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CAMBRIDGE
International Education

Cambridge IGCSE™

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 Theory **October/November 2025**

MARK SCHEME

Maximum Mark: 80

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 2025 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 descriptions 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.

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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.

Science-Specific Marking Principles

1	Examiners should consider the context and scientific use of any keywords when awarding marks. Although keywords may be present, marks should not be awarded if the keywords are used incorrectly.
2	The examiner should not choose between contradictory statements given in the same question part, and credit should not be awarded for any correct statement that is contradicted within the same question part. Wrong science that is irrelevant to the question should be ignored.
3	Although spellings do not have to be correct, spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. ethane / ethene, glucagon / glycogen, refraction / reflection).
4	The error carried forward (ecf) principle should be applied, where appropriate. If an incorrect answer is subsequently used in a scientifically correct way, the candidate should be awarded these subsequent marking points. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.
5	<u>'List rule' guidance</u> For questions that require ***n*** responses (e.g. State **two** reasons …): • The response should be read as continuous prose, even when numbered answer spaces are provided. • Any response marked *ignore* in the mark scheme should not count towards ***n***. • Incorrect responses should not be awarded credit but will still count towards ***n***. • Read the entire response to check for any responses that contradict those that would otherwise be credited. Credit should **not** be awarded for any responses that are contradicted within the rest of the response. Where two responses contradict one another, this should be treated as a single incorrect response. • Non-contradictory responses after the first ***n*** responses may be ignored even if they include incorrect science.

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6 Calculation specific guidance

Correct answers to calculations should be given full credit even if there is no working or incorrect working, **unless** the question states 'show your working'.

For questions in which the number of significant figures required is not stated, credit should be awarded for correct answers when rounded by the examiner to the number of significant figures given in the mark scheme. This may not apply to measured values.

For answers given in standard form (e.g. $a \times 10^n$) in which the convention of restricting the value of the coefficient (a) to a value between 1 and 10 is not followed, credit may still be awarded if the answer can be converted to the answer given in the mark scheme.

Unless a separate mark is given for a unit, a missing or incorrect unit will normally mean that the final calculation mark is not awarded. Exceptions to this general principle will be noted in the mark scheme.

7 Guidance for chemical equations

Multiples / fractions of coefficients used in chemical equations are acceptable unless stated otherwise in the mark scheme.

State symbols given in an equation should be ignored unless asked for in the question or stated otherwise in the mark scheme.

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Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standard isation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	correct point or mark awarded
	incorrect point or mark not awarded
	information missing or insufficient for credit
	incorrect or insufficient point ignored while marking the rest of the response
	contradiction in response, mark not awarded
	benefit of the doubt given
	error carried forward applied
	First answer
	response has not answered question
	power of ten error

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Annotation	Meaning
SEEN	point has been noted, but no credit has been given or blank page seen
TV	response is too vague or there is insufficient detail in response
REP	repetition in response
	to show a correct point but where the number of points does not relate to the number of marks i.e. 3 correct = 2 marks
	correct awarding one mark from marking point or marking group 1. similar numbered ticks are used for marking point or marking groups 2, 3, 4 etc.
Highlighter	Highlight

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Question	Answer	Marks
1(a)	**X**: thermosphere; **Y**: mesosphere; **Z**: stratosphere;	**3**
1(b)	**people** cataracts / cancer; **vegetation** damaged (by decrease in rate of photosynthesis) / decrease in crop production;	**2**

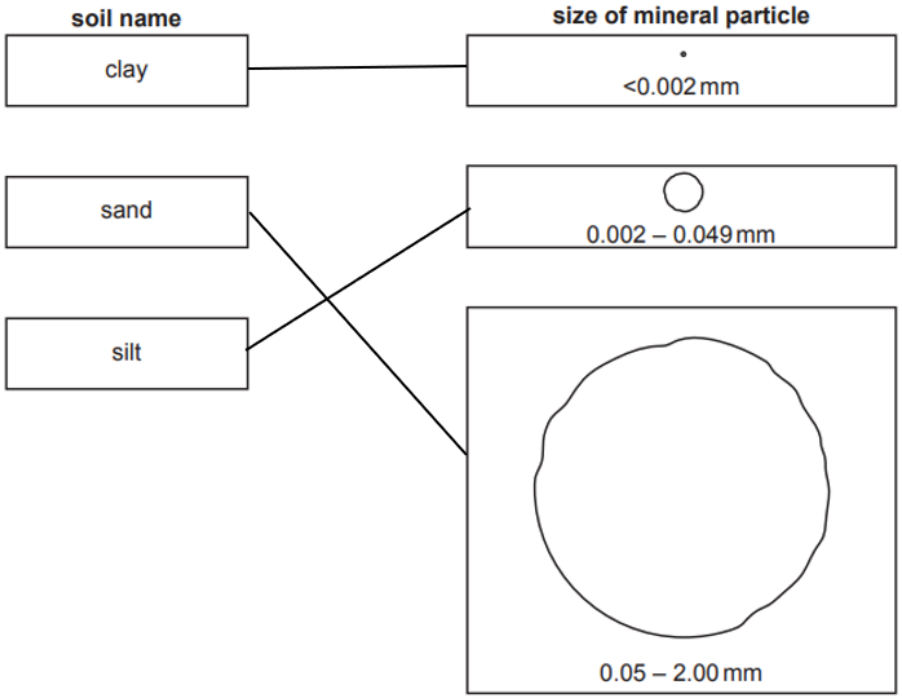
Question	Answer	Marks
2(a)	*any three from:* **M1** named food other than fish; **M2** chemicals; **M3** building materials; **M4** wave / tidal, energy; **M5** tourism; **M6** transport; **M7** potential for safe drinking water;	**3**
2(b)	*any three from:* **M1** water is (relatively) shallow; **M2** more, light; **M3** more nutrients / minerals; **M4** greater photosynthesis; **M5** greater numbers of plankton / food resources; **M6** more oxygen; **M7** warmer water;	**3**

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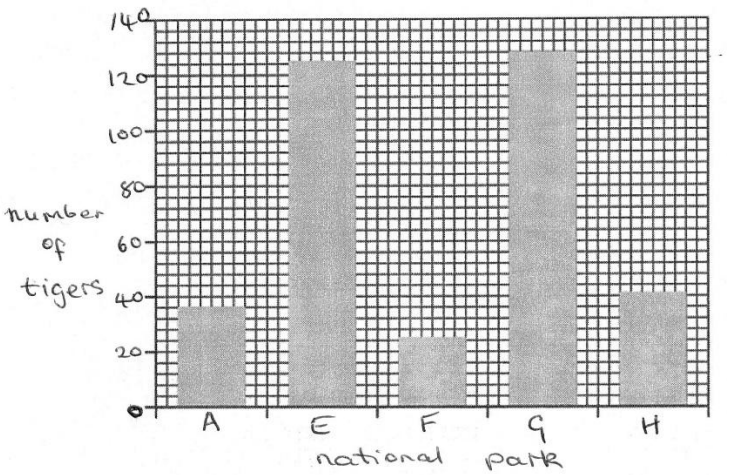
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Question	Answer	Marks
3(a)(i)	mineral particles 45% air 25% water 25% organic content 5% 2 correct = 1 mark 4 correct = 2 marks	**2**
3(a)(ii)	*any three from:* **M1** living plants; **M2** living animals / earthworms / insects; **M3** microorganisms / microbes / fungi / bacteria; **M4** dead / decaying / decomposing organisms; **M5** specific examples e.g humus / manure/ compost;	**3**

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Question	Answer	Marks
3(b)(i)	 ;	1
3(b)(ii)	rock;	1
3(b)(iii)	*any two from sandy soils:* **M1** hold more air; **M2** larger pore spaces; **M3** do not hold water / hold less water; **M4** drain quickly; **M5** fewer nutrients / less fertile; **M6** easier to cultivate;	2

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Question	Answer	Marks
4(a)(i)	12*;* D; 7; India;	**4**
4(a)(ii)	**M1** area of national parks 3403 (km ^{2}) **AND** Number of tigers: 355; **M2** 9.6 $\underline{km^2}$;	**2**
4(a)(iii)	Y axis number of tigers **AND** 0 to 140 against the tick marks on the darker horizontal grid lines; X axis national park **AND** letters A E F G H (centred) below the bars;  	**2**
4(b)(i)	(355 – 121=) 234; (234 ÷121 × 100=) 193(.4);	**2**

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Question	Answer	Marks
4(b)(ii)	*any three from:* **M1** the number of tigers has increased / people think, there are too many tigers / conservation has been too successful; **M2** people are being, attacked / frightened in the national parks; **M3** livestock, are attacked / eaten/ crops destroyed; **M4** money spent protecting tigers could be used for other things (e.g. water supply / infrastructure); **M5** national park land could be used for other purposes;	**3**
4(b)(iii)	the maximum population of a species that a habitat / ecosystem / area can support / the maximum population size that can be supported in a habitat / ecosystem / area;	**1**
4(c)	*any three from:* **M1** wildlife corridors join, national parks / reserves/ joins two habitats/ allows movement between areas; **M2** provide, larger habitats; **M3** more food / prey / water; **M4** more shelter; **M5** increase chances of, finding a mate / breeding; **M6** reduces inbreeding / maintains gene pool / conserves biodiversity;	**3**

Question	Answer	Marks
5(a)(i)	1.2(%);	**1**
5(a)(ii)	atmosphere;	**1**
5(a)(iii)	*any three from:* **M1** contaminated by waste from mining / chemicals / industrial processes / oil, from vehicles; **M2** contaminated by, agricultural practices / overuse fertilisers / pesticides / sediment; **M3** contains, garbage / domestic waste; **M4** contains (untreated) sewage; **M5** risk of bacteria/ diseases / typhoid / cholera;	**3**

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Question	Answer	Marks
5(a)(iv)	*any two from:* **M1** chlorination; **M2** boiling; **M3** desalination;	**2**
5(b)	*any two from:* **M1** urban family uses more water: **M2** 135 dm^3 more water / c. four times more; increase in use for: **M3** washing; **M4** flushing toilets; **M5** cooking and drinking **M6** washing dishes and cleaning; **M7** washing clothes;	**2**
5(c)(i)	**R**;	**1**
5(c)(ii)	**S**;	**1**
5(c)(iii)	*any three from:* **In P:** **M1** richer village / money to spend on water supply/ developed water infrastructure**;** **M2** less rainfall; **M3** no river / lake; **M4** river / lake, water is contaminated;	**3**
5(c)(iv)	*any one from:* **M1** basic human need preventing, illness / disease; **M2** keeps people, healthy / hydrated / able to work;	**1**

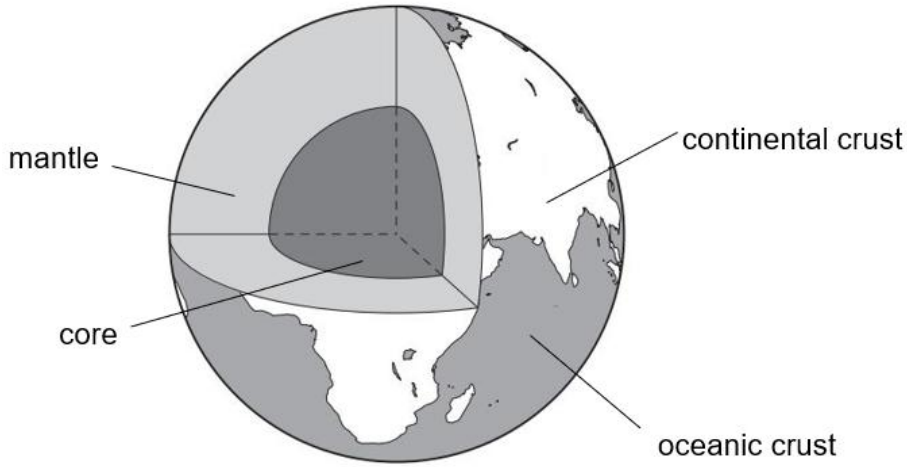
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Question	Answer	Marks
5(c)(v)	*any three from:* **M1** more wealth in urban areas / more developed area/ more money / taxes available; **M2** (more people make it) easier to put pressure on politicians to improve infrastructure; **M3** people live closer together so, easier / cheaper to build water pipes to houses / availability of, public taps / standpipes; **M4** more water treatment plants to meet demand / cost effective; **M5** more sewage treatment / sanitation / separation of clean drinking water and sewage disposal;	**3**
5(d)	*any three from:* **M1** (fertile) land flooded; **M2** loss of habitats / deforestation/ habitat change; **M3** impact on, food web / food chains; **M4** fish, trapped / unable to migrate;	**3**

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Question	Answer	Marks
6(a)	 2-3 correct = 1 mark 4 correct = 2 marks	**2**
6(b)	*any three from*: **M1** around perimeter (most of) the Pacific Ocean; **M2** along the west coast of North / South America; **M3** (islands), along the south eastern (coast of) Asia / between Asia and Oceania/ islands of Oceania; **M4** North east / east of Asia; **M5** located within the Pacific Ocean / Hawaii; **M6** coastal areas;	**3**
6(c)	*any three from*: **M1** found at plate boundaries; **M2** where plates move (suddenly); **M3** at subduction zone / destruction zone ; **M4** (subduction zone causes) melting of rock and volcanoes form: **M5** movement of magma can cause earthquakes;	**3**

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Question	Answer	Marks
6(d)	*any five from:* monitoring / warning: **M1** studying past earthquakes e.g. epicentres; land use zoning / hazard maps: **M2** industrial areas (which may catch fire) not built near houses; **M3** parks / open spaces for evacuation areas; **M4** early warning systems; structure of buildings: **M5** strict building regulations enforced / new buildings designed to be earthquake resistant; **M6** old buildings retrofitted; **M7** automatic cutting off of utilities, gas / water / electricity; disaster preparation; **M8** plans/ shelters; **M9** drills / educating, people; **M10** emergency supplies; **M11** emergency rescue teams;	**5**
6(e)	log / logarithmic / ten point; 4; 8;	**3**

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Question	Answer	Marks
6(f)	*Level of response marked question:* Level 3 [5–6 marks] **A coherent response is given that develops and supports the candidate's conclusion using relevant details and examples.** Indicative content and subject-specific vocabulary are generally used precisely and accurately. Good responses are likely to present a balanced evaluation of the statement. Level 2 [3–4 marks] **Development and support of the conclusion is evident, though the response may lack some coherence and/or detail.** Irrelevant detail may be present. Indicative content and subject-specific vocabulary are used but may lack some precision and / or accuracy. Responses contain evaluation of the statement, but this may not be balanced. Level 1 [1–2 marks] **The response may be limited in development and/or support.** Contradictions and / or irrelevant detail may be present. Indicative content and subject-specific vocabulary may be limited or absent. Responses may lack structure or be in the form of a list. Evaluation may be limited or absent. No response or no creditable response [0 marks]	**6**

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Question	Answer	Marks
6(f)	*indicative content for:* The benefits of volcanoes are greater than the negative impacts. ***agree:*** lava cools to form useful rocks and soil; soils are fertile (Japan, Indonesia, Philippines, Hawaii) soils contain nutrient minerals magnesium and potassium soils weather to provide high crop yields for farmers volcanic soils retain moisture so good for farming volcanic scenery attracts tourists, sites for national parks. hot springs spas tourism provides jobs, shops, restaurants, hotels, tourist centres, tourism brings in money for the local and national economy volcanoes can provide geothermal energy resources geothermal energy is renewable lava / magma, can contain valuable minerals and precious gems jobs (for local people) in mining minerals e.g. gold, diamonds, copper, sulfur, zinc, silver, nickel, lead, uranium precious stones e.g. opals, obsidian, agate, onyx) building materials e.g. basalt, pumice, tuff (hardened volcanic ash) eruptions can increase land, form new land masses (Hawaiian Islands, Iceland) new land provides environment for the formation of new habitats for animals, plants etc. eruptions of ash can cool the atmosphere, global dimming if there is monitoring and warning people can evacuate lava moves slowly people can run away	

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Question	Answer	Marks
6(f)	***disagree**:* volcanoes are dangerous takes time for lava to form soil people are killed during eruptions property can be destroyed by lava and fires eruptions cause damage to the surrounding area destroy local businesses and economy eruption clouds are dangerous for aircraft, ash can shut down the engines ash clouds can cause air pollution **lahars**, volcanic mudflows can travel hundreds of miles **poisonous gases**, carbon dioxide, carbon monoxide, and sulfur **dioxide** can travel down a volcano suffocating people and wildlife volcanic eruptions can threaten health, respiratory illness, burns, injuries can cause other hazards, floods, mudslides, power outages, drinking water contamination, wildfires a volcanic eruption may cause earthquakes and tsunamis	

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