Cambridge IGCSE

ENVIRONMENTAL MANAGEMENT **0680/13**

Paper 1 **May/June 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 May/June 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U 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)	*earthquakes are __not__ likely to happen* **D** *two plates are moving apart near an island* **A** *two plates are moving towards each other* **B** *two plates are sliding past each other* **C** ;; *3–4 correct [2]* *1–2 correct [1]*	**2**
1(a)(ii)	around the edge of the Pacific Ocean whereas in the, middle / centre of the Atlantic Ocean;	**1**
1(b)	*any three from:* buildings are not earthquake proof; lack of, preparedness / education about what to do / plans; lack of, evacuation procedures / drills; poor level of medical care; poorly prepared rescue teams / lack of equipment; international aid needed, time delay; poor quality, communications / roads for rescue / evacuation; lack of (resources), food / water / shelter / money (for rebuilding); existing problems made worse;	**3**
1(c)	*any four from:* rubber shock absorbers / base isolators; to absorb tremors; reinforced foundations, concrete / steel; pyramid shape; (cross) bracing / reinforced walls; shear walls / steel bars in concrete, to reduce rocking; lightweight roofs; sprinkler systems; gas cut-off valves; flexible gas piping to prevent fracturing; fire proof materials; open areas / space outside buildings; *reference to* seismic retrofitting / reinforcing existing buildings;	**4**

Question	Answer	Marks
2(a)(i)	0.007;; *(if answer incorrect, allow one mark for* 14.7 – 13.7 (/140 years) *[1])*;	2
2(a)(ii)	**1970 to 2020** circled;	1
2(b)(i)	*both gases must be covered for maximum credit:* *carbon dioxide:* increasing demand for energy; burning, fossil fuels / wood; *reference to* fossil fuel burning in, power stations / factories; cement / iron and steel / chemical, production; vehicle exhaust gases; deforestation; *methane:* rotting / decomposition, of waste; increasing demand for food; cattle farming; rice farming; mining; melting permafrost (as a result of global warming);	4
2(b)(ii)	*any three from:* (conserve energy) insulate, home / buildings / turn off lights / use 'stand by'; (change lifestyle) use public transport / car share; hybrid cars; cycle / walk; energy efficient, lights / appliances; replace energy from fossil fuels with, nuclear energy / renewable energy / buy from a renewable supplier; develop new technologies / generate power from waste / increase efficiency; recycle; plant trees / green belts / green spaces; AVP;	3

Question	Answer	Marks
3(a)	<table><tr><td>***cause***</td><td>***letter***</td></tr><tr><td>*accidents to ships in oceans*</td><td>**S**</td></tr><tr><td>*illegal flushing of oil tanks by ships*</td><td>**T**</td></tr><tr><td>*leaks from oil refineries*</td><td>**P**</td></tr><tr><td>*leaks from oil rigs*</td><td>**U**</td></tr><tr><td>*leaks from pipelines*</td><td>**Q**</td></tr><tr><td>*waste oil from land washed into oceans by rivers*</td><td>**R**</td></tr></table> ;;; *5–6 correct [3]* *3–4 correct [2]* *1–2 correct [1]*	**3**
3(b)	*any three from:* blocks sunlight reducing photosynthesis; kills / smothers, marine life / animals / (land) plants / (sea) birds / corals; fish unable to absorb oxygen; covers birds feathers, so cannot fly / die of hypothermia; effects on organisms if ingested, qualified; covers feeding areas causing starvation; *reference to* impact on, food chain(s) / trophic levels / food web(s); rare wildlife can become, endangered / extinct; damages, coastal marshes / wetlands / mangroves / beaches; clean-up methods can cause additional damage;	**3**

Question	Answer	Marks
3(c)	*any three from:* take immediate action (to reduce environmental impact); burn the oil so it cannot, affect marine life / reach the coast; use, booms / floating barriers, to prevent oil spills from spreading; use, skimmers / boats / vacuum machines / sponges / oil-absorbent ropes, to remove oil from the ocean / transfer oil to a collecting tank; use, dispersants / spray detergents / chemicals, to break up the spill; so currents / tides, carry oil away; (laissez faire) leave the oil alone as some scientists argue that oil spills should be dispersed by, strong winds / currents / wave action; AVP;	**3**
3(d)	if, the outer hull / one hull is damaged, the inner hull / other hull, stops oil from spilling into the ocean;	**1**

Question	Answer	Marks
4(a)(i)	the Sun;	1
4(a)(ii)	water plants **AND** phytoplankton;	1
4(a)(iii)	phytoplankton – water insects – (*fish*) – heron;	1
4(a)(iv)	primary consumers are organisms / animals / herbivores, that feed on plants; secondary consumers are organisms / animals / carnivores, that eat, other organisms / animals / primary consumers;	2
4(b)	*population:* all, plants / animals of the same species / members of a single species, in the same area; *community:* more than one species / plants and animals / populations of different organisms, in the same area;	2
4(c)	*any three from:* loss of, biodiversity / diversity of wildlife / animals / birds / fish / plants; increase in numbers of, other species / dry land species; loss / fragmentation / change, of habitat; loss of food / disruption to food chain / food web; AVP, e.g. migration;	3

Question	Answer	Marks
5(a)(i)	2010;	1
5(a)(ii)	rural population increases until, 2000 / 2010; then, levels off / flattens / stabilises; *OR* rural population increases until 2020; then decreases;	2
5(b)	migration **AND** natural increase / reproduction;	1

Question	Answer	Marks
5(c)	*any three from:* poverty; lack of land to farm; lack of (well paid) jobs; lack of, (services) schools / hospitals / electricity / sanitation / AVP; drought; crop failure / famine; war / civil unrest; religious persecution; (natural disaster) earthquake / volcanic eruption / flood / cyclone; AVP;	3
5(d)	*any three from:* <u>air</u> pollution, greenhouse gases / NOx / CO_2 / SO_2 from, traffic; or industry; <u>water</u> pollution, open drains / untreated sewage / AVP; <u>land</u> pollution, garbage / rubbish tips; <u>noise</u> pollution, construction sites / traffic / effect on wildlife; lack of / shortages of, water / overdrawn aquifers / low water levels in streams; deforestation; urban sprawl causing loss of, biodiversity / habitats / green belt; AVP;	3

Question	Answer	Marks
6(a)(i)	*any four for* **two** *marks:* **A** (agro-forestry) **D** (selective logging) **E** (hydro-electric power stations) **G** (harvesting fruits and nuts) **H** (shifting cultivation) **I** (forest reserves) ;; *3–4 correct [2]* *1–2 correct [1]*	**2**
6(a)(ii)	*any two for* **one** *mark:* **B** (cattle ranching) **C** (wood pulp for paper) **E** (hydro-electric power stations) **F** (mines for copper and iron ore) ;	**1**
6(b)	*any three from:* ecotourism protects the tropical rainforest; (by) increasing awareness of the rainforest; (by) the local people use the rainforest (resources) sustainably; ecotourists do not interfere with the rainforest; money paid by ecotourists can be used to protect the tropical rainforest;	**3**
6(c)	*any four from:* prevent wind / water erosion by, planting trees / wind breaks; terrace steep slopes to prevent soil erosion by run-off; contour plough around slopes to reduce soil erosion by run-off; agro-forestry, plant trees and crops to maintain, soil fertility / reduce erosion; use, intercropping / mixed cropping, to keep the soil, covered / protected; use crop rotation to maintain fertility; add organic matter to the soil to, improve structure / hold water (mulching); manage grazing of livestock to prevent compaction of soil; use trickle drip irrigation to reduce, run-off / salinisation; AVP;	**4**