

# Reproduction 2

## QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	characteristics		1
b)	genes		1
c)	chromosomes		1
d)	mitosis		1
e)	asexual		1
Total marks			5

## QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	2 and 3		1
b)	cell P has an X chromosome; cell R has a Y chromosome		1
c)	any two from: ✗ (formed from) different egg / 2 eggs ✗ (formed from) different sperm / 2 sperm ✗ have different genes / alleles / chromosomes / DNA		2
d)i)	stem cells		1
d)ii)	the cells divide the cells differentiate		1 1
d)iii)	(medical) research / named eg growing organs or medical / patient treatment	allow (embryo) cloning do not allow designer babies / more babies	1
d)iv)	any one from: ✗ ethical / moral / religious objections ✗ potential harm to embryo	ignore cruel / not natural / playing God allow deformed ignore harm to mother	1
Total marks			9

### QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	sex cells		1
a)ii)	chromosomes		1
b)i)	two		1
b)ii)	recessive		1
c)i)	cell membrane	allow membrane	1
c)ii)	cytoplasm		1
d)i)	A		1
d)ii)	B		1
Total marks			8

### QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	<p>half / 50% sperm have X (chromosome) or half / 50% sperm have Y (chromosome) all eggs have X (chromosome)</p>	<p>penalise incorrect use of gene / allele once only</p> <p>annotated genetic diagram could gain 2 marks</p>	<p>1</p> <p>1</p>
b)	<p>screening</p> <p>any three from: advantages:(max 2)  <math>\times</math> (girl / children / women) don't /                      less likely to get / inherit (breast) cancer / this / the disease  <math>\times</math> future generations get less cancer or less likely to have the allele  <math>\times</math> less expensive (for NHS) than treating cancer                      disadvantages:(max 2)  <math>\times</math> (wrong / immoral to) reject / kill embryos  <math>\times</math> possible harm to embryo (that is implanted) / miscarriage  <math>\times</math> possible harm to mother (due to operational procedure)                      argued conclusion</p>	<p>ignore selection</p> <p>max 2 if only advantages or only disadvantages discussed</p> <p>do not accept reference to allele alone for this point</p> <p>ignore wrong / immoral / religious argument unqualified ignore reference to termination</p> <p>allow reference to needing hormone treatment must refer to both advantages</p> <p>and disadvantages and must be at end of answer</p>	<p>1</p> <p>3</p> <p>1</p>

Total marks			5
-------------	--	--	---

### QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	meiosis	allow mieosis	1
a)ii)	testis / testes	testis / testes	1
b)i)	46		1
b)ii)	fuses / joins with cell D / with egg cell or used in fertilisation prevents doubling of chromosome number / restores original no. / 46/ diploid no. / normal no. / full no.	allow fuse with another cell	1
		accept 23 from each parent / from each gamete	1
Total marks			5

### QUESTION 6

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	DNA		1
b)	X and Y		1
c)i)	46 chromosomes		1
c)ii)	half the number		1
d)	meiosis		1
Total marks			5