Heredity
Unit 5 Test Review

Name: KEY Date: _____ Hour: _____ Test #: _____

1. Why are humans not good subjects for genetic research?
   a. Humans cannot ethically be crossed in desired combinations
   b. Time between human generations is too long.
   c. Humans produce a small number of offspring.
2. What are the basic methods for studying human genetics? observational
3. Define population sampling. when researchers use carefully formulated statistical rules to select a small number of individuals that represent the whole population
4. What are monozygotic twins? random splitting of a single embryo
   a. What is the rate? 1 in 250 births Cause? unknown
5. What are dizygotic twins? woman ovulates twice in 1 menstrual cycle
   a. What is the rate? 1 in 80 births Cause? Family History
   b. Which race is the most common for dizygotic twins? African
   c. How can the chance of having dizygotic twins increase? 33 or older, have DZ twins already, use of pergonal or clomid fertility drugs
6. Which type of twins are genetically identical? Monozygotic
7. Define concordant. when both twins exhibit a trait
8. Define discordant. when only one twin has a trait
9. Define aneuploidy. A chromosome # that is not an exact multiple of a haploid, addition or deletion of a chromosome
10. Define polyploidy. a chromosome number that is a multiple of the normal diploid number
11. Define the following genetic disorders. Be familiar with their phenotypic characteristics and pictures of what an affected individual might look like.
    a. Albinism: genetic disorders associated with lack of pigmentation in skin and eyes (melanocytes contain no melanin)
    b. Cystic Fibrosis: fatal recessive genetic disorder associated with abnormal secretions of the exocrine glands that produce mucus and sweat
    c. Sickle Cell Anemia: fatal recessive genetic disorder associated with abnormal hemoglobin, the protein that transports oxygen in blood
    d. Marfan Syndrome: autosomal dominant disease affecting skeletal and cardiovascular systems and eye
    e. Achondroplasia: autosomal dominant form of dwarfism
    f. Neurofibromatosis: autosomal dominant disease causing →

abnormal pigmentation and tumors of the skin and nervous system

g. Triploidy: A chromosome # that is 3x the haploid #, having 3 copies of autosomes and 3 sex chromosomes

h. Tetraploidy: A chromosome # that is 4x the haploid #, have 4 copies of autosomes and 4 sex chromosomes

i. Trisomy 21: Down Syndrome - 40% congenital heart defects, wide skull that is flatter than normal, eyelids have epicantnic fold

12. Describe the patterns of autosomal recessive inheritance. (1.) Trait appears in offspring of unaffected parents (2.) usually alternates generations (3.) 2 affected individuals cannot have an unaffected offspring (4.) both sexes are affected equally

13. Describe the patterns of autosomal dominance in inheritance. (1.) Trait passed directly from parent to offspring (2.) Trait is present in all generations (3.) Approximately 50% of the offspring of an affected individual exhibit the trait (4.) Two affected parents MAY have unaffected children (5.) Both sexes are equally affected