Answers to Ch. 14 Test Review Questions

Multiple Choice #1 -3,5-7

1. B 2. A 3. C 5. D 6. A 7. D

Short Answer #12, 14 – 19, 26, 27, 29:

12. The sex chromosomes, X and Y, determine whether an individual is male (XY) or female (XX).

14. Mothers 1 and 6 are carriers. Person 3 can pass his affected X chromosome only to his daughters; his sons inherit his Y chromosome and an X chromosome from their mother.

15. No, the I^A and I^B alleles are codominant. When both alleles are present in an individual, that person has blood type AB.

16. Giving a person a transfusion of blood with the wrong Rh factor could be fatal.

17. Tay-Sachs disease is an autosomal recessive genetic disease that causes nervous system breakdown and death.

18. The nature of the gene's protein product and its role in the cell; for example, if one copy of the normal allele can supply cells with enough protein to function, then the normal allele is dominant. Also, in the case of pigment, a darker color may dominate over a lighter color. If both alleles contribute to the phenotype, they are codominant (like human blood types).

19. A chromosomal disorder occurs when abnormal numbers of chromosomes find their way into the gametes. Chromosomal disorders resulting from nondisjunction include Down syndrome, Turner's syndrome, and Klinefelter's syndrome.

26. 0.1% (under 30); 0.2% (age 35); 1.0% (age 40); 8.0% (age 50). The incidence of Down Syndrome increases as the mother ages.

27. No, cystic fibrosis is caused by a gene mutation. Karyotypes can only detect abnormalities in chromosome number.

29. Turner's Syndrome; only one X chromosome is present, and there is no Y chromosome.