UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

0680 ENVIRONMENTAL MANAGEMENT

0680/41 Paper 4 (Alternative to Coursework), maximum raw mark 60

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.

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General notes

Symbols used in Environmental Management mark schemes.

/ separates alternatives for a marking point – other valid ways of expressing the same idea are also credited

; separates points for the award of a mark

[3] indicates the number of marks available

[max 3] the number shows the maximum number of marks available for the question where there are more marking points than total marks available

[max 3] when part of the marks of a question must come from part of the mark scheme, this is indicated by non-bold marks showing the internal maxima for different parts of the question
these non-bold marks are also used to show marks for bands where banded mark schemes are used

italic indicates that this is information about the marking points and is not required to gain credit
italic text is also used for comments about alternatives that should be accepted, ignored or rejected

ora or reverse argument – shows that an argument from an alternative viewpoint will be credited

AW alternative wording, sometimes called 'or words to that effect' –
AW is used when there are many different ways of expressing the same idea

( ) the word / phrase in brackets is not required to gain marks but sets the context of the response for credit
e.g. (nuclear) waste – nuclear is not needed but if it was described as a domestic waste then no mark is awarded

<u>volcanic</u> underlined words – the answer must contain exactly this word

ecf error carried forward – if an incorrect answer is given to part of a question, and this answer is subsequently used by a candidate in later parts of the question, this indicates that the candidate's incorrect answer will be used as a starting point for marking the later parts of the question

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1 (a) (i) to find jobs / better job / better pay / services / living standards / join relatives / do not want to work on farm anymore; **[1]**

(b) *greatest difference* = diarrhoea;
smallest = intestinal parasites; **[2]**

(ii) *ARI's* – close contact with infected children / overcrowding / poor ventilation / AW;
Diarrhoea – lack of clean water supply / food handling / AW; **[2]**

(iii) good layout;
three questions about children's health such as
questions on lungs (coughing / pain / AW);;
the gut (stomach pains / weight loss);;
any other infections e.g. skin; **[max 4]**

(c) (i) sample size likely to be too small / AW;
only sampling from one part of the settlement / AW; **[max 1]**

(ii) fixed number of settlement sites;
similar / large numbers of children;
randomly distributed / AW; **[max 1]**

(iii) *yes*
standard method gives similar sample size;
so means can be compared / stats calculated;
random sampling / reliable method; **[max 2]**

(d) (i) green vegetables **and** soap; **[1]**

(ii) vitamins / minerals / named vitamin / mineral;
allow highest consumption of green vegetables **[1]**

(iii) reduced bacterial transmission;
description of contamination of food with faeces / AW;
AVP; **[max 2]**

(e) *two reasonable ways such as*
continuous piped water supply **and** reliable sewage removal;

two relevant supporting reasons such as
reduced contamination by faeces;
reduced contamination via food;
reduced contamination via direct human contact;
AVP; **[max 3]**

2 (a) (i) polluted air cannot escape to desert/ AW / pollution produced on lowest ground; **[1]**

(ii) pollution trapped / less pollution blown away; **[1]**

(iii) *further detail e.g.* cold air above hot air / temperature inversion / ref. very low winds; **[1]**

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(b) (i) to collect enough particles;
to allow a comparison;
easy to collect the following day / AW; **[max 2]**

(ii) (P =) 5, (Q =) 7, (R =) 6 and (S =) 8; **[1]**

(iii) 6.5; **[1]**

(c) (i) to improve reliability; *accept* so an average can be calculated **[1]**

(ii) no with some supporting statement;
content of supporting statement
figures are all very similar / AW / settlement is one particle lower in two months out of three / AW / ora;
yes with some supporting statement;
content of supporting statement
no significant difference / AW; **[2]**

(iii) *orientation* x-axis is air sampling point / distance from plan in metres,
y-axis is average number of cement dust particles per day;
both axes labelled as for orientation;
plots;; one error max 1 for plots **[4]**

(iv) *South facing* – increase with distance from source / AW;
North facing – no real change / small fluctuations / slight decrease / AW; **[2]**

(v) prevailing wind / wind blowing in that direction most of the time / AW; **[1]**

(d) (i) 5 (%);; if answer incorrect, credit correct working to max 1 **[2]**

(ii) 22.05 (Egyptian pounds); **[1]**

3 (a) (i) catalytic converters / use ethanol / biofuel / biodiesel / only allowed to drive alternate days / AW / car share / more use of public transport;; **[max 2]**

(ii) difficult to enforce;
only a very small contribution to black cloud;
reduce employment / economic activity / AW; **[3]**

(b) (i) very little labour /quick method;
no transport needed;
nutrients / named nutrients (NPK) returned to soil / can be absorbed by next crop;**[max 2]**

(ii) rice stubble used for cooking with little / no pollution;
no need to buy in wood / other fuel;
stubble is free fuel;
building without pollution;
free materials;
always available / AW; **[max 2]**

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(iii) so people can afford the food;
avoid costs of importing;
food security / sufficiency / described;
improved living standards;
ref. to exports; **[max 2]**

(c) *allowed developments such as*
cement production to carry on as long as dust collected;
invest in cement dust as a waste treatment;
rice stubble to be composted;
to replace expensive fertilisers;
convert to fuels;
paper for packaging;
AVP;

restrictions such as
cement factories must have precipitators;
burning stubble must be stopped by fines / AW;
better collection / treatment of industrial wastes;
cement bags to be made from rice stubble;
AVP;

max 6 if only one aspect considered **[8]**

[Total: 60]

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