AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme
January 2004

GCE

Biology A/ Human Biology

Unit BYA9/W

Question 1

(b)		Tapes / string / axes laid out at right angles / grid area; Method of obtaining random co-ordinates; *Do not allow "Use random number generator"*		2
(b)	(i)	Decrease then remain constant; From 200 cm / over 150 cm;		2
	(iii)	Oxygen decreasing because soil becomes more compacted/ not replaced; Decrease in oxygen leads to fewer aerobes surviving; Respiration;	max	2
(c)		Anaerobic bacteria replace aerobic; As oxygen decreased by aerobic bacteria; Remove competition; Aerobic bacteria no longer able to survive in these conditions;	max	3
(d)	(i)	Near the surface / in top 50 cm; table shows decrease with time at greater depths;		2
	(iii)	Decrease; Fewer aerobic bacteria with depth; Oxygen concentration decreases / less oxygen at depth;		3
(f)		Probability greater than 95% / 0.95; Results are not due to chance / results are significant; Because bars do not overlap;		3
(g)		Plot as graph; Draw line of best fit; Read off appropriate value;		3

Total   20 marks

AQA

Question 2

(c)		Presence of resistant and non-resistant varieties / mutation produces resistant variety; Resistant ones survive / non-resistant ones killed by treatment; These will reproduce and produce more resistant parasites/pass on resistant allele; Greater probability of another person being infected by resistant parasites;	
		max	3
(d)		Likelihood of being infected (by strain resistant to both drugs) is less; 1/500 x 1/500 / 1/250 000; Drug has longer effective life; max	2
(c)	(i)	As comparison / to show that nothing else in the treatment was responsible;	1
	(iii)	Given injections of saline / injection without SPf66; (otherwise) treated the same as experimental group;	2
(d)	(i)	100%;	1
	(ii)	10%;	1
(e)	(i)	Different lengths of DNA have different base sequences / cut at specific sequence; Results in different shape / different shape of active site; Therefore (specific sequence) will only fit active site of enzyme;	3
	(iii)	Recognition sites contain only AT pairs; Which would occur very frequently;	2

Total 15 marks