Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/13**

Paper 1 **October/November 2018**

MARK SCHEME

Maximum Mark: 60

Published

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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)(i)	<table><tr><th>feature</th><th>letter</th></tr><tr><td>continental plate</td><td>C</td></tr><tr><td>ash and gas</td><td>A</td></tr><tr><td>lava and mud</td><td>B</td></tr><tr><td>magma</td><td>D</td></tr><tr><td>oceanic plate</td><td>E</td></tr><tr><td>subduction</td><td>F</td></tr></table> ;;; *5–6 correct [3]* *3–4 correct [2]* *1–2 correct [1]*	**3**
1(a)(ii)	destructive / convergent;	**1**
1(b)	*any three from:* two plates, move towards each other / converge; the heavier / oceanic plate, is forced under the, lighter / continental, plate; the oceanic plate, melts / is destroyed (in the subduction zone); due to, friction / pressure, which forms magma; magma moves up to the (Earth's) surface (through, rocks / cracks / vents); pressure is released causing lava / magma, to erupt onto the Earth's surface;	**3**
1(c)	*any three from:* eruptions of lava / lava flows, causing fires / damage / injury; eruptions of, hot gases / poisonous gases causing suffocation; (eruptions of) ash / tephra, covering, houses / crops / causing breathing problems; earthquakes causing, damage / injury; landslides / mud flows / lahars, causing, damage / injury;	**3**

Question	Answer	Marks
2(a)(i)	1979;	**1**
2(a)(ii)	3.0 million km^2;	**1**
2(a)(iii)	September;	**1**
2(a)(iv)	area of ice is decreasing over time;	**1**
2(b)	*any three from:* *negative impacts:* some coastal, islands / lowlands / farmland, will disappear under the sea; millions of people will be, affected by flooding / forced to migrate; more, pests / viruses / (risk of) water-related diseases; increase in coastal erosion / (more) coastal defences will be needed; salinisation of, groundwater supplies / coastal aquifers / soils; coastal industry / fishing industry, will collapse; coral bleaching / coral reefs will die; coastal, habitats / mangroves / wetlands, will be destroyed; storm surges, will be more powerful / cause more damage; *positive impacts:* increased opportunities for tidal power generation; deeper ports / harbours, for shipping; increased, nutrients / sediment, deposited by flooding supporting, agriculture / coastal defences;	**3**

Question	Answer	Marks
2(c)	*any three from:* increasing carbon dioxide by <u>burning fossil fuels</u> in (coal / oil / gas fired) power stations or factories or homes; CO_2 emissions from, transport / vehicles / air travel; burning wood / deforestation, releases CO_2; increasing methane by, rice cultivation / ranching / cattle / sheep; decomposition in landfill releases methane; destroying the ozone layer by using CFC's in, refrigerators / air conditioning / aerosols; increasing SO_2 and NO_x by <u>burning fossil fuels</u> in power stations / factories; causing acid rain; SO_2 and NO_x emissions from, transport / vehicles / air travel;	**3**

Question	Answer	Marks
3(a)	*any three from:* heavy precipitation / rain / snow melt, increases run-off into rivers; most of the country / 70%, is low lying / < one metre above sea level; cyclones bring, heavy rain / storm surges; river channels are blocked with silt;	**3**
3(b)	*any four from:* less interception of water; decreased uptake of water by roots / roots no longer hold soil in place; less, canopy drip / stem flow; infiltration decreases / ground, cannot absorb water / becomes saturated; increases run-off even more; increased risk of, soil erosion / landslides / mudflows; even more, water / soil / sediment, reaches rivers; soil / sediment, raises level of bed / decreases volume of water river carries;	**4**

Question	Answer	Marks
3(c)	*any one from:* construct dams (upstream) / embankments / levees / drainage channels / bunds; site, villages / homes, on earth banks; flood, forecasting / warning systems; flood protection shelters; *reference to*, (well prepared) emergency services;	**1**
3(d)	*any two from:* clean / safe, water supplies / chlorination; improved / hygienic, sanitation facilities; good hygiene practices; drugs / medicines / vaccines; eradication plus example, e.g. draining stagnant water; control of vector plus example, e.g. mosquito nets / spraying; education qualified, e.g. educating local people about how water-related diseases are spread;	**2**

Question	Answer	Marks
4(a)	*predator:* lynx or fox; *consumer:* lynx or mouse or fox; *producer:* plant(s);	**3**
4(b)	*any four from:* (climate) rainfall; temperature; wind; sunlight; humidity; oxygen; soil depth; soil nutrients; soil, acidity / pH; soil salinity; (soil) water; soil drainage; (land) rock; relief; height; slope;	**4**

Question	Answer	Marks
4(c)	*any three from:* loss of habitat; loss of (animal and plant) species; loss of (bio)diversity; loss of food source; genetic depletion; animals leave the area; loss of as yet undiscovered species; extinction of (some) species; increase in numbers of other species; disruption of / change in, food chain / food web;	**3**

Question	Answer	Marks
5(a)	*any three from:* mostly near the tropics; two deserts / largest desert / largest desert area, is in Africa; western sides of, continents / North and South America, Africa and Oceania; more, north of the Equator / in northern hemisphere; AVP;	**3**
5(b)(i)	*any two from:* country is landlocked / lack of access to, sea / ocean; many desert countries are too poor to set up desalination plants / process is very expensive; process needs a lot of energy; high levels of technology / skilled workers required, are not available; (already) water rich / other fresh water sources available;	**2**
5(b)(ii)	*any one from:* greenhouse gas emissions / climate change, <u>if energy source is a fossil fuel</u>; impact on, marine / coastal, ecosystems; marine species in water are killed in desalination plant; effluent of desalination plants is salty and kills marine life;	**1**

Question	Answer	Marks
5(c)	*any two from:* water conservation / more efficient use; (extracting from) underground / aquifers / seasonal wadis / oases / wells; dams / reservoirs; rainwater harvesting; water, recycling / reuse / reclamation; cloud seeding; importing / pipelines / icebergs / bottled water; AVP;	**2**
5(d)	*any two from:* high precipitation; large / many, rivers / lakes; groundwater supplies / aquifers; low population; AVP;	**2**

Question	Answer	Marks
6(a)(i)	China;	**1**
6(a)(ii)	Ethiopia;	**1**
6(a)(iii)	***rank of population of males in the age group 25 to 29*** / ***country*** *1* / China *2* / Ethiopia *3* / France ;	**1**
6(b)	number of deaths of children under one year old (per 1000 / 100, live births);	**1**

Question	Answer	Marks
6(c)(i)	*any three from:* large ageing population; high / increasing costs of an ageing population; e.g. health care / hospitals / care homes / housing / public transport; increasingly male population / need to improve the gender ratio; decreasing number of people, of working age / economically active; need for workers to support the economy; fall in, (tax) income / number of tax payers; AVP;	**3**
6(c)(ii)	*any three from:* (provision of) family planning services / sex education / birth control; provide access to, contraception / birth control / sterilisation; improve access to health care; *reference to*, reduce child mortality; improve education (including on family planning) / education of girls / literacy; *reference to*, careers for women / later marriages / smaller families; control immigration; *reference to*, border control / visas; incentives and tax breaks;	**3**