Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/43**

Paper 4 **October/November 2018**

MARK SCHEME

Maximum Mark: 60

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.

Cambridge International is publishing the mark schemes for the October/November 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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.

Question	Answer	Marks
1(a)	*any three from:* improved food security; reduce, poverty / malnutrition; improve health; reduce migration to cities; develop economy / increase earnings; more trade with other countries / increase foreign exchange; to support the SAGCOT project;	**3**
1(b)(i)	*any three from:* increase interception; reduce infiltration; reduce surface run-off; soil erosion / type of erosion reduced; reference to, wind erosion;	**3**
1(b)(ii)	*any two from:* they can spend money on new farming, equipment / seeds / other valid example; paying school fees; paying doctors; AVP;	**2**
1(b)(iii)	*any two from:* more crops without using more of a named input, e.g. pesticides; fertilisers; lime; less chance of killing non-target (pest) species; which alters food webs; less risk of water pollution; using higher yield varieties of crop to produce more without, using / damaging more land;	**2**
1(c)	*allow answer within range* 350 – 450;	**1**
1(d)(i)	$(20 \cdot 30 =) 600$;	**1**
1(d)(ii)	to increase the validity of the results;	**1**

Question	Answer	Marks
1(d)(iii)	*suggested method such as,* select every third household / start at a random place in village register / other valid method, e.g. pick numbers 1–75 out of a bag;	**1**
1(e)(i)	51 600;	**1**
1(e)(ii)	30.8 / 30.81(%) ;; (*if answer incorrect, allow one mark for 15 900 / 51 600 ⋅ 100 [1]*);	**2**
1(e)(iii)	*fruits* – food; *medicinal plants* – treat illness; *grasses* – fodder / construction;	**3**
1(e)(iv)	suitable linear scale; y axis fully labelled including units; x axis fully labelled; correct plots;	**4**
1(f)(i)	so the scientist got a good sample / so it was worth it for the villagers;	**1**
1(f)(ii)	*any two from:* to prevent errors of identification in future; to allow comparison with other studies; to be able to publish results; AVP;	**2**
1(g)(i)	*any two from:* can find average daily collection; each, type of medicinal plant / species recorded; could identify the, common / rare species; more data collected;	**2**
1(g)(ii)	photographs can help future identification / consistent identification on other survey days;	**1**

Question	Answer	Marks
1(g)(iii)	table drawn that can record all the data; correct headings; data filled in; data rearranged;	**4**
1(g)(iv)	number of plants of each species;	**1**
1(g)(v)	weight / mass of plants / AVP;	**1**

Question	Answer	Marks
2(a)(i)	*any three from:* more trade; further detail; easy movement to, schools / clinics; safer; quicker;	**3**
2(a)(ii)	road crosses at narrowest point; bridge drawn; connection to highway;	**3**
2(a)(iii)	*any three from:* to keep cost of bridge down; build it in less time; less damage to wetland; reference to, direct route; to keep the cost of the road down; AVP;	**3**
2(a)(iv)	*three more environmental do not's, such as,* *do not* pollute, river / wetland; *do not* leave waste materials; reference to, pollution; reference to, noise; reference to, dust;	**3**

Question	Answer	Marks
2(b)(i)	number of plant species increase with distance from road; no further increase between 20–40 m;	**2**
2(b)(ii)	sample point number 4 / 15 m / 9 plants; error in, counting / recording / some plants died / AVP;	**2**
2(b)(iii)	*any four from:* layout transect (using tape measure); on compass bearing; at 90 degrees to road; lay quadrat at 5 m intervals; count number of plant species; count individual plants of each species / total number of plants; record results in notebook (with pencil);	**4**
2(b)(iv)	only low numbers of plants or plant species in first 15–20 m; stable vegetation from 20–40 m;	**2**
2(b)(v)	more transects off the same road; repeat on similar roads;	**2**