Homework 4: DNA/RNA, Mitosis/Meiosis & Protein Synthesis

1. What is the basic difference between a molecule of DNA and RNA?

2. Why is DNA replication described as semi-conservative? What phenomenon allows each strand to function as a template against which a new strand can be fabricated?

3. Describe (not list) the phases of the cell cycle (i.e., briefly state what occurs during each stage).

4. What are sister chromatids? How do they differ from non-sister chromatids?

5. What do you start with and wind up with in the process of 1) mitosis and 2) meiosis? What do cells use these two processes for?

6. What is meant by diploid? How about haploid?

7. What are two ways that generate genetic variability during the process of meiosis? Why don’t these occur during mitosis?

8. Which stage of meiosis is most similar to mitosis and why?

9. Where does transcription occur and what does it produce? How about translation?

10. Briefly explain the role of mRNA, tRNA, and rRNA in the process of translation.