Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 **March 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 March 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)	5 correct [3] 3 to 4 correct [2] 1 to 2 correct [1] continental crust **A** core **C** mantle **B** oceanic crust **D** sediment **E** ;;;	**3**
1(a)(ii)	*igneous rock:* rocks formed by cooling of (molten) lava or magma; *metamorphic rock:* rocks or igneous or sedimentary rocks changed by heat and / or pressure; *sedimentary rock:* rocks formed from sediments or small particles of rocks / rocks deposited in layers / rocks that contain fossils;	**3**
1(b)	*any four from:* visual pollution or loss of scenic beauty or eyesore; loss of, vegetation / wildlife / habitat destruction / biodiversity / farmland / crops / pasture for livestock; dust or fumes or atmospheric / air pollution; noise, from operations / scares wildlife; river or water pollution; increase in traffic or road congestion; waste heaps / land pollution;	**4**

Question	Answer	Marks
2(a)(i)	phytoplankton – krill – (*baleen whale*) – killer whale;	1
2(a)(ii)	phytoplankton;	1
2(a)(iii)	six / 6;	1
2(a)(iv)	*any two from:* leopard seals will decline or decrease or die or migrate; because there is less food or fewer penguins or fewer fish; the (Southern Ocean) food web or ecosystem depends on krill OWTTE;	2
2(b)(i)	*any four from:* fish / shellfish / seaweed / kelp; oil / natural gas; (building materials) sand / gravel; minerals / stated example, e.g. salt; metals / stated example, e.g. iron / nickel / copper / manganese; jewellery / pearls / diamonds; wave or tidal energy; potential for (desalination to provide) fresh water; AVP, e.g. fertiliser / cosmetics / gums / chemicals / medicines;	4
2(b)(ii)	*any one from:* accessible as water is relatively shallow or averages approximately 60 metres or 200 feet; sunlight or nutrient rich sediment or oxygen, so many organisms live there OWTTE; oceans beyond the continental slope are difficult to access OWTTE;	1

Question	Answer	Marks
3(a)(i)	*any two for **one** mark:* Indonesia, Malaysia, Nigeria, Thailand;	**1**
3(a)(ii)	84.7 / 85;	**1**
3(a)(iii)	USA **AND** Bangladesh;	**1**
3(b)	*any three from:* hot; average temperature approximately 26–30 °C; small or 2–3 °C temperature range; wet / heavy or high, precipitation / rainfall; annual rainfall 1500–4000 mm; little seasonal variation; rainfall / thunderstorms, every day;	**3**
3(c)	*any two advantages:* economically beneficial to country; palm oil has many uses; food / cosmetics / animal feed / biofuel; palm oil plantations provide jobs; (young) palm trees capture carbon from the atmosphere or are a carbon sink; *any two disadvantages:* deforestation of TRF releases carbon dioxide; deforestation speeds up, global warming / greenhouse effect; loss of carbon sink (mature TRF is a carbon store); soil erosion or leaching during clearance; loss of, biodiversity / habitat; extinction / endangered, species (orangutan, elephant, tiger); fertilisers can cause eutrophication or damage the environment; pesticides damage un-targeted species or ecosystems or bioamplification; monoculture / loss of nutrients / artificial fertiliser needed;	**4**

Question	Answer	Marks
4(a)(i)	2 745 000 $\underline{km^2}$ **AND** Asia;	**1**
4(a)(ii)	North America **AND** four / 4;	**1**
4(a)(iii)	Amazon River Basin;	**1**
4(b)(i)	*any three from:* agriculture or grow crops or grow trees (silviculture); land for (development) housing or settlement or industry; road construction; water supply; infrastructure for tourism; extraction of raw materials with example, e.g. oil / gas / gravel / peat / phosphates / sand; control of, water related diseases / mosquitoes / malaria;	**3**
4(b)(ii)	*any four from:* they absorb or store carbon dioxide or combat climate change; they absorb or store water or rainfall or reduce flooding; rich diversity of wildlife or animals or birds or fish or plants; purify or filter harmful waste; remove suspended silt from floodwater; maintain water quality; protect coastlines from erosion; have economic uses or products with example, e.g. fisheries or reeds or recreation or rice; provide employment or sustainable livelihoods;	**4**

Question	Answer	Marks
5(a)(i)	1950;	**1**
5(a)(ii)	2010;	**1**
5(a)(iii)	14.5 (allow 14 to 15);	**1**
5(b)	*any three from:* policies / allowances or benefits or (tax) incentives or grants for having children; e.g. birth bonuses (cash, goods) or favoured treatment for housing; paid maternity or paternity leave; subsidised / free, places in crèches or day nurseries or schools or higher education; subsidised / free, healthcare for children or parents; free or fare reduction on public transport; education about, the importance of children to the economy / the problems of an ageing population; pension schemes for mothers or housewives; encourage (appropriate) immigration;	**3**
5(c)	*any three from:* many children or mothers need healthcare or hospitals or vaccinations or medicines; demand for schools or teachers or books or computers; food shortages; pressure on housing; shortages of safe or clean water; inadequate sanitation; shortages of electricity or energy (to meet basic needs); lack of jobs (in the future); young will grow up to have their own children so situation will get worse; pressure on working population / economically active to support the young / high dependency ratio; land degradation or soil or resource exhaustion or named pollution or deforestation; AVP;	**3**
5(d)	Demographic Transition (Model);	**1**

Question	Answer	Marks
6(a)(i)	5 to 6 correct [3] 3 to 4 correct [2] 1 to 2 correct [1] When the wind is strong, the wind **farm** produces electricity. When this electricity is not needed, it is used to pump water in a pipeline from the **lower** reservoir to the **upper** reservoir. During times when there is little wind, the water is released down the **pipeline** to a **hydro-electric** power station to produce electricity. The **oil-fired** power station provides power when other sources are unable to provide all the electricity needed. ;;;	**3**
6(a)(ii)	*any one from:* renewable; sustainable; no fuel costs; does not generate greenhouse gases or contribute to global warming;	**1**
6(b)	*any three from:* conservation / protection / preservation; **of**, landscapes / ecosystems; **of,** biodiversity / species / genetic variation; *reference to* sustainable, communities or activities or resources; provide (logistic) support for, research / monitoring; education / training; ecotourism; provide information on national or global issues (conservation, development);	**3**

Question	Answer	Marks
6(c)	*any three from:* fertile (volcanic) soils for farming; tourist industry; volcanic scenery; health spas (hot springs); mines for minerals; e.g. copper / gold / silver / lead / zinc; valuable gems found; diamonds / opals; building materials; e.g. basalt or tuff or hardened volcanic ash; geothermal power; power from wind or HEP available; risk not great enough to move; volcanoes on island may be extinct or dormant or not active; jobs with example, e.g. research / fishing industry / on farms / in power stations; cannot afford to move; family ties or have always lived there or traditional or emotional attachment;	**3**