CAMBRIDGE
International Education

Cambridge IGCSE™

ENVIRONMENTAL MANAGEMENT **0680/23**

Paper 2 Management in Context **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 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

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)(i)	120 (km);	**1**
1(a)(ii)	37.5;	**1**
1(a)(iii)	*any two from:* M1 more jobs / economic reason; M2 better, infrastructure / or named example e.g. roads; M3 sanitation / water supply; M4 medical facilities; M5 education / schools; M6 family/ tradition / cultural reasons;	**2**
1(b)(i)	greater fish population / more species / fish;	**1**
1(b)(ii)	3.5;	**1**
1(b)(iii)	*any three from:* temperature; oxygen (concentration); salinity; light; pH;	
1(b)(iv)	M1 6289 – 477 / 5812 / 0.92; M2 92.(4)%;	**2**
1(b)(v)	M1 only young / immature / juvenile fish are left / many juveniles are caught; M2 not able to breed; M3 damage to, habitat / breeding grounds;	**2**
1(b)(vi)	non-target (marine) species (caught);	**1**
1(c)(i)	1983;	**1**

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(c)(ii)</td><td>M1 same trend or pattern / positive correlation / direct relationship /
both fluctuate / both go up and down;

M2 lag or delay in net migration compared to catch of cod ;

M3 a relevant data quote;

ignore explanations – the question asks for a description of the relationship</td><td>3</td></tr>
<tr><td>1(c)(iii)</td><td>any two from:
M1 fishing provides jobs;
M2 impact on the economy;
M3 change in availability / supply of food;</td><td>2</td></tr>
<tr><td>1(c)(iv)</td><td>4000;</td><td>1</td></tr>
<tr><td>1(c)(v)</td><td>any two from:
M1 more, younger people / young dependents / children;
M2 low(er) life expectancy / fewer old people;
M3 higher birth rate (in LEDC);</td><td>2</td></tr>
<tr><td>1(d)</td><td>any one from each section:

<table><tr><td>positive economic impact:
efficient production / easy to catch / quicker growth / can harvest in all weathers / jobs / more to sell / export;</td><td>negative economic impact:
greater competition for fishermen / stated expense e.g. cost to set up / cost of food / transport cost;</td></tr><tr><td>positive environmental impact:
less demand for wild fish stocks / reduces overfishing / reduces bycatch / reduce damage from fishing / food chain;</td><td>negative environmental impact:
risk of fish escape / produces large amounts of waste / risk of (chemical) water pollution / wild fish caught to feed farmed fish / risk of disease;</td></tr></table></td><td>4</td></tr>
</table>

Question	Answer	Marks
2(a)(i)	M1phytoplankton → jellyfish → (pilot) whale → orca; M2 all 4 organisms in the correct order; arrows in the correct direction;	**2**
2(a)(ii)	*Any four from* M1 energy moves along food chain (as organisms consumed); M2 chlorophyll in, producer / phytoplankton; M3 (needed for) photosynthesis; M4 absorbs (sun)light; M5 converts to (light energy to) chemical energy; M6 *photosynthesis reactants:* carbon dioxide and water AND *products:* glucose and oxygen;	**4**
2(a) (iii)	*any two from:* M1 pilot whales are difficult to, see / count / identify species; M2 pilot whales are mobile / migratory; M3 seas are large / live in large area; M4 different teams / methods of sampling e. g time of year;	**2**
2(a)(iv)	week 2 **and**, value is **much** smaller than others / outlier;	**1**
2(a)(v)	*area:* M1 map / GPS coordinates / grid of area / divide into quadrats; M2 random or systematic method **described**; *population counted:* M3 visually (from boat) / arial photograph / drone / satellite; *estimating overall population:* M4 method of scaling up described e.g. find number in x metres and multiply by total area;	**4**
2(b)(i)	correct plotting at 1000 and 300; straight lines to join to other plots;	**2**
2(b)(ii)	*any three from:* M1 stated economic reason e.g. source of income / money / jobs / source of food; M2 traditional practice; M3 numbers caught are small (compared to the population); M4 high population, not decreasing / not endangered;	**3**

Question	Answer	Marks
2(b)(iii)	*any three from:* M1 toxins / chemicals in the ocean / water; M2 (toxins / chemicals) absorbed (by marine organisms / named organism); M3 pilot whales feed on organisms containing toxins / chemicals; M4 rate of absorption or ingestion is greater than rate of excretion; M5 toxins / chemicals stay in the body (tissues)	**3**
2(c)(i)	*any four from:* M1 improve awareness (of species / of country or local area; M2 locals actively conserve the species; M3 economic benefit: income to local people / improves local economy; M4 income from ecotourism available to invest in conservation; M5 (local people act as) guides / guards; M7 reduces hunting; M6 control number of tourists;	**4**
2(c)(ii)	zoo / captive breeding / (marine) national reserve / park;	**1**

Question	Answer	Marks
3(a)(i)	21.5 million / 21 500 000 **and** kWh;	**1**
3(a)(ii)	continuous supply / no power cuts / meet (peak) demand;	**1**
3(a)(iii)	*any three from in Faroe Islands:* M1 less industry; M2 less developed infrastructure; M3 cannot afford electricity supply; M4 fewer electrical devices or stated device e.g. less use of AC; M5 more insulation / energy efficient homes ;	**3**
3(b)(i)	*any two from:* M1 bioethanol; M2 biogas; M3 wood; M4 geothermal;	**2**
3(b)(ii)	coal; oil; natural gas;	**3**
3(b)(iii)	*any two from:* M1 increase in cost of fossil fuels; M2 depletion of fossil fuels / good availability of renewables; M3 international agreement; M4 reduce carbon dioxide / C emissions / air pollution / named example; M5 to be self sufficient / avoids energy insecurity;	**2**
3(b)(iv)	*any two from:* M1 seas / tidal / wave, are accessible; M2 seas / tidal / wave, are reliable / work 24 hours a day; M3 solar power is dependent on weather conditions / limited sunlight hours; M4 large area of land needed for solar power;	**2**

Question	Answer	Marks
3(b)(v)	*any two from:* M1 large area; M2 no crops / not used for cultivation; M3 empty / open area no obstructions e.g. trees, buildings; M4 on a hill; M5 windy area; M6 no / few people live near turbine;	**2**
3(b)(vi)	*any two from:* M1 risk of sea bird injury; M2 impact of wind turbine (vibration) on (sea) mammals; M3 noise pollution; M4 loss of habitat / biodiversity (damage to sea bed); M5 risk of collision with ships resulting in water pollution;	**2**
3(b)(vii)	M1 wind rotates or spins the blades or turbines; *any two from:* M2 turbines connected to housing / nacelle / gears; M3 idea of gears connected to generator; M4 kinetic energy to electrical energy;	**3**
3(c)	*any two from:* M1 difficult / costly, to extract; M2 deposits are, too small ; M3 renewable energy sources are available / more cost effective;	**2**
3(d)	*any four from:* M1 combustion / burning of fossil fuels produce CO_2 / greenhouse gases ; M2 radiation from Sun ; M3 absorbed by Earth / Earth's temperature increases **;** M4 (radiation) (re) radiates from Earths surface (to space); M5 CO_2 / greenhouse gases, absorb / trap this radiation / stop radiation escaping (into space) ; M6 radiation (re-emitted) from greenhouse gases returns to the earths surface	**4**