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.

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Page 2			Mark Scheme	Syllabus	Paper
			GCE A/AS LEVEL – May/June 2008	9693	01
1 (a)) (i)	Sun/	/light;		[1]
	(ii)	phyt	oplankton – krill – minke whales/penguins - killer whale	es	[1]
	(iii)		sfer of energy from each trophic level; sfer of biomass from each trophic level;		[2]
	(iv)		mid with 5 levels; n level named;		[2]
(b) kille	er wha	ales have other food sources/examples and will eat mo	ore of these;	[1]
(c)) (i)	3.5% corre	%;; ect working scores 1		[2]
	(ii)	in fa	eat/respiration; eces/waste products; e parts not eaten;		[3]
(d	low pho less red	in pro light stosyn phyt uced	oductivity; levels in winter/spring/autumn; nthesis reduced; toplankton/producers; numbers of primary consumers/krill/zooplankton; one named human food/fish/squid;		[3] [Total: 15]
2 (a)	to fo usir	orm o	ght energy/owtte; organic molecules/named examples; orbon dioxide and water, e to chlorophyll;		[3]
(b	ove refe (ide refe (for (1 e	lacement time erence ea of) erence er	nent of communities/species; e; e to changes in populations; serial changes in environment; e to competition; t/nutrients/space; ole) Bacteria, Tevnia, Rifta, Mussels; chermal vents;		[4] [Total: 7]

	Page 3		Mark Scheme	Syllabus	Paper	
			GCE A/AS LEVEL – May/June 2008	9693	01	
3	(a) (i)	(pro	cess 1) runoff;			
	, , , ,		cess 2) uptake/absorption;		[2	
	(ii)	to m	ake protein/amino acids;		[1	
	(iii)	bact	eria;		[1	
	(iv)	harv	resting of fish/removal of fish/fish eaten;		[1	
	(b) (i)	was decr as c	eases; te/excretion from fish; reases; onverted to nitrite;		Į.	
	(ii)	nitrit (nitri	rrect reference to numbers from graph; re falls; ite) converted to nitrate;		[3	
			nte increases; rrect reference to numbers from graph;		[3	
	(iii)	rapio	d plant growth/algal bloom/used up as protein;		[1	
					[Total: 12	
4	lan bai isla	nging r nd sink rrier re	reef on volcanic island; ks/ subsidence; eef forms; nks below sea level; ned;		[4	
	(b) drilling geomo carbon		phological analysis; lating;		[3	
	pro pro inc	events ovides ovides crease	erosion of land; anchorages/protection for harbours; new habitats; s fishing areas; e to tourism/diving;		[3	
					[Total: 10	

Mark Scheme

Syllabus

Paper

Page 3

5	(a)	(i)	suitable scale on <i>y</i> -axis; axes labelled; correct plots;; 4 plots correct = 2 2/3 plots correct = 1	[4]	
		(ii)	maximum 2 from each section × 3		
			runoff; weathering of rocks; salts dissolve in water, washed into sea;		
			dissolution; metals in dust; carbon dioxide to form bicarbonate;		
			evaporation; increases concentration of ions; under water volcanic activity; release sulphate and chloride ions; dissolve in sea water/rain water;		
			(other valid reasons)	[6]	
	(b)	(i)	6.4; parts per thousand;	[1] [1]	
		(ii)	4 of: salinity falls; low temperatures; reduced evaporation of water; increased runoff from land/freshwater; heavy rain/dilution; (other valid reasons)	[4]	
				[Total: 16]	
6	(a)	(i)	32;	[1]	
		(ii)	6.4% per year;1 mark for correct working	[2]	
		(iii)	starfish is predator/coral is prey/owtte; coral begins to increase when starfish reaches minimum level; as coral increases, starfish increases; reference to time lag/maximum number of predators when coral level falling;	[4]	
		(iv)	4 of: quadrats; random sampling; suitable area; over time; count;		
			repeat; find mean;	[4]	
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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]