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**ENVIRONMENTAL MANAGEMENT**

**0680/11**

Paper 1

**October/November 2018**

MARK SCHEME

Maximum Mark: 60

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**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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This document consists of **12** printed pages.

**PUBLISHED****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)	85;	1										
1(a)(ii)	<table border="1" data-bbox="495 284 1704 612"> <thead> <tr> <th data-bbox="495 284 799 347"><i>type of pollution</i></th> <th data-bbox="799 284 1704 347"><i>source of marine pollution</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="495 347 799 411"><i>acid rain</i></td> <td data-bbox="799 347 1704 411">air pollution from land / marine transport</td> </tr> <tr> <td data-bbox="495 411 799 475"><i>excess fertiliser</i></td> <td data-bbox="799 411 1704 475">run-off from farms / sewage</td> </tr> <tr> <td data-bbox="495 475 799 539"><i>pieces of plastic</i></td> <td data-bbox="799 475 1704 539">litter from land / sewage / industrial waste water</td> </tr> <tr> <td data-bbox="495 539 799 612"><i>oil spill</i></td> <td data-bbox="799 539 1704 612">oil rigs in the ocean / oil from marine transport</td> </tr> </tbody> </table> <p data-bbox="1704 571 1738 595">;;</p> <p data-bbox="320 651 517 715">3–4 correct [2]                      1–2 correct [1]</p>	<i>type of pollution</i>	<i>source of marine pollution</i>	<i>acid rain</i>	air pollution from land / marine transport	<i>excess fertiliser</i>	run-off from farms / sewage	<i>pieces of plastic</i>	litter from land / sewage / industrial waste water	<i>oil spill</i>	oil rigs in the ocean / oil from marine transport	2
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<i>oil spill</i>	oil rigs in the ocean / oil from marine transport											
1(b)(i)	<p data-bbox="320 746 517 778"><i>any three from:</i></p> <p data-bbox="320 783 1361 1150">cover / destroy, habitats / feeding grounds;                      toxic / poisonous / causes death of, plants / sea creatures / birds / land organisms;                      (block sunlight) prevent photosynthesis;                      description of impact on, food chains / food webs;                      rare wildlife can become, endangered / extinct;  <i>reference to</i>, effect on reproduction;                      block gills of fish;                      oil covers birds feathers so cannot fly;                      oil can damage, skin / eyesight / sense of smell;                      clean-up methods can cause additional damage;                      AVP, e.g. oil spills deplete oxygen / deprive aquatic organisms of oxygen;</p>	3										

Question	Answer	Marks
1(b)(ii)	<p><i>any three from:</i> take immediate action (to reduce environmental impact);</p> <p>booms / floating barriers; to prevent or reduce spreading;</p> <p>skimmers / boats / vacuum machines / sponges / oil-absorbent ropes; to, remove oil from the ocean / transfer oil to a collecting tank;</p> <p>use, dispersants / detergents / chemicals; to break up the oil spill;</p> <p>set fire to the oil spill; to burn the oil so it cannot, spread / affect marine life / reach the coast;</p> <p>leave the oil to be dispersed by, strong winds / currents / wave action;</p>	<b>3</b>
1(c)	<p><i>any one from:</i> (leakage / discharge from) nuclear, power stations / processing plants; nuclear power station accidents; nuclear powered, submarines / ships; military waste; medical sources / hospital waste; industrial waste; fall-out from nuclear explosions (in the atmosphere); illegal dumping; plutonium;</p>	<b>1</b>

Question	Answer	Marks
2(a)(i)	Atlas Mountains;	1
2(a)(ii)	Eurasian plate <b>AND</b> Indo-Australian plate;	1
2(a)(iii)	Andes Mountains plate boundary is under the ocean / one plate is oceanic the other is continental, (whereas) Himalayan Mountains plate boundary is, on land / both plates are continental; <b>OR</b> <u>Andes is a destructive boundary / has a subduction zone, whereas Himalayas is a collision boundary;</u>	1
2(a)(iv)	<i>any three from:</i> sediments (from rivers) accumulate on the sea floor; sediments are compressed into sedimentary rock; two plates, converge / move towards each other; <u>pressure</u> causes the rocks to be, pushed up / crumpled / folded to form mountains;	3
2(b)	<b>(X)</b> destructive / convergent <b>AND</b> <b>(Y)</b> constructive / divergent;	1
2(c)	<i>any three from:</i> (hot rocks used for carbon neutral) geothermal power; lava / ash, (weather to produce) fertile soils for farming; tourism (scenery is tourist attraction); volcanic rocks can be used for building (e.g. basalt, tuff); minerals can be mined (e.g. sulfur, copper, gold, silver, lead, zinc); precious stones (opals, obsidian, agate, onyx); jobs (for local people) plus an example, e.g. in, mines / tourist industry; forms new, land(masses) / islands; eruptions of ash can lead to, 'global dimming' / a cooling effect;	3

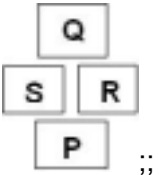
Question	Answer	Marks
3(a)(i)	coal <b>AND</b> natural gas <b>AND</b> oil;	<b>1</b>
3(a)(ii)	(aluminium ore) 30 (years) <b>AND</b> (tin ore) 14 (years);	<b>1</b>
3(a)(iii)	(longest time) iron ore <b>AND</b> (shortest time) tin ore / gold;	<b>1</b>
3(a)(iv)	<i>any one from:</i> new, finds / discoveries; amounts needed / used, decrease; resource, re-use / recycling; improvements in technology mean more of a mineral can be extracted; use of, alternative / renewable resources plus example, e.g. wind / solar replacing, coal / oil; <i>reference to</i> , accessibility / costs / quality; AVP;	<b>1</b>
3(b)	<i>any three from:</i> land / vegetation / soil, is cleared (using heavy machinery); overburden / rock above resource, is broken up / loosened (using explosives); removed using diggers; rock / mineral, is mined / extracted; <i>reference to</i> , terraces / stairs / steps; rock / mineral, is transported (to processing / refining plant);	<b>3</b>

Question	Answer	Marks
3(c)	<p><i>any three from:</i>  noise from turbines;  <u>visual</u> pollution / intrusion / eyesore;  turbines only work when there is wind;  so requires back-up generating capacity;  turbines have to be shut down when there is too much wind;  turbines may produce power when it is not needed (e.g. at night);  there are few jobs;  turbines are expensive to, manufacture / install / maintain;  turbines can threaten wildlife / kill birds (flying into the blades);  over time, energy produced decreases / maintenance costs increase;  may not be cost effective (lifespan of a turbine is 10–25 years);</p>	<b>3</b>

Question	Answer	Marks												
4(a)	<table border="1" data-bbox="685 767 1514 1187"> <thead> <tr> <th data-bbox="685 767 1350 834"><i>feature</i></th> <th data-bbox="1350 767 1514 834"><i>letter</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="685 834 1350 901"><i>ozone layer</i></td> <td data-bbox="1350 834 1514 901" style="text-align: center;"><b>A</b></td> </tr> <tr> <td data-bbox="685 901 1350 968"><i>stratosphere</i></td> <td data-bbox="1350 901 1514 968" style="text-align: center;"><b>C</b></td> </tr> <tr> <td data-bbox="685 968 1350 1035"><i>troposphere</i></td> <td data-bbox="1350 968 1514 1035" style="text-align: center;"><b>D</b></td> </tr> <tr> <td data-bbox="685 1035 1350 1102"><i>ultra-violet light reflected into space</i></td> <td data-bbox="1350 1035 1514 1102" style="text-align: center;"><b>B</b></td> </tr> <tr> <td data-bbox="685 1102 1350 1187"><i>ultra-violet radiation reaching the Earth's surface</i></td> <td data-bbox="1350 1102 1514 1187" style="text-align: center;"><b>E</b></td> </tr> </tbody> </table> <p data-bbox="1525 1139 1554 1166">...</p> <p data-bbox="322 1225 517 1321"> 5 correct [3]  3–4 correct [2]  1–2 correct [1] </p>	<i>feature</i>	<i>letter</i>	<i>ozone layer</i>	<b>A</b>	<i>stratosphere</i>	<b>C</b>	<i>troposphere</i>	<b>D</b>	<i>ultra-violet light reflected into space</i>	<b>B</b>	<i>ultra-violet radiation reaching the Earth's surface</i>	<b>E</b>	<b>3</b>
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Question	Answer	Marks
4(b)	<i>any three from:</i> use of, CFCs / halons; (as coolants) in, refrigerators / air conditioning systems; (as propellants) in, (aerosol) sprays / fire extinguishers; as cleaning solvent for, manufacturing processes / electronic components; chlorine / chlorine gas, from CFCs released into the atmosphere destroying ozone;	<b>3</b>
4(c)	<i>any one from:</i> international / global, problem; there are no national boundaries in the atmosphere; CFCs / halons, are used in many countries and travel around the world in the atmosphere;	<b>1</b>
4(d)	<i>any three from:</i> (to protect themselves from) ultra-violet radiation; (which can cause) mutations / <u>skin</u> cancer; (which can cause) cataracts; CFCs emitted before the Montreal Protocol are still in the atmosphere; CFCs in the atmosphere are breaking down very slowly; CFCs are still contributing to (stratospheric) ozone depletion; ultra-violet radiation levels in the atmosphere will remain high for many years;	<b>3</b>

Question	Answer	Marks
5(a)(i)	 <p>3–4 correct [2] 1–2 correct [1]</p>	<b>2</b>
5(a)(ii)	4–8 (km);	<b>1</b>

Question	Answer	Marks
5(a)(iii)	<p><i>any four from:</i>            jobs, as tourist guides / in tourist facilities / providing accommodation;            jobs, maintaining / managing, the reserve;            making tourist souvenirs;            ecosystem is, conserved / protected;            resources are used sustainably;            income qualified, e.g. local people earn money from, tourism / working in the tourist facilities;            education qualified, e.g. local people are, trained / educated on how to use the biosphere reserve;            gains from scientific research (e.g. into, biodiversity / species / genes);            involvement in decision making;            improved infrastructure;            e.g. roads / water supply / electricity;            AVP;</p>	<b>4</b>
5(b)	<p><i>any three from:</i>            sustainable harvesting of, wild plant / animal species / agroforestry / selective logging;            national parks / forest or wildlife reserves (managed by wardens);            access, clearly defined boundaries / restricted areas or entry;            education about the importance of conservation;            ecotourism qualified, e.g. tourist codes of, conduct / access;            bans / penalties / punishments / laws;            to stop damaging activities such as, logging / deforestation / dams / AVP;            international recognition and funding;            gene / seed / sperm / egg, banks / freezing;            zoo / breeding programmes;            AVP, e.g. <i>reference to</i> work of named environmental organisations such as, UNEP, IUCN, WWF, CITES;</p>	<b>3</b>

Question	Answer	Marks
6(a)(i)	2007;	1
6(a)(ii)	(urban population) increasing; (rural population) increase (to c.2000 / 2005) then, stable / declines;	2
6(b)(i)	(migration) the movement of people from one place to another;	1
6(b)(ii)	changes in <u>birth</u> and / or <u>death rates</u> ;	1
6(c)	<p><i>any two from:</i>  destruction of, habitats / natural vegetation / deforestation, for building land;  shortage of (public / formal) housing / overcrowding;  urban sprawl / slums or informal / spontaneous / squatter, settlements;  traffic congestion;  <u>air</u> pollution from, traffic / industry burning fossil fuels;  <u>water</u> pollution / open drains / untreated sewage;  <u>land</u> pollution / litter / garbage tips / rubbish tips;  <u>noise</u> pollution from, vehicles / people;  lack of services, e.g. electricity / education / hospitals / piped water / sewerage;  shortage of, (formal) jobs / employment in the informal sector;  AVP, e.g. <i>reference to</i> availability of food, <i>reference to</i> visual pollution;</p>	2

<b>Question</b>	<b>Answer</b>	<b>Marks</b>
6(d)	<p><i>any three from:</i>            (provision of) family planning services / sex education / birth control;            provide access to, contraception / birth control / sterilisation;</p> <p>improve access to health care;  <i>reference to</i>, reduce child mortality;</p> <p>improve education (including on family planning) / education of girls / literacy;  <i>reference to</i>, careers for women / later marriages / smaller families;</p> <p>national (antinatalist) policies / laws to restrict number of children;            examples of, e.g. China's two child policy (2015) / China's one child policy (1979);            incentives / tax breaks;</p> <p>control immigration;  <i>reference to</i>, border control / visas;</p>	<b>3</b>