

Reproduction MS

QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	sexual reproduction		1
b)	any three from: ✕ coat colour inherited / by genes ✕ it has horse and zebra features ✕ gets gametes from both parents ✕ genes / DNA / chromosomes / genetic information in gametes ✕ zorse receives genes / DNA / chromosomes / genetic information from parents		3
Total marks			4

QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	sexual characteristic mutation chromosome	this order only	1 1 1 1
Total marks			4

QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	fusion of gametes / named gametes results in mixing of genetic information / DNA / chromosomes	allow meet / join / fertilise accept genetic information / DNA / chromosomes from two parents	1 1
b)i)	use enzyme to cut gene from pout chromosome / DNA	accept use of plasmid as carrier ignore salmon / cell	1 1
	insert gene into salmon chromosome / DNA / egg /		1

	embryo / nucleus		
b)ii)	eg fear of gene transfer to wild salmon / extinction of wild salmon / fear of harmful effect on consumers / unsure of long term effects	ignore cruel / ethics / morals / religion / unnatural / economics	1
Total marks			6

QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	fusion / joining / combining of gametes / egg and sperm / sex cells	accept fertilisation allow fusion / joining / combining DNA from two parents ignore meeting / coming together / mixing of gametes etc	1
a)ii)	(mixture of) genes / DNA / genetic information / chromosomes from both parents / horse and zebra	ignore nucleus / inherited information but allow second mark if given dependent on sensible attempt at 1st mark	1 1
Total marks			3

QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	characteristic		1
a)ii)	gene		1
a)iii)	gamete		1
b)	sexual asexual clones		3
Total marks			6

QUESTION 6

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	any two from: <ul style="list-style-type: none"> no fusion in asexual or sexual involves fusion or no mixing of genetic information in asexual or mixing of genetic information	assume it refers to asexual accept no fertilisation in asexual or fertilisation in sexual accept genes / alleles / chromosomes / genetics for genetic information	2

	<p>in sexual or asexual involves splitting (of one individual)</p> <ul style="list-style-type: none"> • no gametes in asexual or sexual involves gametes • only one parent in asexual or sexual involves two parents • no variation in asexual or asexual produces clones or sexual leads to variations 	<p>accept named gametes</p> <p>allow offspring of sexual have characteristics of both parents for this point</p> <p>ignore sexual intercourse</p> <p>ignore external / internal</p> <p>ignore plants / animals</p> <p>ignore mitosis / meiosis</p>	
b)	<p>nucleus of egg removed or involves empty egg cell so only one nucleus or one set of genetic information / genes / chromosomes</p> <p>or</p> <p>so genetic information / genes / chromosomes from one parent only</p>		<p>1</p> <p>1</p>
Total marks			4

QUESTION 7

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	<p>seeds produced by sexual reproduction / fusion of gametes / fertilisation</p> <p>mixture of genes / genetic information / chromosomes / DNA</p> <p>or from two parents / apple trees</p>	<p>allow produced by pollination / crossing</p> <p>if no other mark obtained allow 1 mark for apples had different genes / genetic information / chromosomes / DNA</p> <p>or</p> <p>mutation occurred</p> <p>ignore environmental effects / cloned</p>	<p>1</p> <p>1</p>
b)i)	cuttings / tissue culture	<p>accept grafting</p> <p>allow adult cell cloning</p> <p>ignore cloning unqualified</p>	1

		ignore genetic engineering ignore asexual reproduction	
b)ii)	asexual reproduction	allow produced by cloning / mitosis	1
	have identical genes / genetic information / chromosomes / DNA		1
	or no mixing of genes / genetic information /chromosomes /DNA		
Total marks			5

QUESTION 8

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	auxin	accept other named plant hormones	1
b)i)	any three from: •no (fusion of) gametes / fertilisation •only one parent •no mixing of genetic material •no genetic variation or genetically identical offspring	allow no meiosis or new cells only produced by mitosis allow not two parents allow clones	3
b)ii)	more / many offspring / plants (produced from one parent plant)	allow less damage to parent plant ignore speed / cost	1
Total marks			5

QUESTION 9

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	sexual reproduction		1
b)i)	genes		1
b)ii)	gametes		1
c)i)	any two from: •more meat (per cow) •more milk each day •can be milked for more time after giving birth / greater proportion of time	answers must be comparative ignore bigger unqualified accept '(produce) more milk', for 1 mark, if neither more milk each day nor can be milked for more time after giving birth are given	2
c)ii)	(milk contains) more protein less time before having a calf	answers must be comparative	1 1

	when no milk produced		
d)i)	genes from one organism are transferred to a different organism		1
d)ii)	possible) harm to babies' long term health	allow don't know long-term / side effects (on baby) accept idea that there may be other things in (genetically engineered) cow's milk that might harm babies' health e.g. bacteria ignore ethical / religious arguments	1
Total marks			9

QUESTION 10

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	Chromosomes		1
a)ii)	Characteristics		1
a)iii)	Classify		1
b)	Plants	ignore algae	1
Total marks			4