

GCSE Biology B (Twenty First Century Science)
J257/03 Breadth in Biology (Higher)

Question Set 31

- 1 (a) Describe how two parents who are at risk of passing on a genetic disease could use modern technology to have a child that is disease-free. [2]

The parents can do a genetic screening to see if the embryo has disease-causing allele.
Or the parents can use IVF to avoid genetic disease by selecting the sperm and egg with no disease-causing allele.

- (b) Some diseases are referred to as sex-linked.

XMEN syndrome is a very rare genetic disease which is carried on the X chromosome. It is a recessive disorder.

- (i) XMEN syndrome is caused by a gene mutation.

What is a gene mutation?

An alteration in the genome permanently changing the nucleotide sequence [1]

- (ii) Is this disease likely to be seen more often in males or females?

Explain your answer.

Use your knowledge of sex determination in your answer.

In males as male only has one X whilst female has two X chromosomes where one X can mask the effect of disease-causing X. [1]

Total Marks for Question Set 31: 4

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