

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2015 series

0680 ENVIRONMENTAL MANAGEMENT

0680/11

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
	Cambridge IGCSE – October/November 2015	0680	11

- 1 (a) nitrogen
oxygen
carbon dioxide

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

- (b) (i) correct plot (with error margin of half a square above);
burning gas and burning oil correct in the key;
key of plot matches the plot chosen; [3]

- (ii) deforestation / eq.;
reduces trees taking in carbon dioxide / photosynthesis;
OR
urbanisation / increase in use of machines in farming;
carbon dioxide-emitting activities described such as burning of fossil fuels;

Allow other correct examples. [2]

- (iii) the gas traps additional heat radiating from Earth's surface / causes greenhouse effect / this causes warming of atmosphere / global warming;
which might lead to climate change;

*Up to three correct consequence(s) of climate change for the environment:
e.g. sea level rise; ice cap melting; weather pattern changes;* [3]

- 2 (a) (i) photosynthesis
water
light / eq.

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

- (ii) fertilisers:
it adds nutrients / minerals / a named mineral to soil (to increase growth);

pesticides:
to remove pests, which eat fruit / roots / transmit disease / compete with / parasitise the crop; [2]

- (b) $0.05 / 1.75 \times 100$;
 $= 2.9 / 2.86\%$; [2]

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0680	11

(c) grower:
a fair price means grower can receive more money* / a sensible suggestion as to what money might do for them if more money not stated / having money in advance means grower can fund next year's crop / guaranteed market for coffee;

buyer:
direct buying means guaranteed / stable source of coffee / gives the buyer an edge when selling / protected from coffee price fluctuations;

shop owner:
more people will buy this coffee / will sell more of this coffee / improves reputation / make more money (from higher volume of sales)*;

customer:
feels good / doing duty, knowing that a person is getting a fair price;

*Allow * only once.* [4]

3 (a) (i) explanation in terms of:

(right angles / vertically at the Equator) / oblique at the poles;
direct / concentrated rays at the Equator / indirect at poles;
less area at the Equator than poles;
less atmosphere to go through at the Equator than poles;
ref. to no sunlight at poles for long periods; [2]

(ii) the temperature is expected to be consistent, but it actually varies from A to B;
the land is colder than expected / the sea is warmer than expected;
warmer in (north) Atlantic / or Pacific than expected;
colder in N America / SE Eurasia than expected / warmer in NW Eurasia than expected;
ref. (ocean) currents;
correct ref. to the different heat absorption of land vs. water / eq.;

Max. two marks for description or for explanations. [3]

(b) (i) wind; tidal; wave; HEP; geothermal; biomass; nuclear; [2]

(ii) (local) solar panels;
(local) wind turbines;
on houses or other correct ref. to where installed;
(fossil-fuel powered) generator;
with government cash subsidy / grant / government pay for; [3]

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0680	11

- 4 (a) near coasts/eq.;
- (mainly) above and below the tropics/above Tropic of Cancer and below the Equator;
- temperate waters;
- bigger area north of the Equator/more fisheries south of the Equator/in Pacific Ocean;
- ref. to cold currents/high oxygen/ref. to meeting of warm and cold currents;
- ref. upwelling of nutrients;
- ref. continental shelf;
- ref. lack of thermocline/eq.;
- ref. shallow water;
- ref. light penetration;
- ref. photosynthesis;
- ref. plankton;
- ref. where humans are/important part of income/way of life;

Allow one mark for a comprehensive list of where they all are/only one at the Equator. [4]

- (b) (i) using a resource in way which does not stop it being used in the future/development that meets the needs of the present without compromising the ability of future generations to meet their own needs; [1]

- (ii) description of how close data is to 70%/large percentage/agree/disagree qualified, e.g., to a great extent/strongly/because not quite what book says;
- data is 60 (overfished) + 6 (depleted) = 66% is unsustainable;

ORA (2 + 9 + 23 = 34% is sustainable) [2]

- (iii) net types;
- size;
- mesh size;
- quotas;
- restricted area;
- closed/restricted season;
- conservation laws/monitoring/licence;
- education of fishermen about conservation;

Allow another mark for developing any point. [3]

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0680	11

- 5 (a) (i) north / south but slower than the Eurasian plate / towards the Eurasian plate; [1]
- (ii) plates (always) move;
(collisions of plate) cause a build up of pressure;
due to friction / eq.;
resulting in shaking; [2]
- (b) (i) 6 to 50 000 / 49 994; [1]
- (ii) time of day it occurs;
location, qualified (e.g. different population density);
might be followed by tsunami;
- preparedness / earthquake-resistant buildings / what to do in an earthquake;
Allow up to two examples for two marks. [3]
- (c) volcanoes are:
isolated;
often allow more time to escape;
predictable / can evacuate;
localised;
- ORA for earthquakes.* [3]
- 6 (a) (i) climatic:
temperature / humidity / wind / light;
- soil:
salinity / water / pH / nutrients;
- non-human:
predators / producers / consumers / competitors;
- 12 items correct for four marks. 9–11 items correct for three marks. 6–8 items correct for two marks. 3–5 items correct items for one mark.* [4]
- (ii) *One mark per example.*
e.g. deforestation; farming; polluting; draining; burning of fossil fuels; etc. [2]

Page 6	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0680	11

- (b) (i) cause:
e.g. removal of vegetation / overgrazing / over-cultivation / clearance of slopes / poor irrigation;

explanation:

e.g. soil has no cover / no roots to bind soil / no barrier to wind / increases run-off / other relevant explanation; [2]

- (ii) tree planting;
terracing;
contour ploughing;
wind breaks; etc.

description of how this helps for the second mark; [2]

[Total: 60]