Cambridge Assessment International Education

Cambridge IGCSE™

ENVIRONMENTAL MANAGEMENT **0680/22**

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.

[Turn over

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.

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 ‘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.

Question	Answer	Marks
1(a)(i)	318 000;	**1**
1(a)(ii)	*any three from:* birth and death rates; migration; carrying capacity; improved health and education / medical access; access to birth control / family planning; national policies / pronatalist / antinatalist; famine / disease / natural disasters; war / conflict;	**3**
1(a)(iii)	*any three from:* the population already has a high % of young males and females; of reproductive age; so the birth rate is likely to be high / high number of children per woman; older people die / very few above 62 years / low life expectancy; AVP, e.g. no access to birth control / cultural influences ;	
1(a)(iv)	*any two from:* sold as a cash crop; exported; wasted / not good enough to sell / spoilt; fed to animals; used as fertiliser; non-food crops, e.g. biofuels, oil for products;	**2**
1(a)(v)	*any two from:* food could become too expensive to buy; may not have, much food / food reserve / food security; at risk of crop failure; leading to, famine / starvation / death;	**2**

Question	Answer	Marks
1(b)	*any two from:* space for, trees to grow / branches to spread out; easy access to pick fruit; allows farm machinery space to pass through; can grow other crops / graze animals between trees; AVP, e.g. helps to control / reduce plant diseases;	**2**
1(c)(i)	6.4 (tonnes);	**1**
1(c)(ii)	*any two from:* over 50 km from Dakar; too far from a port; too far to go around the Gambia; high transport costs make exporting unprofitable; so fruits will spoil / short shelf life of fruit; costs of crossing the Gambia border; AVP, e.g. bad roads damage fruit;	**2**
1(c)(iii)	*any two from:* fruits release nutrients into soil; taken up by tree next year; reduces chance of mineral deficiency;	**2**
1(c)(iv)	low value due to oversupply / lack of demand / cost too much too pick;	**1**
1(d)	2050; 410;	**2**
1(e)(i)	0.5; 5.8; 5;	**3**
1(e)(ii)	*any suitable question about mango farming such as:* How much does it cost to produce mango fruits? / How much profit do you make? / How much do mango fruits sell for? ;	**1**

Question	Answer	Marks
1(e)(iii)	results do not agree / false conclusion; evidence to support, e.g. average is 3 / only four farms out of 18 grow two varieties;	**2**
1(e)(iv)	*any one from:* grow well in local climate / better adapted to local environment; resistant to local pests; less expensive to buy; farmers know how to get the best fruits;	**1**
1(f)	*one from each section plus any other one:* *benefits to farmers:* faster transport by road; cheaper transport by road; may be able to export by air; more income; vehicles last longer / are not damaged; fruits not bruised / arrive in better condition; *benefit to government:* airport used more; more, revenue / airport taxes / eq; so more money to spend on, other projects / named example; more import from / export to, places further away;	**3**
1(g)(i)	*any two from:* farmer does not rely on (selling) one crop / has a variety of produce; unlikely that all crops would fail in the same year / more than one crop reduces chance of malnutrition / famine; source of protein / meat; sources of grain; source of vitamin C; varied diet covering all major food groups;	**2**

Question	Answer	Marks
1(g)(ii)	*any two from:* prolonged drought / floods / natural disaster; infestation of pests / plague of locusts; harvest failure; new disease of, crops / animals; illness / injury to, farmers / workers; conflict; too many farmers replace food crops with cash crops;	**2**
1(h)(i)	Jun / Jul to Sep / Oct; soil washed away; **or** Nov / Dec to Apr / May; dry soil blown away by wind;	**2**
1(h)(ii)	*any five from:* protect underlying soil from heavy rain; roots bind soil; roots take up water from soil; increase interception; so more infiltration; surface run off less likely; reduce wind speed / act as wind break; organic matter from trees helps bind soil;	**5**

Question	Answer	Marks
2(a)(i)	*any three from:* vegetation cleared; soil removed; overburden removed; explosives used; mining machinery used to dig out rocks / ore / phosphate rock; solid ore transported to processing plants (on trucks);	**3**
2(a)(ii)	*any one from:* only a small body of water; and level ground / no slope towards stream/river;	**1**
2(b)(i)	both axes fully labelled; linear scale such that plots occupy at least half the grid; line graph plotted correctly;;	**4**
2(b)(ii)	over production / reduced demand;	**1**
2(c)(i)	880 – 93 / 787; (787 ÷ 93 × 100 =) 846(%);	**2**
2(c)(ii)	*one from each section plus any other one:* *benefit to government:* increase value of exports; stronger economy; earns foreign exchange; *benefit to people:* more jobs available, in processing / transporting; earnings increase; improved standard of living, qualified / named example, e.g. more medical facilities;	**3**
2(c)(iii)	nitrate (ion) / NO_3^-; potassium (ion) / K^+;	**2**

Question	Answer	Marks
2(c)(iv)	*any five from:* (toxic / harmful) algal blooms; subsequent bacterial blooms / decomposers; respiration increases; oxygen depletion; fish / aquatic animals die; loss of / change in, biodiversity; clogging / drying up of, ponds / lagoons; makes water smell / decreases water transparency;	**5**

Question	Answer	Marks
3(a)	*any three from:* hot / liquid magma; from the mantle; moves into the Earth's crust; cools and solidifies; within or on surface of Earth; metallic crystals form; quick cooling forms small crystals / slow cooling forms large crystals;	**3**
3(b)(i)	*any two from:* washing / swirling; to separate sediment and gold / wash lighter sediment away; looking for heavy gold left / gold pieces left in pan;	**2**
3(b)(ii)	*any three from:* easy to extract gold / efficient method; know how to do it; mercury, very cheap compared to value of gold / readily available; want / need, to earn money (quickly); do not worry about long term toxicity; already invested in this method;	**3**

Question	Answer	Marks
3(c)(i)	*any three from:* absorbed by, plants / producers / first consumers; small fish eat plants and small amounts of (toxic) mercury; large fish eat small fish, accumulate large amounts of (toxic) mercury; passes up the food chain / bioaccumulates; high concentration of mercury in large fish causes death; mercury poisons drinking water supply;	**3**
3(c)(ii)	*any two from:* not a traditional method / did not know about them; could not afford to buy the machines; did not know how to use / maintain them / had no training; machines were not available;	**2**
3(c)(iii)	*any two from:* to find out if the miners are still using / maintaining the machines; to check that the claim they can recover more gold is correct; to update training / train more miners; to help with repairs / maintenance;	**2**
3(c)(iv)	*any two from:* many families would have to keep mining anyway; it is a traditional / well-established activity; difficult to enforce a ban / it might be very unpopular; helps to keep people on the land; reduces pull factor to urban areas; families will not require help from the government;	**2**