CAMBRIDGE
International Education

# Cambridge IGCSE™

**ENVIRONMENTAL MANAGEMENT** **0680/21**

Paper 2 Management in Context **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.

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**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 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:<br><br>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:<br><br>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><br><br>For questions that require ***n*** responses (e.g. State **two** reasons …):<br><br>• The response should be read as continuous prose, even when numbered answer spaces are provided.<br>• Any response marked *ignore* in the mark scheme should not count towards ***n***.<br>• Incorrect responses should not be awarded credit but will still count towards ***n***.<br>• 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.<br>• 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 |

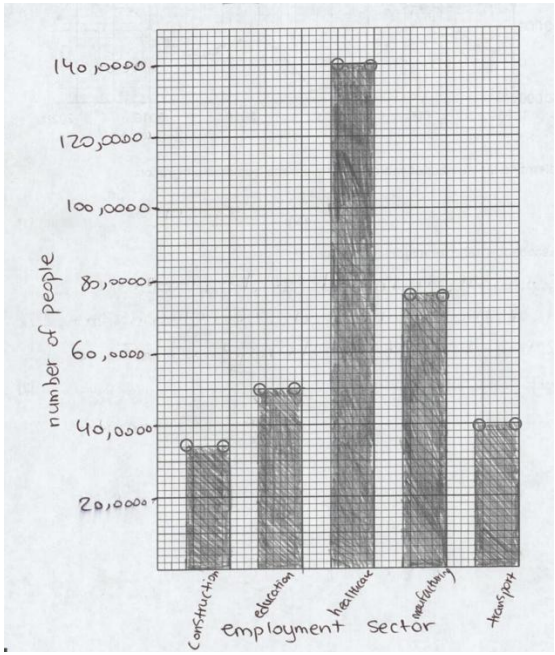
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| Annotation | Meaning |
|---|---|
| SEEN | point has been noted, but no credit has been given<br>or blank page seen |
| TV | response is too vague or there is insufficient detail in response |
| REP | repetition in response |
|  | to show a correct 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.<br>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)(i) | 6.71; | **1** |
| 1(a)(ii) | **M1** 5354;<br>**M2** people / $km^2$; | **2** |
| 1(b)(i) | 4; | **1** |
| 1(b)(ii) | **M1 overall**, increasing / positive;<br>**M2** fluctuates; | **2** |

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| Question | Answer | Marks |
|---|---|---|
| 1(c)(i) | **M1** *both axes labels:*<br>*x*-axis: employment (sector) or sector AND named sectors AND *y*-axis: number of people;<br><br>**M2** suitable linear scale so that plotted data covers at least half the available space;<br><br>**M3** correct plotting ± half a small square tolerance;<br><br>**M4** bars of equal width; | **4** |
| |  | |

| Question | Answer | Marks |
|---|---|---|
| 1(c)(ii) | *any two from:*<br>**M1** infrastructure;<br>**M2** healthcare;<br>**M3** education;<br>**M4** family;<br>**M5** (avoiding) conflict;<br>**M6** natural hazards / availability of stated resources; | **2** |
| 1(d) | increase in the <u>percentage</u> / <u>proportion</u>, of people in towns or cities or urban areas; | **1** |
| 1(e) | *any three from:*<br>**M1** increases (surface) runoff;<br>**M2** reduces interception;<br>**M3** reduces infiltration;<br>**M4** idea of increased risk of soil erosion **and** soil blocks drainage; | **3** |

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| Question | Answer | Marks |
|---|---|---|
| 2(a)(i) | *any three from:*<br>**M1** idea of water contaminated with sewage / heavy metals / toxic substances / waste from landfills entering water;<br>**M2** (post flooding) poor sanitation / overcrowding in (rescue) shelters;<br>**M3** (water contains) infectious or bacterial disease / named disease e.g. cholera / typhoid;<br>**M4** less access to medical care (due to flooding);<br>**M5** more standing water;<br>**M6** creates breeding ground or habitat for mosquitoes or vectors / risk of malaria; | **3** |
| 2(a)(ii) | *any three from:*<br>**M1** loss of livestock;<br>**M2** loss of, crops / farmland / agricultural land;<br>**M3** food shortages;<br>**M4** damage or loss, homes / buildings / businesses;<br>**M5** damage to infrastructure;<br>**M6** stated economic impact e.g. cost of repair / insurance costs increase;<br>**M7** loss of jobs;<br>AVP stated impact on habitats e.g. salinisation / soil erosion / loss of habitat / loss of biodiversity ;;; | **3** |
| 2(a)(iii) | $m^3/s$;<br>precipitation;<br>through-flow;<br>ground water flow; | **4** |
| 2(b) | *any three from:*<br>**M1** land below sea level is, around the coast / around lake or dam / in west / in north / northwest / southwest;<br>**M2** capital or Amsterdam is below sea level;<br>**M3** land above 7 m or land above sea level, is in the east / south / southeast;<br>**M4** (small) area on west coast greater than 7 m;<br>**M5** between east and west is 0–7 m;<br>**M6** estimated area; e.g. value in range 40–60% less than 7 m or above 7 m / half of land is above sea level / half of land below sea level / most land is less than 7 m; | **3** |
| 2(c) | 36 million; | **1** |

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| Question | Answer | Marks |
|---|---|---|
| 2(d) | *any two from:*<br>**M1** (more) sea level rise;<br>**M2** global warming / climate change;<br>**M3** (protection from) extreme weather events;<br>**M4** 93 years old (in 2025) / maintenance needed; | **2** |
| 2(e)(i) | 487 500 000 / 487.5 million; | **1** |
| 2(e)(ii) | *any three from:*<br>**M1** less, lime / calcium carbonate / limestone / resources needed;<br>**M2** less energy used / less fossil fuels burned or used;<br>**M3** less carbon dioxide produced;<br>**M4** lower cost of, transport / material / energy; | **3** |
| 2(f)(i) | *any four from:*<br>**M1** loss of fishing grounds / loss of food source;<br>**M2** change in salinity of water;<br>**M3** disrupts on food chain / loss of biodiversity;<br>**M4** ships won't be able to reach, the Netherlands / some countries;<br>**M5** increased energy usage of ships / more $CO_2$ released from ships (due to longer routes or during construction);<br>**M6** stated economic impact e.g. loss of income / loss of jobs / reduction in tourism / high cost of build / cost of maintenance;<br>**M7** stated impact on rivers e.g. need rerouting / river water will need to be pumped out;<br>**M8** visual pollution / noise pollution;<br>**M9** concern over loss of land / loss of farms / relocation / risk of flooding; | **4** |
| 2(f)(ii) | *any one from:*<br>**M1** affects many countries;<br>**M2** idea of shared responsibility (for build / maintenance);<br>**M3** idea of shared benefit (from the final dam);<br>**M4** cost needs to be shared; | **1** |

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| Question | Answer | Marks |
|---|---|---|
| 3(a) | *any two from:*<br>**M1** less cost for transport / less cost of extracting (new) materials / less cost of (new) materials;<br>**M2** less air pollution due to less transport;<br>**M3** increases depth of lake;<br>**M4** reduces risk of flooding (from silt build-up);<br>**M5** silt is fertile / makes the ground or land fertile;<br>**M6** sustainable; | **2** |
| 3(b)(i) | *any two from:*<br>**M1** named example of reduced disturbance e.g. breeding not disturbed / no vegetation cleared to build roads or buildings or infrastructure;<br>**M2** no waste;<br>**M3** less risk of introducing unwanted species;<br>**M4** less risk of introduced diseases;<br>**M5** no hunting / no poaching / no fishing; | **2** |
| 3(b)(ii) | *any three from:*<br>**M1** (captive) breeding (programme);<br>**M2** provide optimum conditions for survival / stated condition e.g. medical care / food / no hunting;<br>**M3** prevents, extinction / genetic depletion;<br>**M4** species return to, natural environment / the wild;<br>**M5** stated benefit of (scientific) research e.g. to understand why some species do not thrive in natural environment; | **3** |
| 3(b)(iii) | *any one from:*<br>**M1** changes animal behaviour;<br>**M2** stated idea of animal welfare e.g. concern over taking animals out of natural habitat / animals caged / lack of freedom;<br>**M3** low success rate of breeding; | **1** |
| 3(b)(iv) | *any two from:*<br>**M1** area of land set aside for local people;<br>**M2** area for <u>sustainable</u> harvesting;<br>**M3** (local people use land) for their own use / for traditional practices; | **2** |
| 3(c) | **M1** wind rotates / spins / turns, blades or turbines;<br>**M2** blades or turbines connected to, rotor / shaft / gears;<br>**M3** (the gears) rotate/spin/turn the generator; | **3** |

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| Question | Answer | Marks |
|---|---|---|
| 3(d)(i) | select every nth (square); | **1** |
| 3(d)(ii) | *any three from:*<br>**M1** can be counted at any time;<br>**M2** can be controlled **remotely**;<br>**M3** can reach inaccessible areas;<br>**M4** photographs, can be revisited / are a permanent record ;<br>**M5** less labour intensive / takes less time;<br>**M6** less chance of counting the same bird twice / birds fly so difficult to count (without a photograph);<br>**M7** does not disturb, birds or breeding / reduces contact with birds;<br>**M8** reduces risk of habitat damage; | **3** |
| 3(d)(iii) | *any one from:*<br>**M1** repeat on more than one day;<br>**M2** repeat at different times of year;<br>**M3** repeat investigation for longer;<br>**M4** use computer or AI to analyse photographs; | **1** |
| 3(d)(iv) | **M1** take a **mean** or **average** (of the birds) in the squares or in each grid;<br>**M2** multiply mean by the total number of squares or grids on the island; | **2** |
| 3(d)(v) | *any two from:*<br>**M1** harm birds / cause birds to die;<br>**M2** only suitable for (crawling) insects;<br>**M3** birds can escape / birds can fly (out of pitfall trap) / birds are too large; | **2** |

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| Question | Answer | Marks |
|---|---|---|
| 4(a)(i) | *any three from:*<br>**M1** not dependent on weather / reliable;<br>**M2** does not emit, carbon dioxide / carbon / greenhouse gases;<br>**M3** does not contribute to acid rain / does not emit $SO_2$ or NOx;<br>**M4** gives more energy (output per kg than other resources);<br>**M5** reduces reliance on fossil fuels; | **3** |
| 4(a)(ii) | *any two from:*<br>**M1** (uranium is) non-renewable / finite, resource;<br>**M2** large amount of space needed;<br>**M3** visual pollution;<br>**M4** high cost to, build / maintain;<br>**M5** stated safety concern during operation: e.g. risk of radiation leakage / explosion / risk to health of workers;<br>**M6** stated waste storage concern: long storage time needed / specialist containers needed / waste is radioactive;<br>**M7** needs large quantities of (cooling) water;<br>**M8** risk of water pollution;<br>**M9** toxic chemicals released during processing of ore;<br>**M10** needs specialist workers; | **2** |
| 4(a)(iii) | *any two from:*<br>**M1** HEP / hydro(-electric) power;<br>**M2** wave;<br>**M3** tidal;<br>**M4** geothermal;<br>**M5** oil; | **2** |
| 4(a)(iv) | *any three from:*<br>**M1** gas and coal generate 61% / gas, coal and biomass generate 69% / gas or one fossil generates almost half or 47% / gas or fossil fuels generate most / non-renewables generates more % than renewables<br>**AND** emit carbon dioxide or carbon emissions (when combusted or burnt);<br>**M2** solar and wind generate 25% / non-carbon emitting fuels generate 25%;<br>**M3** wind / solar / some renewable resources, are weather dependant;<br>**M4** large change in, short space of time or 5 years;<br>**M5** (high) cost of switching to renewable or alternative energy; | **3** |
| 4(b)(i) | 3 : 2 | **1** |

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| Question | Answer | Marks |
|---|---|---|
| 4(b)(ii) | *any one from:*<br>**M1** profit / income / make money / increase economy;<br>**M2** have produced a surplus (of electricity);<br>**M3** less demand in own country; | **1** |

| Question | Answer | Marks |
|---|---|---|
| 5(a) | *any two from:*<br>**M1** cycle path / two lines for bicycles / lots of space for bicycles;<br>**M2** smooth / flat, **road AND** easy to cycle;<br>**M3** stated safety: e.g. cars and bicycles separate / avoids accidents with vehicles / no contact with vehicles / pedestrians and bicycles separate;<br>**M4** quicker **AND** as no other vehicles / no traffic lights;<br>**M5** bike storage areas;<br>**M6** idea of bikes available to hire; | **2** |
| 5(b) | *any three from:*<br>**M1** car sharing / dedicated car lanes for multiple occupancy (in car);<br>**M2** stated financial penalty: charges for using car in cities / parking controls / congestion charge / road tolls;<br>**M3** stated financial incentives e.g. financial incentive for selling 2nd car;<br>**M4** (more access to) public transport;<br>**M5** priority in roads given, to public transport / walking over cars;<br>**M6** (public) education or awareness / promote use of public transport / promote walking;<br>**M7** restrictions for car usage e.g. driving on certain days of the week; | **3** |

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