Chapter 21 - DNA and Biotechnology and Special Topic: Cancer

1) Which of the three RNA nucleotide bases that are found on the transfer RNA molecule pairs with the mRNA?

2) What assembles amino acids to form a protein?

3) Segments of DNA that increase the rate of transcription of certain genes are known as ___________.

4) A specific type of RNA that delivers amino acids one at a time in the ordered sequence specified by the mRNA strand is called ___________.

5) What is a three-base sequence that corresponds with a particular amino acid produced during transcription?

6) A genetic disease that causes thick, sticky mucous to form in the lungs is called ____________.

7) The process of using each strand of a DNA molecule as a template to form a new strand is called ________________.

8) What are the additional nucleotide bases in DNA that have accumulated over the evolution of a species that do not directly translate into a protein?

9) The nucleotide bases that are left behind after the introns have been spliced out by enzymes are the ________________.

10) Why do transcription and translation take place in two different locations?

11) Genes are really just segments of DNA in patterns of A's, T's, G's, and C's. How does an RNA polymerase "know" where to start transcribing at the beginning of a particular gene?

12) If there are 64 potential codons that code for various amino acids but only about 20 specific amino acids, what must be true about the genetic code?

13) Point mutations can occur in any given cell type, but they mostly only affect that one cell. What cell type, if mutated, would allow the mutation to be passed on to family members for generations?
14) Which of the following is not a characteristic of cancerous cells?
   1. Contact inhibition
   2. Immortality
   3. Unusual shapes and sizes
   4. All of the above are characteristics of cancerous cells

15) Which of the following is a typical means of halting normal cell division?
   1. Activating oncogenes
   2. Triggering apoptosis
   3. Increasing the activity of p53
   4. The shortening of telomeres
   5. All of the above are means of halting normal cell division

16) What dietary choices increase the risk of certain cancers?

17) Which statement is **not** correct concerning cell division and cancer?
   1. Apoptosis can be used to kill cancerous cells in the body.
   2. Cancerous cells can become immortal.
   3. Normal cells are limited in how many times they can replicate.
   4. Oncogenes protect against cancer.

18) If a section of DNA contained 20% thymine, what percent would the same section contain of adenine?
    What percent would the section of DNA contain of guanine?
    What percent would the section contain of cytosine?