Cambridge Assessment International Education

Cambridge IGCSE™

ENVIRONMENTAL MANAGEMENT **0680/23**

Paper 2 Management in Context **May/June 2020**

MARK SCHEME

Maximum Mark: 80

Published

Students did not sit exam papers in the June 2020 series due to the Covid-19 global pandemic.

This mark scheme is published to support teachers and students and should be read together with the question paper. It shows the requirements of the exam. The answer column of the mark scheme shows the proposed basis on which Examiners would award marks for this exam. Where appropriate, this column also provides the most likely acceptable alternative responses expected from students. Examiners usually review the mark scheme after they have seen student responses and update the mark scheme if appropriate. In the June series, Examiners were unable to consider the acceptability of alternative responses, as there were no student responses to consider.

Mark schemes should usually be read together with the Principal Examiner Report for Teachers. However, because students did not sit exam papers, there is no Principal Examiner Report for Teachers for the June 2020 series.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the June 2020 series for most Cambridge IGCSE™ and Cambridge International A & 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 descriptors 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.

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5 ‘List rule’ guidance

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.

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Question	Answer	Marks
1(a)(i)	11.9(25) million;	**1**
1(a)(ii)	*any three from:* widest at the bottom / under 25; equal numbers of males and females; thin at the top; few above 62 years; suitable sketched shape; (suitable labelled sketch can gain three marks)	**3**
1(b)(i)	sold for money / commerce / export / not eaten;	**1**
1(b)(ii)	*any one benefit:* can sell for high profit; money can be used to buy, seeds / livestock / materials for farming; other named example of use of money gained; *any one disadvantage:* may not have much, food / food reserve; at risk of, crop failure / famine / malnutrition / poverty; price of cash crop could drop;	**2**
1(c)	*any two from:* helps keep moisture in the, soil / mulch; (decays to) release nutrients; reduces weed growth; saves labour costs;	**2**
1(d)(i)	92;	**1**

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Question	Answer	Marks
1(d)(ii)	*any two from:* poor roads so fruits damaged; alternative methods of transport not available; journey takes too long so fruits overripe / fruits only have a short shelf life / eq; too expensive to transport longer distance / not profitable; too time-consuming for farmers;	**2**
1(d)(iii)	price drops; due to, oversupply / lack of demand;	**2**
1(e)	*total*: 2606; *average***:** 521(.2);	**2**
1(f)(i)	systematic;	**1**
1(f)(ii)	five farms drawn using X to match key; correct use of scale;	**2**
1(f)(iii)	*valid question such as:* how much does it cost to produce mangoes / how much profit do you make / how much do the mangoes sell for / how much are your labour costs;	**1**
1(g)(i)	3000 (circled); about 10x larger than the values of the other farms / (looks like) transcription error / doesn't match average / data inconsistent for a small farm / doesn't fit with the number of trees on farm **H**;	**2**
1(g)(ii)	*any three from:* similar number of trees in each area; only farms nearer Dakar export mango fruits; similar number of mango fruits sold in local markets; more mango fruits sold in local markets further from Dakar; more waste on farms more than 50km from Dakar; use of data to compare;	**3**

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Question	Answer	Marks
1(h)(i)	*benefit to farmers:* faster to transport mango fruits; so could export fruits from further away; more income from exporting; less waste / less damage to fruit (when transported); other named advantage of improved roads, e.g. better access to medical care in city; *benefit to government:* increased exports mean more, revenue / port taxes / eq; so more money to spend on other projects / named example of an investment; other named advantage of improved roads, e.g. revenue from associated service industries;	**3**
1(h)(ii)	*any two from:* school fees; medical costs; more food / more varied diet; house improvements; entertainment / luxury items;	**2**
1(h)(iii)	*any one from:* to diversify and reduce risk / effect of a crop failure; to have another crop to sell (locally) / cashew is a cash crop; to have a crop to export (as can't export mangoes); to be more sustainable / self-sufficient; to have another food source / to eat; to aid pollination (of crops);	**1**
1(h)(iv)	*any four from:* it is a mixed farm; seeds from crops can be used to grow crops the next year; chicken manure used to grow crops; crops feed, chickens / humans; eggs / chickens feed humans; eggs from chickens can also be sold; soils not damaged / fertility maintained; pollination aided;	**4**

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Question	Answer	Marks
1(h)(v)	*any one from:* not enough food to eat all year; if crop lost no reserve seed / food (in case of crop failure); (leading to) malnutrition and starvation; named wider problem in society caused by unhealthy population;	**2**

Question	Answer	Marks
2(a)	*any three from:* weathered rock particles; deposited; in water / seas / riverbed; in layers; compacted / under pressure, to form rock;	**3**
2(b)(i)	open-pit / opencast / open-cut / strip / surface mining;	**1**
2(b)(ii)	*any three from:* destruction of vegetation causes loss of animal habitats; (causing) loss of biodiversity; dust causes air pollution; emissions from machinery / vehicles; leaching of heavy metals into water causes, water pollution / changes to water table / groundwater contamination; mining causes visual pollution; machinery causes noise pollution;	**3**
2(c)(i)	axes labelled with units; correct orientation and linear scale such that plotted points occupy at least 50% of grid; plots correct;;	**4**
2(c)(ii)	overall decrease in price over time / fluctuating values;	**1**
2(d)(i)	**P**;	**1**

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Question	Answer	Marks
2(d)(ii)	*any three from:* price per tonne higher than phosphate rock; so increase value of exports / increase GDP; more jobs (in processing rock, transport); increased tax revenue; more exports; so locals learn new skills / upskill; to make fertiliser (to use / sell);	**3**
2(d)(iii)	subsidies / tax breaks / cheap loans / grant more mining licences;	**1**
2(d)(iv)	*any five from:* leaching / washed into groundwater / rivers; eutrophication; algal blooms; light blocked; plants die; bacterial blooms; respiration increases; oxygen used up / high BOD; fish / aquatic animals die;	**5**
2(e)(i)	*any one from:* manure only breaks down slowly; only a small amount of rock phosphate added; AVP, e.g. slow release of phosphate;	**1**

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Question	Answer	Marks
2(e)(ii)	*any four from:* bioremediation; tree planting; land restoration; soil improvement; making lakes and nature reserves; use as landfill; use as a lake for fishing; other use of water body; hole filled in / reshaped; covered by soil; seeds planted; idea of final end use, e.g. farming / wildlife reserve / recreation;	**4**
2(f)(i)	**A** 100 km (±20 km); **B** 430 km (±20 km);	**2**
2(f)(ii)	*any two from:* oversupply of phosphate could lower cost; not enough miners / machinery to operate both at same time; **A** has lower transport costs / ORA ; roads already exist from **A** to port / ORA; plenty of workers near **A** / ORA;	**2**
2(g)(i)	*any three from:* most money goes to overseas investors / eq; government stops encouraging other investments; not many jobs for local people; does not encourage local small and medium enterprise (SMEs); no chance for local people to develop own skills / oil & gas business;	**3**

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Question	Answer	Marks
2(g)(ii)	*any three from:* covers birds' wings, can no longer fly, leading to death; covers beaches, destroying coastal habitats / covering food sources; blocks sunlight, covers / kills corals; other organisms / marine mammals covered in oil, can't regulate temperature, leading to death; organisms ingest (toxic) oil, leading to death; so food chains / webs, altered / collapse;	**3**
2(g)(iii)	*any three from:* preparation plan; training of clean-up teams; oil spill control, e.g. booms; detergents; skimmers; clean-up of birds / marine organisms; AVP, e.g. hay bales to absorb oil (on shores);	**3**
2(g)(iv)	*any three from:* millions of years ago; marine animals and plants die; sink to seabed; covered with sediment; heat **and** pressure;	**3**

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