## UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

## MARK SCHEME for the May/June 2008 question paper

## 9693 MARINE SCIENCE

9693/01

Paper 1 (Structured Questions), maximum raw mark 75

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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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 2008 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



		J -	GCE A/AS LEVEL – May/June 2008	9693	01
1	(a)	(i)	Sun/light;		[1]
		(ii)	phytoplankton – krill – minke whales/penguins - killer whal	es	[1]
		(iii)	transfer of energy from each trophic level; transfer of biomass from each trophic level;		[2]
		(iv)	pyramid with 5 levels; each level named;		[2]
	(b)	kille	er whales have other food sources/examples and will eat m	ore of these;	[1]
	(c)	(i)	3.5%;; correct working scores 1		[2]
		(ii)	as heat/respiration; in faeces/waste products; some parts not eaten;		[3]
	(d)	low pho less red	f: in productivity; in light levels in winter/spring/autumn; otosynthesis reduced; s phytoplankton/producers; luced numbers of primary consumers/krill/zooplankton; ect on one named human food/fish/squid;	[3] [Total: 15]	
2	(a)	to four	e of light energy/owtte; form organic molecules/named examples; ng carbon dioxide and water, erence to chlorophyll;		[3]
	(b)	ove refe (ide refe (for (1 e	of: colacement of communities/species; cer time; cerence to changes in populations; cea of) serial changes in environment; cerence to competition; cerence to changes in populations; cerence to changes in environment; cerence to competition; cerence to cerence to competition; cerence to cerence		[4] [Total: 7]
					[. 2]

Mark Scheme

**Syllabus** 

Paper

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	Page 3		Mark Scheme	Syllabus	Paper
			GCE A/AS LEVEL – May/June 2008	9693	01
3	(a) (i)		cess <b>1</b> ) runoff; cess <b>2</b> ) uptake/absorption;		[2]
	(ii)	to m	ake protein/amino acids;		[1]
	(iii)	bact	eria;		[1]
	(iv)	harv	esting of fish/removal of fish/fish eaten;		[1]
	(b) (i)	wast decr as c	eases; te/excretion from fish; eases; onverted to nitrite; rrect reference to numbers from graph;		[3]
	(ii)	(nitri nitra	e falls; te) converted to nitrate; te increases; rrect reference to numbers from graph;		[3]
	(iii)	rapio	d plant growth/algal bloom/used up as protein;		[1]
					[Total: 12]
4	lan bar isla	ging r d sink rier re	eef on volcanic island; s/ subsidence; eef forms; nks below sea level; ned;		[4]
			hological analysis; ating;		[3]
	pro pro inc	) 3 of: prevents erosion of land; provides anchorages/protection for harbours; provides new habitats; increases fishing areas; reference to tourism/diving;			[3]

[Total: 10]

	Page 4		Mark Scheme	Syllabus	Paper
			GCE A/AS LEVEL – May/June 2008	9693	01
5	(a) (i)	axes corre 4 plo	able scale on <i>y</i> -axis; s labelled; ect plots;; ots correct = 2 plots correct = 1		[4]
	(ii)	max	imum 2 from each section × 3		
			off; thering of rocks; s dissolve in water, washed into sea;		
		meta	olution; als in dust; on dioxide to form bicarbonate;		
		incre unde relea	poration; eases concentration of ions; er water volcanic activity; ease sulphate and chloride ions; olve in sea water/rain water;		
		(oth	er valid reasons)		[6]
	(b) (i)		s per thousand;		[1] [1]
	(ii)	salin low t redu incre heav	nity falls; temperatures; nced evaporation of water; eased runoff from land/freshwater; vy rain/dilution;		
		(oth	er valid reasons)		[4]
					[Total: 16]
6	(a) (i)	32;			[1]
	(ii)		6 per year; ark for correct working		[2]
	(iii)	cora as c	fish is predator/coral is prey/owtte; I begins to increase when starfish reaches minimum le oral increases, starfish increases; rence to time lag/maximum number of predators when		[4]
	(iv)	quad rand suita over cour repe	drats; lom sampling; able area; time; nt;		[4]

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(b) reference to interrelationship/live together;

reference to host;

one suffers;

one benefits;

tuna and nematodes/other named examples

[4]

[Total: 15]