## UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Ordinary Level

## MARK SCHEME for the October/November 2009 question paper for the guidance of teachers

## **5014 ENVIRONMENTAL MANAGEMENT**

5014/02

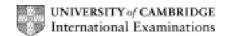
Paper 2, maximum raw mark 60

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.

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	Page 2			Mark Scheme: Teachers' version	Syllabus	Paper			
				GCE O LEVEL – October/November 2009	5014	02			
1	(a)	(i)	num dista 2 ma or cla	both axes labelled: number of species; distance from road (m); 2 marks for correctly plotting points (must have suitable scale for plots and or clear alternative);; allow one plot error per road					
		(ii)		sies increase up to 20 m; then remain constant/eq; sies in higher numbers up to 20m then same constant	for new road/eq;	[2]			
		(iii)	new	the numbers increase away from road(s); road has higher species count in first 12/16 m/eq; w 'no' for second marking point only)		[2]			
		(iv)	(iv) the same transect lines need to be repeated (twice more)/ so averages can be for (allow controlling other variables)						
		(v)	to co	ompare/use as a control;		[1]			
		(vi)	to gurand use othe use	of random number tables/generator/eq; uide random walk; om throwing; of compass bearings chosen at random; r valid randomised method; of grid; ct systematic methods		[2]			
	(b)	(i)	(the	road will be longer so) they get more money/eq;		[1]			
			A/C (allo	would damage plant life on both sides of the road; damage to plants on inland side only/eq; w fewer plants at A/C) ess to the sea could lead to pollution/environmental date.	mage;	[2]			
			AVP	ruction of seashore/ too much fishing; ; ct flooding unless linked to pollution		[2]			
2	(a)	(i)	2.8 >	0.1 = 2.8 (kg)  < 365 days = 1022 (kg)  w other correct answers with units)		[1] [1]			
		(ii)	plan	ts die (back)/retreat underground during the dry seaso	n/eq;	[1]			
		(iii)	char good e.g.	good questions related to pressure on the environmenge;;;; d layout with alternative answers for at least two questifood intake, goat numbers in the past, grazing time, not of goat	ons;				

	(b)	(i)	(i) ask person in charge; sample all villagers/ask every third household/sampling idea/eq; read the questionnaire to the goat keepers and record answers; AVP;;				
			reject age [2]				
		(ii)	to compare with other villages to see if worse/better or about average grazing pressure/eq; [1]				
	(c)	(i)	sensible number 5–25; if same number drawn then either randomly or systematically distributed; [2]				
		(ii)	number of each species; number of stalks/flowers; height; or diameter; mass; of plants; AVP;; e.g. suitable table [2]				
		(iii)	loss of plant cover/eq; leading to wind/water erosion; loss of top soil;				
			loss of minerals/nutrients; [3]				
3	(a)	a) fish yield similar over time; so must be able to reproduce/replace themselves; so boats/nets do not seem to have led to overfishing/eq; they only catch what they need/no export/for sale; fishing/spawning grounds not damaged;					
	(b)	(b) sea cucumber, not able to reproduce fast enough; so fished out/become extinct small/large fish; sharks, not able to reproduce fast enough; so fished out/become extinct; los sharks; [OR sharks removed so increase in large fish; so decrease in small fish; so increase; so run out of algal food;]					
	(c)		d comments about quota/net size/shape/number of boats = fishing effort/number of boat s at sea/AVP;;;; [4]				
	(d)	create licences for mainland boats; exclusion zone for boats; enforcement by fishery patrols; legal action; fishing season; size/age limits for fish;					

Mark Scheme: Teachers' version

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**Syllabus** 

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4 (a) (i) to protect the species tourists come to see;

to stop widespread damage by uncontrolled building;

control where tourists go;

keep village life undisturbed/depend on agriculture;

AVP;

[2]

(ii) a visitor who wants to see the wildlife/environment;

[1]

(iii) the climate is more comfortable/eq; AVP

[1]

(b) allowed developments, small number of extra hotels;

places to stay in some villages;

some diving; expand the harbour as more imports/fishing will be needed to support extra people;

some medical facilities/hospital;

guided tours on designated routes;

AVP;;; e.g. sewage treatment; only limited drinking water available; hospitals; electricity; police;

Important restrictions, ban hunting; picking wild plants; tourists must have a licensed guide; camp only in designated places; dive only from specific sites; penalties for illegal acts in the development free zone; AVP;;;; e.g. do not pollute the sea; [max 8]