covers larger area / main plant;
 heather surrounds bracken / eq.;
 bracken in isolated clumps;
 not much else; [2]

- (ii) high growth rate / height means it gets more light / shades heather;
 (deep / extensive) root system means it competes for / can get more water;
 and minerals / nutrients than heather; [3]

- (iii) herbicide / weed killer;
 named example / how it works;
 biological control;
 named example / relationship to bracken;
 physical control (e.g. pull out / cut down);
 remove all the roots / to prevent shading effect; [2]

- (b) ref. to eutrophication;
 nitrates / phosphates / eq.;
 in surface run-off / enters lake;
 stimulates alga / plant, growth / algal bloom;
 block (sun)light;
 plants / algae die;
 decompose;
 uses oxygen / reducing oxygen;
 kills / eq. fish / animals in lake; [3]

[Total: 60]