

Variation and Inheritance Mark Scheme

12.		A												
9.	(a)	Genotypes: BB and bb	1	2										
		F <sub>1</sub> phenotype: black (coat)	1											
8.		D												
7.	(a)	(i)	Jon is heterozygous/Hh/has both alleles/both forms of the genes  AND is hearing	1	'Both genes'/'copies of genes' is not acceptable  Both parts needed									
		(ii)	<table border="1"> <thead> <tr> <th><i>Individual</i></th> <th><i>Genotype</i></th> <th><i>Phenotype</i></th> </tr> </thead> <tbody> <tr> <td>Paul</td> <td>hh</td> <td>non-hearing</td> </tr> <tr> <td>Lyall</td> <td>Hh</td> <td>hearing</td> </tr> </tbody> </table>	<i>Individual</i>	<i>Genotype</i>	<i>Phenotype</i>	Paul	hh	non-hearing	Lyall	Hh	hearing	2	One mark per column.  Gender not necessary but incorrect gender negates.  Accept equivalent description of phenotype eg. deaf etc.
<i>Individual</i>	<i>Genotype</i>	<i>Phenotype</i>												
Paul	hh	non-hearing												
Lyall	Hh	hearing												
		(iii)	3 in 4/75%	1	3:1 is unacceptable but does not negate an otherwise correct answer. 75 is unacceptable (must have % symbol).									
13		C												

6.	(a)	<table border="1"> <thead> <tr> <th><i>Individual</i></th> <th><i>Possible Genotype(s)</i></th> <th><i>Phenotype</i></th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Tt</td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td>B</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td>C</td> <td style="background-color: #cccccc;"></td> <td>Hitchhiker's (thumb)</td> </tr> </tbody> </table>			<i>Individual</i>	<i>Possible Genotype(s)</i>	<i>Phenotype</i>	A	Tt		B			C		Hitchhiker's (thumb)	2	
		<i>Individual</i>	<i>Possible Genotype(s)</i>	<i>Phenotype</i>														
		A	Tt															
		B																
C		Hitchhiker's (thumb)																
	(b)	(i)	13:5	1														
		(ii)	Fertilisation is a random process OR Numbers in sample too small	1														

6.	(a)	Discrete Heterozygous	(1) (1)	2	
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11.	(a)	(i)	G, H, I, J, K	1	Need all 5							
		(ii)	E: tt F: Tt	2	Additional information negates.  If letters other than T or t have been correctly used, only one mark can be awarded.							
		(iii)	<table border="1"> <tr> <td></td> <td>T</td> <td>t</td> </tr> <tr> <td>t</td> <td>Tt</td> <td>tt</td> </tr> <tr> <td>t</td> <td>Tt</td> <td>tt</td> </tr> </table> 1 mark for gametes 1 mark for offspring genotypes		T	t	t	Tt	tt	t	Tt	tt
	T	t										
t	Tt	tt										
t	Tt	tt										