Genetics Test Study Guide

GPS: SB2. Students will analyze how biological traits are passed on to successive generations.

Material covered: parts of chapters 6 & 7

**Remember to review all notes and practice problems. A guide is simply to assist you in reviewing, but is not necessarily all you should study.*

1. What is a distinguishing characteristic that can be inherited?
2. Mendel knew that the variations in the offspring generations resulted from his experiments because he controlled _____
3. How can you describe the Punnett square in Figure 6.1? What genotype does the other parent have?

S	SS	Ss
s	Ss	ss

FIG. 6.1

4. Recessive alleles may not be expressed because they are masked by _____
5. What is true of homozygous alleles?
6. Which of the events during meiosis I is an important factor in increasing variety among sexually reproducing organisms?
7. Which of Mendel's laws states that organisms inherit two copies of each gene and donate one copy to each of their offspring?
8. Imagine two heterozygous parents. Each has a dominant allele X for brown eyes and a recessive allele x for blue eyes. The phenotypic ratio for brown:blue eyes in their children is _____.
9. A person who has a disorder caused by a recessive allele is _____ for the recessive allele.
10. Suppose a mouse is homozygous for alleles that produce black fur and homozygous for alleles of an epistatic gene that prevents fur coloration. What color fur will the mouse have?
11. The Punnett square in Figure 7.1 shows a cross between two parents who have the genotype Ss for a genetic disorder caused by a recessive allele. Which of the following will have the genetic disorder?

	S	s
S	SS	Ss
s	Ss	ss

FIG. 7.1

12. A female is born with attached earlobes, which is a recessive phenotype. What are the possible genotypes her parents could have? Use the letter E to represent free earlobes, which are dominant.
13. Two parents have the genotype Gg for a genetic disorder caused by a dominant allele. What is the chance that any of their children will inherit the disorder?
14. Suppose a person is a carrier for a genetic disorder. How can you describe what it means to be a carrier?
15. For an XX female to express a recessive sex-linked trait, what must she have?
16. What is the main reason that sex-linked disorders are most often observed in males?

17. Human height occurs in a continuous range because it is affected by the interaction of several genes, making it a _____ trait.
18. Circle an example of a biological trait: personality, hair style, eye color, regional accent.
19. When Mendel crossed plants that were purebred purple-flowered with plants that were purebred white-flowered, the resulting offspring all had purple flowers. When allowed to self-pollinate, this F generation gave rise to white-flowered plants as well as purple. As a result, Mendel determined that individual traits are inherited as _____.
20. When an organism has two alleles at a particular locus that are different, the organism is called _____.
21. Mendel was able to identify predictable patterns of heredity. He succeeded mainly because he chose to study traits that had only ____ forms.
22. If a pea plant were homozygous recessive for height, how would its alleles be represented? Use the letter T.
23. What conclusions can you draw based on Mendel's observations?
24. An allele is dominant in a heterozygote when it is _____ and the other allele is not.
25. Define the term genome.
26. What do the letters inside the grid of a Punnett square represent?
27. Hair color and eye color are examples of a person's _____.
28. What is the probability that the offspring of a cross between a homozygous recessive parent and a heterozygous parent will be homozygous recessive?
29. The term for a cross that involves just one trait, such as pod shape, is called a _____ cross.
30. Which tool is used to match up chromosome pairs using chemical stains?
31. Genes that are located on sex chromosomes are called _____.
32. Eye color, hair color, and skin color are polygenic traits. Polygenic traits result from many _____.
33. A plant that is homozygous for red flowers is crossed with a plant that is homozygous for white flowers. In the case of incomplete dominance, the flowers of the offspring will be what color?
34. Identical twins who are raised apart can have differences that last a lifetime. This is evidence that _____ and _____ interact to affect phenotype.
35. In the case of codominant alleles, a plant that is homozygous for red flowers that is crossed with a plant that is homozygous for white flowers will produce flowers that are what color?