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

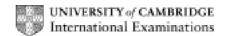
This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

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.



	•	-	GCE A/AS LEVEL – May/June 2008	9693	01
1	(a)	(i)	Sun/light;		[1]
		(ii)	phytoplankton – krill – minke whales/penguins - killer whale	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 mo	re 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)	fall in productivity; low light levels in winter/spring/autumn; photosynthesis reduced; less phytoplankton/producers; reduced numbers of primary consumers/krill/zooplankton; effect on one named human food/fish/squid;			
2	(a)	to four	e of light energy/owtte; form organic molecules/named examples; ing carbon dioxide and water, erence to chlorophyll;		[3]
	(b)	rep ove refe (ide refe (for (1 e	of: colacement of communities/species; er time; erence to changes in populations; ea of) serial changes in environment; erence to competition; r) light/nutrients/space; example) Bacteria, Tevnia, Rifta, Mussels; hydrothermal vents;		[4]

Mark Scheme

Syllabus

Paper

Page 2

[Total: 7]

	Page 3		Mark Scheme	Syllabus	Paper
			GCE A/AS LEVEL – May/June 2008	9693	01
3	(a) (i)		cess 1) runoff; cess 2) 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	(a) 4 of: fringing reef on volcanic island; land sinks/ subsidence; barrier reef forms; island sinks below sea level; atoll formed;			[4]	
	(b) drilling; geomorphological analysis; carbon dating;				[3]
	pro pro inc	vents vides vides rease	erosion of land; anchorages/protection for harbours; new habitats; s fishing areas;		101
	refe	erence	e to tourism/diving;		[3]

[Total: 10]

Page 4		4	Mark Scheme	Syllabus	Paper
; (a	a) (i)	axes corre 4 plo	GCE A/AS LEVEL – May/June 2008 able scale on <i>y</i> -axis; s labelled; ect plots;; ots correct = 2 clots correct = 1	9693	01 [4]
	(ii)	runc wea salts	imum 2 from each section × 3 off; thering of rocks; s dissolve in water, washed into sea; olution;		
		evar incre unde	als in dust; con dioxide to form bicarbonate; coration; cases concentration of ions; cer water volcanic activity; case sulphate and chloride ions; colve in sea water/rain water;		
		(oth	er valid reasons)		[6]
(k	b) (i)		s per thousand;		[1] [1]
	(ii)	salin low t redu incre heav	nity falls; temperatures; iced evaporation of water; eased runoff from land/freshwater; vy rain/dilution; er valid reasons)		[4]
		(Our	or valid redectio)		[Total: 16]
(8	a) (i)	32;			[1]
	(ii)		% per year; ark for correct working		[2]
	(iii)	cora as c	ish 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]

Page 5	Mark Scheme	Syllabus	Paper
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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]