

Science A

General Certificate of Secondary Education

Unit **A214/01**: Unit 4: Ideas in Context (Foundation Tier)

Mark Scheme for June 2011

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MARK SCHEME:

Question			Answer	Mark	Guidance
1	a	i	any two from: tastes better; is safer; is better for the environment; is more natural; may contain less / no pesticide/ herbicide residues;	2	ignore contains more vitamins and minerals
		ii	fresh(ness) / storage / crop variety / soil / weather (1)		
	b	i	encourage changes in diet to improve health (1)	1	'to change diet' OR 'to improve health' do not score on their own
		ii*	organic food not better (for health based on nutrient content) (1)	1	allow 'it's no better'
		iii*	get enough phosphorus (from diet) (1)	1	reject enough phosphorus in the body
	c	i*	any two from: used at low level (1); test/approved/assessed before use (1); legal limits applied (1); levels on food monitored after use (1); not considered a risk to health/ is safe(1); break down rapidly (1)	2	'tested to be safe' = (2) (2 nd & 5 th marking points)
		ii	idea of a predator eating / killing ; (1) insect / pest / correct named example; (1)		
	d	i	19.5 to 19.9 (1)	1	either way round
	d	ii	4 or 19.1 (1); it is an outlier / it is very different from the other values / the other values fit into a small range (1)	2	mark independently ignore too high or too low
			Total		[13]

Question			Answer	Mark	Guidance
2	a	i	replication (1)	1	
		ii	any idea of checking it is correct e.g. compare / confirm / not missed anything / same / reliable / give more confidence in finding / accurate / precise owtte (1)	1	ignore 'get more evidence / fair test'
	b	i	microorganisms/bacteria (1) break down or decompose dead matter / plants / animals (1)	2	
		ii*	these gases absorb / trap (infrared) radiation / heat (1) from the Earth (1)	2	ignore references to ozone ignore reference to long/short wavelength radiations unless the answer tackles absorption and re-radiation.
	c*		$100 \times 107/280$ (1); = 38% (1)	2	Bald 38%/38.2% gets both marks (387-280) for 107 is OK no e.c.f. from wrong substitution ignore excessive precision e.g. 38.214%.
	d		Melting ice / permafrost / rising sea levels; (1) then any reasonable outcome (1) OR Extreme weather conditions / more good or bad weather (1) then any reasonable outcome (1) OR idea of long term small environmental changes (1) then any reasonable outcome (1)	2	Must get first gatekeeper mark to get second mark e.g. ice caps melt (1) floods land (1) more methane released (1) e.g. more tornadoes (1) damage to property (1) e.g. rise in average sea temperature (1) destroys coral (1) ignore any reference to global warming
	e		any two from: advantages: cheap; can generate energy for local inhabitants; more (arctic) fuel available; removes a powerful greenhouse gas / idea less methane reduces global warming; disadvantages: releases carbon dioxide; problems of supply;	3	Answer must be more than just the two quotes in the question. "Fuel is expensive and hard to get in this part of Alaska", "My family lives a long way from any lake" Answer must be about arctic methane BUT The QWC mark is for any consideration of both sides of the argument.
	f		moose/(rein)deer/horse (1)	1	
Total				[14]	

Question		Answer	Mark	Guidance
3	a	pump (blood around body) / oxygenate (blood) / remove carbon dioxide (1)	1	
	b	i	1	
		ii*	1	
	c*	<p>any two from: no control group/ did not include patients having surgery but not on H L machine;</p> <p>only included patients on H L machine (during surgery);</p> <p>did not include patients with heart disease but no surgery;</p> <p>sample too small/ only 261 in study;</p>	2	<p>The word 'people' can be used to replace 'patient' providing it is qualified e.g. people who have heart disease people who have surgery people on HL machine</p> <p>reject does not include people not on the heart lung machine</p> <p>reject does not include people / patients who do <u>not</u> have heart disease</p>
	d*	42% x 152; (1) 63.84 (%); (1)	2	<p>Alternative method could be repeated division and then addition, 40% + 2%) Bald 63/64/63.8 gets both marks</p>
	e	idea of monitoring (long term) progress; compare brain function before and after / to see if their condition changes;	1	
	f	pump-head syndrome is not caused by the heart-lung machine (1)	1	<p>answer must be a conclusion and not a question or explanation or other statements of facts accept pump-head syndrome can be caused by heart-disease</p>
	g	<p>any two from: diet; stress; smoking; drinking (alcohol); exercise;</p>	2	ignore references to weight / obesity
	h	looked at / read / checked / assessed (1) by other scientists (1)	2	first mark is for the process so any reference to replication loses the first mark.
Total			[13]	
Paper Total			[40]	

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