CAMBRIDGE
International Education

Cambridge IGCSE™

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 Theory **May/June 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 May/June 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.

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.

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.

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 standardisation 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

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 ie 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

Question	Answer	Marks
1(a)	giant wave;	1
1(b)	*any two from:* M1 evacuation / move away from buildings; M2 collection of emergency supplies; M3 rescue teams in place / ready; M4 sheltering from something that might fall;	2
1(c)	70%; (120 × 0.7) / 84;	2
1(d)(i)	**A** (oceanic) crust; **B** (continental) crust; **C** mantle;	3
1(d)(ii)	S in correct area;	1

Question	Answer	Marks
2	Pacific; east; increase; warm; decrease;	5

Question	Answer	Marks
3(a)(i)	non-target (marine) species (caught during fishing for a different species);	**1**
3(a)(ii)	*any one from:* gives species time to breed / reproduce; increase population; replenish fish stocks; to prevent overfishing;	**1**
3(a)(iii)	*any one from:* fish cross international boundaries at sea; fishing happens across borders / oceans shared by countries;	**1**
3(a)(iv)	*any one from:* net type / decrease size of net; increased mesh size; use of pole and line; quotas / licences / reduce number of fishing days; (conservation) laws; protected areas; monitoring / fines (for rule breakers); smaller boats / less boats;	**1**
3(b)	wave (power); tidal (power);	**2**

Question	Answer	Marks
4(a)	*any three from:* M1 reference to site on coast / coastal areas; M2 most are north of Equator; M3 many / most in Atlantic; M4 relevant quoted location or number;	**3**
4(b)(i)	16;	**1**
4(b)(ii)	equipment failure;	**1**
4(b)(iii)	*any one from:* human error; poor maintenance; terrorism / conflict; extreme weather; natural disasters;	**1**
4(c)	*any two from:* M1 physical barrier to oil / keeps oil contained; M2 prevents / slows the spread; M3 only works on surface oil spills;	**2**
4(d)(i)	M1 *axes labels and unit:* *x*-axis: day (as after oil spill) *y*-axis: (oil) concentration / ppm; M2 sensible linear scale that covers half the plotted space; M3 7 correct plots ± half a small square tolerance; M4 9 correct plots ± half a small square tolerance <u>with</u> a straight line drawn to each plotted point in chronological order;	**4**
4(d)(ii)	*any two from:* M1 (rapid) decrease in concentration; M2 returns to zero after day 30; M3 Other correct use of data <u>and</u> day;	**2**

Question	Answer	Marks
4(d)(iii)	*absorbs / takes in / consumed / ingests **AND** lost / egested / emitted / removed / excreted;*	**1**

Question	Answer	Marks
5(a)(i)	correct values identified: 800 and 220; difference determined: 580;	**2**
5(a)(ii)	8;	**1**
5(a)(iii)	*any five from:* M1 flooding / waterlogging; M2 washes soil away / soil erosion; M3 washes plants away; M4 loss of nutrients from soil; M5 land cannot be planted or harvested; M6 increased risk of disease / pest; M7 low oxygen in soil; M8 plants adapted to low rainfall;	**5**
5(b)(i)	7;	**1**
5(b)(ii)	no **and** 11 years with: **and** 10 years without;	**1**
5(b)(iii)	*any two from:* M1 global warming / increased temperatures; M2 (leading to) climate change; M3 more extreme weather conditions / disruption to water cycle;	**2**
5(b)(iv)	idea of more dry vegetation (to burn);	**1**
5(b)(v)	97(.14)	**1**

Question	Answer	Marks
5(b)(vi)	*any two from:* M1 monitoring; M2 emergency water supplies; M3 water conservation / storage of water; M4 example of M3 e.g. trickle drip irrigation; M5 increase water supply; M6 example of M5 e.g. dams and reservoirs, wells, use of aquifers, water transfer, desalination, rainwater harvesting; M7 genetic modification / selective breeding / grow drought resistant crops; M8 international aid;	**2**
5(c)	4 correct = 2; 2–3 correct = 1; **B**, **D**, **E**, **C**	**2**
5(d)(i)	aquifer / well / river / lake / rainwater;	**1**
5(d)(ii)	*any three from:* M1 lack rainfall to fill the reservoir; M2 public opposition; M3 unsuitable terrain; M4 unsuitable bedrock; M5 risk of flooding; M6 relocation of people needed; M7 biodiversity reason; M8 loss of agricultural land; M9 cost; M10 lack of local expertise to build / maintain; M11 impact on the supply further downstream;	**3**
5(e)(i)	M1 water held behind a dam or wall; M2 water flows (through pipes); M3 rotates turbines; M4 turbine rotates generator;	**3**

Question	Answer	Marks
5(e)(ii)	*any one from:* recreation; habitat; fishing; tourism; flood prevention;	**1**

Question	Answer	Marks
6(a)	*any two from:* M1 no predators; M2 out compete native species; M3 prey on native species; M4 may bring in diseases;	**2**
6(b)	*any two from:* *at a maximum because:* M1 the carp have reproduced; M2 takes time before carp offspring are caught / take time to mature; M3 more fishing during that year; M4 more efficient fishing methods during that year;	**2**
6(c)(i)	*any two from:* M1 may harm non-target species; M2 may have unintended impact; M3 may harm people; M4 economic loss;	**2**
6(c)(ii)	biological (control);	**1**
6(d)	reptiles circled;	**1**
6(e)(i)	*any three from:* allows safe / increased access to: M1 food / water; M2 a mate; M3 habitat; M4 reduces risk of road injury; M5 safe route for animals / migration;	**3**
6(e)(ii)	*any two from:* M1 national park / reserve / other protected habitat; M2 zoos; M3 captive breeding; M4 banning hunting;	**2**

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**

Question	Answer	Marks
6(f)	*indicative content for:* Climate change is the biggest threat to biodiversity. *reasons why climate change is biggest threat:* sea level change climate conditions no longer suited to many species extreme weather / temperature / rain / wind flooding / drought / wildfires destruction of habitat migration pattern changes food web disruption increase in invasive species increase in diseases increase in wildfires some species cannot migrate e.g. on an island or mountain plants cannot migrate *other threats discussed:* increased human population tourism energy requirements land needed for renewables e.g. solar, wind, HEP land needed for houses land needed for agriculture logging / timber extraction food requirements illegal trade hunting	