



General Certificate of Secondary Education

Science: Single Award 3463/1F *Specification B (Co-ordinated)*

Mark Scheme

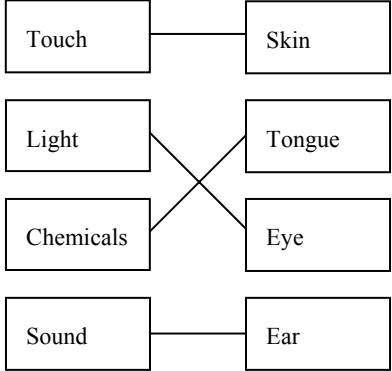
2005 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Single Award
Foundation Tier 3463/1F

3463/1F Q1

question	answers	extra information	mark
(a) G	<p>Stimulus Part of the body</p> 	<p>1 mark for each correct line</p> <p>if 2 lines to one box, CANCEL mark</p>	max 3
(b) A	<p><u>in correct sequence:</u></p> <p>sensory</p> <p>brain</p>		<p>1</p> <p>1</p>
total			5

3463/1F Q2

question	answers	extra information	mark
(a)(i) A	carbon dioxide	accept other positive indications	1
(ii) A	methane	accept other positive indications	1
(b) A	increase	accept other positive indications	1
(c) E	any three from: building farming / removing hedgerows / fire quarrying / mining industry drainage of marshland dam construction / flooding land dumping waste	accept houses / airports / roads / factories do not accept pesticides, fertilisers etc accept release of toxic chemicals / named eg accept acid rain / global warming only if linked to production by human activity do not accept just ‘pollution’ do not accept fly tipping, litter	3
total			6

3463/1F Q3

question	answers	extra information	mark
(a)(i) A	clones	accept other positive indications	1
(ii) E	same genes / alleles / DNA grown in same (environmental) conditions or correct eg – same amount of water / same temperature / same amount of light	accept same genetics / genetic information do not accept same chromosomes	1 1
(b) G	any two from: <u>water</u> uptake ion / salts / minerals / nutrient uptake stability / support / anchorage	do not accept ‘food’ / vitamins	2
total			5

3463/1F Q4

question	answers	extra information	mark
(a) G	one from each parent / one from egg and one from sperm	do not accept egg and sperm join / fertilisation unqualified	1
(b)(i) G	nn	accept a ring around printed nn	1
(ii) A	Nn Nn		1
total			3

3463/1F Q5

question	answers	extra information	mark
(a) G	decrease in number of deaths (after vaccination started)		1
(b) A	<u>in correct sequence:</u> bacteria white blood cells antibodies		1 1 1
total			4

3463/1F Q6

question	answers	extra information	mark
(a)(i) E	remains of an organism in rock / amber / coal / ice / tar or remains of an organism which lived long ago	accept bones, shells or impression for ‘remains’	1
(ii) E	<ul style="list-style-type: none"> fossils show changes <u>over</u> time 	<p>do not accept just ‘evolved’</p> <p>not just a past event</p>	<p>1</p> <p>1</p>
(b) E	<p>Quality of written communication</p> <p>any two from:</p> <p>mutation occurs in bacteria or change in DNA / gene occurs</p> <p>(when antibiotic used) only resistant bacteria survive or non-resistant bacteria are killed or reference to ‘natural selection’</p> <p>resistant bacteria pass on the gene / allele</p>	<p>for correct use of at least two scientific terms eg mutation, resistant (not just ‘antibiotic- resistant’, not ‘immune’) / selection / natural selection / survival / reproduction / gene / allele / DNA</p> <p>cancel if mutation ‘caused by’ antibiotic</p> <p>allow pass on the mutation do not accept just ‘pass on resistance’</p>	<p>1</p> <p>2</p>
total			6

3463/1F Q7

question	answers	extra information	mark
(a)(i) G	liver		1
(ii) G	<u>on diagram:</u> 'X' on liver	must be unambiguous (eg not overlapping gall bladder) intersection of X in liver	1
(b) G	stomach <u>small</u> intestine	accept duodenum or ileum extra wrong answers cancel the mark, eg small intestine (colon) = no marks	1 1
(c) G	amylase not produced by stomach acid / low / wrong pH in stomach or enzyme would be denatured in stomach or amylase only works in neutral / alkaline conditions	accept no starch digesting enzymes in the stomach accept correct enzyme not in stomach accept <u>only</u> proteases in stomach do not accept protease does not digest starch incorrect extra information cancels mark do not accept amylase does not work in the stomach	1 1
(d) E	any three from: • non-digestible / insoluble matter in faeces or fibre / roughage in faeces • <u>water</u> absorption / <u>water</u> removed (into blood) • by <u>large</u> intestine / colon / rectum • by osmosis / diffusion	ignore 'solid' accept cannot be broken down cancel mark if list of materials	3
total			9

3463/1F Q8

question	answers	extra information	mark
(a) E	345 to 350	ignore working or lack of working use of 355 to 360 and 10 for 1 mark	2
(b) E	any two from: <u>more</u> sweating (at 37.6°C) <u>more</u> water loss or dehydration <u>occurs</u> blood becomes (more) concentrated / (more) salty or need to replace water stimulation of the hypothalamus	'more' at least once in the first 2 points do not accept prevents dehydration only	2
(c) E	any three from: evaporation of <u>water</u> cools skin or uses heat from skin cools blood / heat from blood (passing through skin)	do not accept just water loss unqualified related to sweating cooling the blood ignore vasodilation	3
total			7