Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/23**

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)	(0.4 × 25.6 =) 10.2(4) million;	**1**
1(a)(ii)	any *two* from: more cleared land for crops; more cleared land for livestock; more cleared land for building; more wood used for fuel;	**2**
1(a)(iii)	*any four from:* trees protect soil from heavy rainfall / interception; so less surface run-off / slowed infiltration; (living) roots to bind the soil / hold soil in place; surface soil not washed away; less leaching; (trees act as) wind breaks to reduce wind erosion;	**4**
1(a)(iv)	any *two* from: tourists spend money in local economy / more taxes; to spend on infrastructure; e.g. roads / communications / buildings / amenities; more jobs;	**2**
1(b)(i)	(85 / 185 × 100 =) 45.9 ;; *(allow one mark for correct answer **not** given to three significant figures);*	**2**
1(b)(ii)	1:3 / 22:66;	**1**

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Question	Answer	Marks
1(b)(iii)	the specific habitat of a species or organism; and how it fits into this habitat / its role in food web; **OR** role / function of a species; in an ecosystem;	**2**
1(b)(iv)	insects are primary consumers, so they are eaten by secondary consumers;	**1**
1(c)(i)	*any two from;* chameleons live, on branches / in trees; trees feed / support, many insects; which are food for chameleons;	**2**
1(c)(ii)	*any three from;* not using pesticides will prevent imbalance in food chains; prevents extinction of some species; trees not cut down; so habitats protected; and soil protected; AVP, such as stated methods of sustainable farming used, e.g. managed grazing / rainwater harvesting;	**3**
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* 10.0 – 11.0 <u>thousand</u>;	**1**

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Question	Answer	Marks
1(d)(iii)	*any two from:* less smoke so less damage to lungs / reduces risk of, asthma / respiratory disease / lung cancer; reduces risk of, carbon monoxide poisoning; reduces risk of, burning (skin); reduces risk of, irritated eyes; reduces risk of, food poisoning;	**2**
1(e)(i)	2 transect lines drawn to North of walking track; all 18 quadrats indicated;	**2**
1(e)(ii)	37;	**1**
1(e)(iii)	*any two from:* numbers increase as distance from track increases; 10–20 m all similar numbers of orchids; tails off / decreases, at 30 m; all transects similar pattern;	**2**
1(e)(iv)	*any one from:* No, most quadrats contain more than 28 orchid plants per m^2; No, only fewer than 28 orchid plants per m^2 close to the track (which could be due to, trampling / another valid reason); **OR** Yes, because fewer than 28 orchid plants per m^2 at 5 m from track (suggesting someone has taken them away);	**1**
1(e)(v)	*any two from:* illegal collecting happens in different locations; so more sampling may find areas with low plants; may help to identify (another) problem(s); more valid / collects more data to compare / representative;	**2**

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Question	Answer	Marks
1(f)	*any three from:* insects attracted to coloured petals; insects attracted to scent; to collect nectar; they pick up pollen; and carry it to another flower; from the anthers to the stigma;	**3**

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Question	Answer	Marks
2(a)(i)	*any three from:* organic or chemical fertiliser; rainwater harvesting; high yield trees; small lychee trees; new lychee trees; animals for, manure / food; improved irrigation, e.g. trickle drip / clay pot;	**3**
2(a)(ii)	141 000 (people);	**1**
2(a)(iii)	*any three from:* more expensive to live in urban areas; so can support less children; better access to family planning in urban areas; less child labour; better access to medical services; so reduced infant mortality;	**3**
2(a)(iv)	*any two from:* hot and wet climate; so fruit will ripen very quickly; can rot due to, fungi / bacteria / decomposers; so the fruit arrives in good condition;	**2**
2(a)(v)	*any one from:* fruits not very high value; (so) transport costs must be low; to make a profit;	**1**
2(b)(i)	9;	**1**

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Question	Answer	Marks
2(b)(ii)	110 ;; (*if answer incorrect allow one mark for,* 4500 g / 40.9 g [1]);	**2**
2(c)(i)	*any two from:* decreased atmospheric pressure; high / intense, winds; heavy rainfall; for several hours;	**2**
2(c)(ii)	flooding / heavy rainfall, has increased stagnant water, which increases breeding areas for mosquitoes;	**1**
2(c)(iii)	*any three from:* mosquito infected with malaria parasite; bites / feeds off, human; human infected; another mosquito bites / feeds off, human; becomes vector;	**3**
2(c)(iv)	*any three from:* eradication extremely difficult; methods of vector control described, e.g. clearing stagnant water / oil on top of water / insecticides / mosquito nets; climate (hot, wet) and terrain of Madagascar supports mosquito populations; regularly hit by tropical cyclones; mosquitos are very small; mosquitos can fly; reference to LEDC; AVP, such as very large numbers of mosquitoes;	**3**

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Question	Answer	Marks
2(c)(v)	*any three from:* *government could provide,* emergency shelters; seeds; new trees; food; water; medical aid; subsidies; AVP, such as invest in weather forecasting / satellite data to warn people;	**3**
2(d)(i)	(50 × 25 =) 1250; **and** m^2;	**2**
2(d)(ii)	*any two from:* to protect against wind, from tropical cyclones / from east / from Indian Ocean; old trees not as productive so not much production lost; more important to protect younger trees; older trees have deeper roots; (which) protects soil; older trees are stronger;	**2**
2(d)(iii)	*2019 row completed* (beans, cassava); *2020 row completed* (cassava, peanuts, sweet potato, beans);	**2**
2(d)(iv)	*any three from:* contour ploughing; keep crop cover all the time; especially in wet season; use intercropping/ or crop residues; AVP, such as build wall to create terraces;	**3**
2(e)(i)	*suitable question about lychee farming such as,* How large is your farm?; *suitable tally ranges completed*;	**2**

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Question	Answer	Marks
2(e)(ii)	*any two from:* use of a map; farms selected using random numbers; other valid method, e.g. put farmer's names in a hat then select sample at random from hat ;;	**2**
2(e)(iii)	*any two from:* too difficult to do; slow process; do not know how to do it / unsure it will work; AVP, such as they are worried it may damage an existing good tree;	**2**
2(e)(iv)	*any two from:* government provide trees from, nursery / plant market; at subsidised price; set up training programmes / teach people the skills; make land available (for planting new trees); AVP, such as a tree exchange scheme, new for old;	**2**

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