0 1 . 1 What is meant by:

a *homozygous* genotype

two alleles (for a gene) are the same or both alleles are dominant or recessive

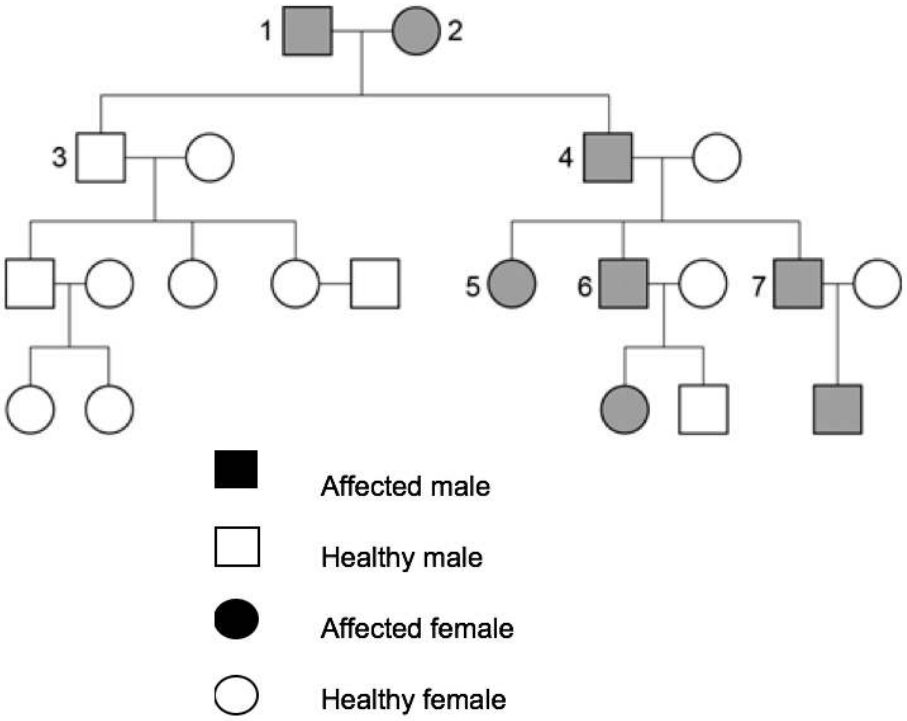
[1 mark]

0 1 . 2 a *heterozygous* genotype

two alleles (for a gene) are different or there is one dominant and one recessive allele

[1 mark]

The diagram below shows a family tree of a family with an inherited genetic disorder.



0 1 . 3 Is the allele for the disorder dominant or recessive? Explain the reasons for your answer. You may use a genetic diagram to help you.

dominant [1]; because person 1 and person 2 have a child with the disease and a child without [1]; so they must be heterozygous/have 1 dominant and 1 recessive allele [1]; if it was recessive all children will have the disease [1[

[4 marks]

0 1 . 4 Person 4 may have a different genotype to person 6. Explain why

person 4 may have 2 dominate alleles or a dominant and a recessive allele [1]

because both parents had 1 dominate allele (they had the disease) [1]

and 1 recessive allele because they passed this to person 3 who does not have

the disease [1]; person 6 must have 1 dominant allele and 1 recessive allele [1];

as they have 1 child with disease and 1 without [1]

[5 marks]

0 2 . 1 The chromosomes for determining the gender or sex of a person are labelled **X** and **Y**.

Show how the gender of a child is determined by the chromosomes inherited from the parents.

Use a diagram to help you.

Father shown as X Y [1]

Mother shown as X X [1]

Four possible combinations of chromosomes XY XY XX XX [1]

Genders written X Y = Boy; X X = girl [1]

TOP TIP : A Genetic diagram/Punnet square alone can be sufficient as long as you have clearly communicated an understanding that XY is for boy and XX is for a girl.

[4 marks]

0 2 . 2 What are the chances of getting a baby boy?

1/2; 2/4; 0.5; 50%; 50:50; 1:1 ; even or equal chance **[1 mark]**

0 2 . 3 A couple have three boys. What are the chances of the next child being a boy?

Circle the correct response.

The same Higher Lower Depends on which egg is fertilised first

[1 mark]