BIOLOGY

OCA - Study Guide: Chapter 14

Biology: Human Heredity

Define the following terms.

autosome	karyotype	sex chromosome
carrier	multiple alleles	sex-influenced
DNA fingerprinting	non-disjunction	sex-linked
Drosophila	pedigree	positive family history
inheritance pattern	polygenic	negative family history

Answer all of the following questions on a separate piece of paper:

Section 14 - 1 Human heredity

1. Describe how a karyotype is prepared and analyzed.
2. What is the difference between autosomes and sex-chromosomes?
3. How can a pedigree chart of a family show the possibilities of getting a genetic defect?
4. What is one of the main things that studies of identical twins who are separated are able to show ?
5. Explain why type O blood is referred to as the universal donor?
6. Give one example of an autosomal recessive disorder. Explain the symptoms.
7. Give an example of an autosomal dominant disorder. Explain its symptoms.
8. Explain how sickle cell disease is helpful to heterozygotes living in Africa.

Section 14 – 2 Human Chromosomes

9. What does it mean for a trait to be sex-linked?
10. Give an example of an X-linked trait, and explain its symptoms and inheritance pattern.
11. What is a sex-influenced trait? Give an examples.
12. What evidence suggests that an X chromosome is essential for normal development?
13. Does the Y chromosome have the same necessity as the X-chromosome? How do you know?
14. What is the cause of nondisjunction?
15. name a condition caused by nondisjunction of a sex chromosome, Of an autosome.

Section 14 – 3 Human Molecular Genetics

16. Describe the process of DNA fingerprinting.
17. What is gene therapy? What are the prospects for gene therapy?

18. What are some of the ethical issues that have arisen with the knowledge we have gained with regard to the human genome?