Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/21**

Paper 2 Management in Context **October/November 2019**

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 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.

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Question	Answer	Marks
1(a)(i)	(tourism) activity can be continued for a long time; with limited damage (to the environment);	**2**
1(a)(ii)	*both government and local people must be covered for maximum marks:* *government:* to provide more employment; to support increasing population; (government) earns money from tourism, e.g. visa costs / tourist taxes / tax from population / foreign exchange; AVP, e.g. example of use of money, e.g. to improve infrastructure; *local people:* improve, housing / facilities / infrastructure; to provide jobs or example of jobs, e.g. tour guides; increase their income; AVP, e.g. example of use of income, e.g. to pay for school fees;	**3**
1(a)(iii)	*any three from:* noise pollution; air pollution; damage to, plants / animals / habitat / deforestation; damage from increase in, building / roads / hotels / restaurants / infrastructure; water pollution; water scarcity; more, solid waste / litter, disposal problems;	**3**
1(b)	(54 ÷ 101 × 100 =) 53.5 ;; (*if answer incorrect allow one mark for,* (101 – 47 =) 54 [1]);	**2**

Question	Answer	Marks
1(c)(i)	*any three from:* limited number of tourists; ecotourists; not many items provided at the reserves; no hotels / sleep in tents, qualified; they do not bring much with them; so very little litter / litter taken away; AVP, e.g. idea of respecting natural environment / they want to observe the lemurs / don't want to disrupt natural environment or a sensible comment on stoves;	**3**
1(c)(ii)	*any two from:* only farm small fields; do not use, pesticides / artificial fertilisers; use, organic fertilisers / leaf litter from forest; only grow local crops; not growing GM crops; AVP, e.g. harvesting fruits from the forest;	**2**
1(c)(iii)	*any two from:* less wood needed; less time spent, collecting wood / cooking; more time spent on other activities; solar power, does not release smoke / release less particulates / safer; helps reduce impact on their local environment / stop or reduce deforestation in the reserve;	**2**
1(d)(i)	both axes fully labelled and units; sensible linear scale and correct orientation; all plots correct ;; *6–7 plots correct [2]* *4–5 plots correct [1]*	**4**
1(d)(ii)	*allow answer in the range* 105–120;	**1**

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Question	Answer	Marks
1(d)(iii)	*any one from:* the country will contribute less to, climate change / global warming; to meet international, agreements / protocols;	**1**
1(d)(iv)	*any two from:* biogas; (bio)ethanol; biodiesel; biomass;	**2**
1(e)	position 4,3 shaded; position 1,0 shaded;	**2**
1(f)(i)	**C**;	**1**
1(f)(ii)	**A and** no loss of species / no loss of number of plants / more plants / plant numbers similar or stayed the same (to the first survey);	**1**
1(f)(iii)	**B and** number of species or number of plants, have decreased / now rare;	**1**
1(f)(iv)	*any two from:* survey method, is appropriate / records where plants are taken; collectors have to work quickly to avoid being caught; cannot reach above 2 m / cannot climb trees; quicker / easier, to collect plants on the ground;	**2**
1(f)(v)	*any three from:* (reserve is) remote / large area; not possible to guard or patrol all the reserve / laws difficult to implement or enforce; reference to, corruption / bribes; AVP, e.g. lack of finance to deal with the problem / valuable plants / high demand for plants / illegal collecting provides income;	**3**
1(g)(i)	chlorophyll;	**1**

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Question	Answer	Marks
1(g)(ii)	*any two from:* green pigment captures, sun / light energy; orchids are growing in a low light area / shady conditions so plant needs lots of green pigment; so photosynthesis can occur / water and carbon dioxide can react / glucose / sugar / carbohydrate formed; enables plants to grow and (release) oxygen;	**2**
1(h)(i)	3354;	**1**
1(h)(ii)	*any three from:* warm enough for plant growth every month of the year / temperature same all year; reference to specific data, e.g. temperature range 5 °C / average annual temperature 23.75 °C or 24 °C; no shortage of water (all year); except for October; average monthly rainfall calculated, 279.5 mm / 280 mm;	**3**

Question	Answer	Marks
2(a)(i)	*any three from:* to reduce poverty / provide income (for people on farms); help raise educational standard of young people (using additional income); to help reduce migration from rural to urban areas; increases export / expanding market for lychees; AVP, e.g. government gains income (tax), which can be invested in improving infrastructure such as roads / foreign currency / port fees;	**3**
2(a)(ii)	*any one from:* because Madagascar is an island; large tonnage can be transported cheaply or easily (by boat); so profit made by farmers, collectors and processors; air freight too expensive / cheaper by sea; limited flights; can’t go over land because it is an island; growing area next to port;	**1**

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Question	Answer	Marks
2(b)(i)	*any one from:* (fruit) must arrive in good condition / not contaminated / fit for consumption; so the lychees can be sold; to prevent, decay / decomposition / mould;	**1**
2(b)(ii)	*any three from:* glucose / sugar / carbohydrate (is broken down / reacts) **AND** (using) oxygen; by enzymes; to water and carbon dioxide; energy released;	**3**
2(c)(i)	*average:* 8(.0); *range:* 4;	**2**
2(c)(ii)	62 ;; *(if answer incorrect allow one mark for,* 2500 ÷ 40.4 or 2.5 ÷ 0.0404 [1]);	**2**
2(c)(iii)	(10.3 ÷ 40.4 × 100 =) 25.5 ;; *(allow one mark for correct answer **not** given to three significant figures);*	**2**
2(c)(iv)	*any two from:* (*lychee trees with*) larger fruits; smaller seeds; high yields; good taste; AVP, e.g. trees free from, pests / disease;	**2**

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Question	Answer	Marks
2(d)(i)	*any three from:* between 5° and 20° north and south of the Equator; (surface) sea temperature goes above 27 °C; (sea) water deeper than 60 m; air above ocean heated; moist / warm, air rises; centre of low pressure develops or tropical storm; water evaporated from ocean; wind increases (around cyclone); circular motion (of air);	**3**
2(d)(ii)	*any four from:* strong winds; heavy rain; storm surges; flooding; damage to the (lychee) farms; damage to infrastructure, e.g. ports (Toamasina) / boats / roads / transport; damage to, buildings / homes; damage to crops; damage to, communications / power lines; landslides; loss of habitats; loss of wildlife; loss of livestock; water-related disease / named disease, e.g. malaria, cholera, typhoid; financial losses qualified;	**4**

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Question	Answer	Marks
2(d)(iii)	*any three from:* government provide aid for rebuilding; supply emergency, food / water; restore communications; provide, fuel / supplies / electricity; provide shelter; medical support; evacuation / relocation / migration; AVP, e.g. international aid / rebuild damaged areas;	**3**
2(e)	*any one from:* leave old trees to the east or on coastal side of new planting; plant shelter belts / create barriers;	**1**
2(f)(i)	*any two from:* to find out if questions could be understood by farmers; answers clear / more reliable; answers can be easily processed / e.g. calculate an average;	**2**
2(f)(ii)	How many new trees have you planted in the last 3 years? **and** three appropriate choices, e.g. 1–49, 50–100, 100+;	**1**
2(f)(iii)	*any two from:* easy to, analyse / evaluate; quicker (to carry out / to process); meaningful data; percentage or ratio for each category can be calculated; same questionnaire can be used another, time / place to compare; (new style has) closed questions / not set answers (in the first version of the questionnaire);	**2**

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Question	Answer	Marks
2(f)(iv)	*any two from:* lychees are a cash crop; can't eat cash crop / cash crops grown to be sold; land can't be used to grow food as growing lychee fruit; most lychees are exported; only grown in one region;	**2**
2(f)(v)	*any one from:* sell wood / example of selling, e.g. for fuel, timber; make charcoal (to sell); use as shelter for crops; AVP, e.g. use in wood-burning stoves;	**1**
2(g)	*any three from:* (insects) attracted to, flowers / scent / colour; feed on nectar; pick up pollen / go to one flower / male flower; visit or deposit pollen at next / female flower; pollination; (pollination) must happen to allow, fertilisation / reproduction;	**3**

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