

**MARK SCHEME for the October/November 2009 question paper  
for the guidance of teachers**

**0680 ENVIRONMENTAL MANAGEMENT**

**0680/01**

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.

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<b>Page 2</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2009</b>	<b>0680</b>	<b>01</b>

- 1 (a) (i) a gas in the atmosphere which absorbs (reflected) heat from earth/ idea of retains/traps sun's heat;  
warming up atmosphere; [2]
- (ii) carbon dioxide/ CO<sub>2</sub>/CO; [1]
- (b) rises;  
sensible figures quoted;  
supported with correct figures;  
but fluctuates up and down as does so;  
fossil fuel burning/eq emissions account for rise;  
deforestation/eq;  
seasonal changes in plant uptake for fluctuations;  
  
NOTE Max 2 for description OR explanation points [3]
- (c) (i) CFC–  
aerosols/fridges/air conditioning (units)/fire extinguisher; [1]
- (ii) methane–  
rice paddies/cattle/grazing/decomposition in landfill/pockets in crust/sea bed; [1]
- (iii) CFC–  
use alternatives/ban/HCFE;  
methane–  
give cows more digestible diet/anti 'wind' agents in food/develop rice which can grow in drier conditions;  
reject references to burning [2]
- 2 (a) (i) plates moving towards each other (label not needed but arrows/eq to show direction are needed);  
oceanic/one plate shown going over other/subduction;  
one plate labelled (then other implied)  
volcano shown on continental shelf (labelled or accept suitable shape);  
MAX 2 if one or no labels [4]
- (ii) volcanic ash/eq contains nutrients/eq OR is fertile/eq;  
needed for crop/plant growth; [2]

<b>Page 3</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2009</b>	<b>0680</b>	<b>01</b>

**(b) (i) ENVIRONMENT**

land covered in deposits;  
air polluted/eq;  
deforestation;  
AVP;

**HOUSES**

destroyed;  
burnt;  
buried;  
by lava;  
possessions lost;

**FARM**

destroyed;  
by burying;

**TRANSPORT**

roads covered/eq;  
poor visibility;  
cars burned;  
tyres melted;  
airport destroyed;

[2]

**(ii) ban houses near volcano (zoning);**

monitor and;  
warn;  
evacuate;  
food/water/medical aid;  
training in emergency procedures;  
good communications;  
channelling lava;  
bombing to divert;

[2]

**3 (a) (i) 400 million**

[1]

**(ii) 6400 million**

MAX 1 if no units

[1]

**(iii) death rate lower;**

due to:  
better medical attention;  
better sanitation;  
better water supply;  
better food production/supply;  
preventive medicine (vaccination)/ eq;  
AVP;;

Any 2 × 2

[4]

**(b) (i) unemployment; high crime rate; war; poverty; lack of services; security;  
½ each round down**

[2]

**(ii) possibility of having better:**

housing/health services/education/water supply/electricity supply/source of food/  
employment; AVP

[2]

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0680	01

- 4 (a) (i) A – Humboldt/Peruvian;  
 B – Benguela;  
 C – Gulf Stream/NAD;  
 D – Canaries;  
 E – N. Atlantic Drift;  
 F – Labrador,  
 G – Brazil;  
 H – Mozambique; [2]
- (ii) cold toward equator (or away from pole); warm from equator (towards poles); [1]
- (iii) current F makes Labrador colder than UK/eq;  
 idea of same latitude, different climate; [2]
- (b) (i) coastal winds push surface water out to sea;  
 this warm water is replaced by rising of colder, nutrient rich water; [2]
- (ii) the coastal winds weaken/or even blow the other way;  
 causes evaporation;  
 this causes reversal in surface currents;  
 so warm water moves towards the coast;  
 fish migrate/move away;  
 minerals used by algae;  
 which feed fish;  
 oxygen reduced in warm water; [3]
- 5 (a) (i) X–light/sunlight/sun/eq;  
 Y–carbon dioxide;  
 Z–water;  
 accept formulae [3]
- (ii) nutrients/minerals/fertilisers; [1]
- (iii) poor in oxygen/air/waterlogged/eq;  
 too acid/alkaline;  
 too thin/ eroded/ compacted;  
 too salty/polluted;
- AVP [2]
- (b) (i) tree– producer; [1]  
 caterpillar AND birds– consumer; [1]
- (ii) predation/carnivore; [1]
- (iii) pollination/symbiosis; [1]

<b>Page 5</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2009</b>	<b>0680</b>	<b>01</b>

- 6 (a) (i)** (high sea temp), causes air above to be heated;  
convection currents;  
this warm air rises;  
clouds form;  
low pressure develops;  
this sucks up more air from sea surface;  
air sinks in middle;  
wind speeds increase;  
spiral winds; [3]
- (ii)** Y; [1]
- (b) (i)** spread of malaria/cholera/other water related disease/breathing problems;
- (ii)** total destruction of (any sensible aspect of infrastructure)/crops/livestock/vegetation; [2]
- (c) (i)** period of dry weather/low or no rainfall;  
lasting longer than expected/where such weather not the norm; [2]
- (ii)** dam building to conserve water/storing water/irrigation;  
plant trees;  
improve soil with compost;  
drought resistant strains;  
desalination plant; [2]