What Disorders Are Caused By Gene Defects and Chromosome Abnormalities?

1. Regarding human genetic disorders:

   Distinguish between the terms autosomal recessive disorder, autosomal dominant disorder, and X-linked recessive disorder.

   Give an example of a human disorder for each of the above categories.

   Describe the symptoms of each disorder that you picked.

2. Regarding sickle-cell disease:

   Describe the appearance of blood cells in persons affected by the disease.

   Explain why it is an example of incomplete dominance at the organismal level, but co-dominance at the molecular level.

   Explain why the heterozygous condition may be advantageous to persons living in Africa.

3. Regarding disorders due to abnormal chromosome number:

   Indicate how gametes can be produced that have an extra or missing chromosome.
Distinguish between aneuploidy and polyploidy and indicate which condition is likely to produce the most serious symptoms in an affected individual; is polyploidy more common in plants or animals?

Describe the chromosomal abnormality and symptoms of Down Syndrome.

Indicate the effects in humans of genotypes XO, XXY and XYY.

4. Describe several types of structural abnormalities that can occur in chromosomes.

5. Describe one method of performing genetic testing on a human fetus.