Chapter 5 HW Answers

Section 1

1. DNA is a double helix strand. The strands are held together by specific pairs of nucleotides
2. Proteins are large molecules that are made up of chains of amino acids
3. mRNA picks up the code for making proteins from DNA; tRNA translates the code into amino acids. RNA in the ribosome brings together mRNA and tRNA and links the amino acids into their proper sequence to form a protein
4. An incorrect amino acid would change the sequence of amino acids in the protein
5. mRNA: U-A-G-U-C-C tRNA: A-U-C-A-G-G
6. it is the same, except with U instead of T

Section 2

1. A mutation is a change in the DNA of a cell
2. Mutations can be neutral, harmful, or beneficial
3. Cancer causes cells to divide continuously, upsetting the normal life cycle of the cell
4. It is silent because it has no effect on the protein that is produced. The cell still functions normally
5. Inherited: sickle cell disease; Tendency: diabetes; Cancer: a disorder caused by mutations during a person’s lifetime and can be caused by environmental factors
6. A male has only one X chromosome and will have the disease if he has the disease gene. A female has two X chromosomes; even if one X chromosome has the disease gene, the other may not

Section 3

1. A GM organism has had a gene from another species transferred to its DNA.
2. Sequencing the 3 billion nucleotide pairs in human DNA
3. Add nutrients to foods, produce new and better drugs, increase food production, and screen for genetic disorders
4. Selective breeding – selecting parent organism to pass on traits to offspring; genetic engineering – isolating specific DNA, inserting it into another organism; both – producing organism with desirable traits
5. No, because the trait is now coded for in all the organism’s cells
6. Because it comes from a more natural source, or a source more similar to that of a healthy human