

GCSE Biology B (Twenty First Century Science)
J257/01 Breadth in Biology (Foundation)

Question Set 3

Multiple Choice Questions

1. (a)

Jack dislikes the taste of sprouts. He thinks they taste bitter. His partner Nina loves the taste of sprouts.

Jack reads that a gene affects how people taste sprouts. There are several variants of this gene.

An individual with the dominant variant, T, can taste a bitter substance in sprouts.

(i) Jack is homozygous for this gene.

What is Jack's genotype?

Tick (✓) **one** box.

TT

Tt

tT

tt

[1]

(ii) Jack wants to know if any of his children will be able to taste the bitter substance.

Nina has the genotype tt.

Complete the Punnett square to show the possible genotypes of any children Jack may have with Nina.

	T	T
t	Tt	Tt
t	Tt	Tt

[2]

(iii) What is the probability that any children born will be able to taste the bitter substance.

Probability = 100% [1]

(iv) Jack and Nina have two children, one boy and one girl. Describe how sex is determined in humans.

Female has XX chromosomes and males have XY chromosomes. [2]
X and Y chromosomes (one from female and another from male) are combined randomly.

(v) Jack and Nina do not want any more children.

They have considered different forms of contraception.

Suggest a form of contraception that would be suitable for them and justify your choice.

Contraceptive pill because it prevents ovulation

[2]

Total Marks for Question Set 3: 8

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