UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0680 ENVIRONMENTAL MANAGEMENT

0680/42 Paper 42 (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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

UNIVERSITY of CAMBRIDGE
International Examinations

1 (a) (i) to be able to find a mean/average; to make data more reliable/eq; reference to variability of data/eq; find range of data/eq;
(ignore accurate/valid/fair/fair test) [1]

(ii) increase in grazing = increase in soil erosion/eq;
(ignore reference to years) [1]

(iii) 2002, 2007, 2008; (more or less years =0) [1]

(iv) 2001 (any two of 2000, 2003, 2004); [1]

(v) rods moved/eq by animals; soil erosion; only 5 points measured; soil might be deposited after erosion; AVP; [2]

(b) (i) description of a random or systematic method; further detail; at least 10 quadrats from each area; construct recording table/notebook; record/count/calculate total number of plants; identify species/name using books; (ignore reference to metres squared) [3]

(ii) hooves/teeth damage some plants so they die/vegetation cover removed; plant growth cannot keep up with rate of grazing/eq; plants survive but cannot regenerate/reproduce/ flower/set seed; reference to root damage; reference to changes in numbers of palatable and unpalatable species; [2]

(c) (i) orientation;
both axes labelled (minimum is a reference to number, year);
plot data from column one in table; plot data from column two in table; (allow one error per plot) [4]

(ii) increase in species (until 2008), then a plateau/eq;
species fluctuate/no increase or decrease/eq; (allow no trend ignore reference to plateau) [2]

(iii) some plants cannot grow/species now extinct; seeds have not entered area yet; other species have taken their place; soil not now suitable for growth of some species; one area (2004) able to recover more; [2]

(d) steep slopes encourage surface run-off/soil movement; cooler temperatures means slower plant growth; recovery of plant cover to slow; so limited interception/described; thin topsoil easily lost/more soil erosion; full recovery now not possible; loss of soil fertility/nutrients lost/reference to leeching;
(mark the ideas not the exact wording) [2]

© UCLES 2010

2 (a) (i) can be broken down/decomposed by living organisms/microbes/bacteria/enzyme action/ eq; [1]

(ii) C 2.3(3); D 2.2(1)/ 2.20; [2]

(iii) polluted plants grow slower than control; all grow the same/similar by day 12 /end of period; polluted grass grows taller/faster from day 13 to 24/eq;
(must have reference to B C D if 'polluted' is not in the answer) [3]

(iv) (BCD have) more root growth/absorption/so more water/minerals/named mineral for more growth/photosynthesis/more minerals now available as oil has broken down/A/ control plants grow quicker at the beginning as not inhibited by oil/eq; (allow converse statements) [1]

(b) (i) animals will not have much food/grow slowly; toxic chemicals absorbed (by animals); might be poisoned/die; meat might taste bad/be toxic/poor quality/cannot be sold to local people/eq; [2]

(ii) more food for animals; gives soil time to recover/grass to grow; less risk of poisoning/ healthier for animals; healthier for humans [2]

(iii) overgrazing not likely/likely to be sustainable/eq; more yield of plants/animals after one year/eq; plant grass prevents soil erosion; plant grass reduces toxicity/eq; some oil has biodegraded/eq; some income earlier than plan B/eq; [2]

(c) (i) yes;
the plants show reduced growth for the first 10 metres/near factory; (accept converse statements) [2]

(ii) sulfuric acid/H_2SO_4; (accept sulfurous acid H_2SO_3)
reject sulfur hydroxide [1]

(iii) changes pH of soil water; makes it <u>more</u> acidic/lowers pH; so lower quantity of minerals available to roots; reduced plant growth; reduced photosynthesis; AVP; (reject plants die unqualified) [2]

© UCLES 2010

3 (a) (i) 40 (%); [1]

(ii) some fish might not have migrated to Gulf in later years; reference to disease; large fish caught in early years/only small fish now; under recording; cannot reproduce fast enough to replace stock/less reproduction; AVP; (ignore reference to nets) [2]

(iii) size/length; sex; age; sexual maturity; [2]

(iv) table drawn for a week; two characteristics labelled;;
(allow any characteristics identified in part **(iii)**) [3]

(b) three relevant questions about fishing activities such as quantity caught, method used, number of days, details about boats;;;
layout similar to question 1 (for 2 questions); [4]
reject questions about sport fishing/nets

(c) (i) could overfish sardines/eq; pollution/disease from cages; [1]

(ii) number of sardines will increase; number of small fish will decrease; as more sardines to eat them; whales/sharks decrease; due to lack of food; if more sardines eaten by whales/sharks then small fish increase; reference to change of algae numbers in correct context; [2]

(d) *sports fishing* control number of fishing days/season/fishing zone; catch per fisherman; number of boats; sports fishermen pay for licence; throw back in water; (reject reference to nets)

fishing for food closed season (in April–June) to allow spawning; set quota for each boat/eq; fishing patrols to enforce rules/times; regulate fishing gear; no fishing zones; regulate number of boats/fishermen; (reject reference to nets)
(max 4 for each subsection) [6]

© UCLES 2010