CAMBRIDGE
International Education

Cambridge IGCSE™

ENVIRONMENTAL MANAGEMENT **0680/23**

Paper 2 Management in Context **October/November 2024**

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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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.

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Question	Answer	Marks
1(a)(i)	39;	**1**
1(a)(ii)	9 926 832;	**1**
1(b)(i)	14;	**1**
1(b)(ii)	520;	**1**
1(b)(iii)	*any four from:* warm / high, temperatures / no frost; low rainfall (Nov to April) **AND** *any two from*: no flooding / no waterlogging; crops not washed way; less risk of soil erosion; nutrients not washed away; less risk of salinisation; idea that water available or stored May to October or April to Nov; conditions allow for photosynthesis / carbon dioxide + water → glucose + oxygen;	**4**
1(b)(iv)	*any three from*: jobs / higher wages; education; access to, shops / services / health care / entertainment facilities; access to, infrastructure / transport / electricity; family links;	**3**
1(b)(v)	urbanisation;	**1**

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Question	Answer	Marks
1(c)(i)	*any two from:* free / low cost, to build; near place of work; low rent / no charge for services / low taxes;	**2**
1(c)(ii)	*any two from:* overcrowded / no control on number of people; limited, infrastructure / electricity / running water / piped water supply / sanitation; health risks / diseases spread rapidly; low build quality; houses easily damaged by natural disasters / floods / landslides / tropical storms; illegal / government can remove them / people can be moved on / / land can be sold; risk of crime;	**2**
1(c)(iii)	648 000;	**1**
1(d)(i)	volatile organic (compounds) / VOCs;	**1**
1(d)(ii)	industry / vehicles / cleaning products / solvents / factories;	**1**

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Question	Answer	Marks
1(d)(iii)	*any three from*: (cold) air is warmed and rises; colder air is trapped by, warmer air / temperature inversion; smog / pollutants, trapped (under warmer air or temperature inversion); description of how location creates conditions for temperature inversion e.g. in valley / surrounded by mountains;	**3**
1(e)(i)	*any two from:* not representative / no sample size given / no information on how people are selected e.g. random or systematic; time consuming; some people will be, visitors to the city / tourists / not from Santiago / recent residents; some people will be unwilling / too busy, to participate; question is, too broad / non specific; idea of insufficient information on person lifestyle or medical history;	**2**
1(e)(ii)	*any two from*: doctors give, an expert opinion / record health conditions / based on real data / not based on opinions / objective data; large sample / many patients; covers larger area of the city; qualitative data / follow up questions can be asked;	**2**

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Question	Answer	Marks
1(f)	*any two from*: respiratory diseases / breathing difficulties / wheezing / coughing / sore throat / asthma (attacks) / lung damage; cancer; eye problems / burning eyes; chest pains / pulmonary inflammation / heart attacks / stroke;	**2**

Question	Answer	Marks
2(a)(i)	axes labelled with units on y-axis (copper / million tonnes) **AND** x-axis (country); sensible linear scale such that data covers at least half the grid; all bars plotted correctly; bars of equal width;	**4**

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Question	Answer	Marks
2(a)(ii)	*any three from:* size of deposit / enough copper in mine; quality / grade, of deposit; climate / weather; geology / accessibility / ground stability; environmental impact assessment / EIA; cost of extraction; demand for the ore; government, policy / support; need to relocate people / endangered species; local opinion / protest groups;	**3**
2(b)(i)	*any three from*: overburden removed; (rock is removed in) benches / steps / layers; explosives break up the rock; machines / draglines / diggers used (to dig out rock); roads built / trucks or lorries used to transport;	**3**
2(b)(ii)	reduces the cost (of transport);	**1**

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Question	Answer	Marks
2(b)(iii)	*any three from*: leaching / toxic chemicals (from tailing pond); contamination of, ground water or soil; stated impact of water or soil pollution e.g. crops cannot be grown; risk of dam breaking; stated impact of dam breaking e.g. flooding; government owns land / zoning laws;	**3**
2(c)(i)	2 150 000 – 389 200 or 1 760 800; 452 (.42);	**2**
2(c)(ii)	**A→ F → C →D →E** 5 consecutive letters in correct order = [3] 3-4 consecutive letters in correct order = [2] 2 consecutive letters in correct order = [1]	**3**
2(d)	*any two from:* difficult / expensive, to collect or store the batteries; difficult / expensive, to extract lithium (from the batteries); cheaper to mine lithium (than recycle); limited number of recycling points (for batteries); lack of, public awareness / public will;	**2**

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Question	Answer	Marks
2(e)(i)	algae → shrimp → flamingo → fox or cat; correct direction of arrows for 4 trophic levels;	**2**
2(e)(ii)	*any two from:* use energy from the sun; carry out photosynthesis; produce, glucose / sugar;	**2**
2(e)(iii)	*any three from*: climate change / global warming; people disturb flamingos / hunting; idea of plastic pollution and stated impact e.g. ingestion or suffocation; construction of, roads / hotels / infrastructure; reduced food sources / disruption of food chain; water pollution / stated example of water pollution; loss of habitat / reduced water supply / lake dries up; disease;	**3**
2(f)	limited sources of food / eat what is available; idea of adapted (to live on varied diet);	**2**

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Question	Answer	Marks
3(a)(i)	**overall** increase; fluctuates / goes up and down; specific year trend quote: rapid increase 2013 to 2014 / decreases from 2019;	**3**
3(a)(ii)	*any three from*: improve economy or GDP / stated economic benefit of tourists e.g. money from tourist taxes or visas or foreign exchange; improve infrastructure / named example; increase jobs; idea of develops economy from LEDC to MEDC;	**3**
3(b)(i)	*one from each of:* **tape measure** used to measure, the width of the path / the (10 metre) transect; used to identify location of sample **quadrat** provides fixed sample area / smaller representation of whole area; **ruler** measure height of, vegetation / plant;	**3**

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Question	Answer	Marks
3(b)(ii)	*any three from:* repeat **same** investigation; more transect lines (on **same** trail); more quadrats (on **same** transects); transects on, more / **different** trails or areas; repeat at **different** times of the year;	**3**
3(b)(iii)	*any three from:* signposted **trails**; fence off areas / restrict access / closed seasons / limited permits / limit numbers of tourists / designated tracks; restoration / re-seed / re-plant; reinforce paths; educate tourists / awareness signs; employ rangers / monitoring; financial penalties;	**3**
3(c)	*any three from*: litter / plastic / waste; stated water pollution from transportation e.g. boats **and** oil leaks / car emissions **and** acid rain; sewage pollution; soap / detergent; suncream / sunscreen;	**3**

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Question	Answer	Marks
3(d)	eating locally produced food watching birds visiting biosphere reserves 3 correct = [2]; 1–2 correct = [1];	**2**
3(e)	tourism, can be continued for a long time / meets the needs of present and future generations (of tourists); with limited damage or impact, on the environment / destinations;	**2**

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