**Biology Spring Final Review**

**Chapter 8**

1. What is the difference between an autotroph and a heterotroph? Give examples of each.
2. What is the overall equation for photosynthesis?
3. What is the function of pigments?

**Chapter 11**

1. In genetics, what is P, F1 and F2 generations?
2. What is the difference between homozygous, heterozygous, genotype and phenotype?
3. What does a Punnett square show?
4. Explain what you would see in a cross that shows incomplete dominance, and what you would see in a cross that shows codominance?
5. What is the difference between multiple alleles and polygenic trait?
6. Define haploid and diploid? What symbols are used for each?
7. What does meiosis produce?
8. What is crossing-over? When does it occur?

**Chapter 12**

1. In DNA, what are the 3 things that make up a nucleotide?
2. Adenine pairs with \_\_\_\_\_\_\_\_\_\_\_ and guanine pairs with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Replicate this strand of DNA: CCCGGTTAATATCCGTA
4. What are differences between RNA and DNA?
5. Complete the following:
   1. DNA : TAGCCGGTATGTCAC
   2. mRNA:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. protein: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Use page 303 to fill in sequence of amino acids
6. What is a frameshift mutation? What causes it?

**Chapter 14**

1. What is a karyotype? Why are they useful? Know how to read one
2. What does a pedigree show? What do circles and squares represent?
3. If colorblindness is sex-linked, what does this mean?
4. If a colorblind father had children with a homozygous dominant normal-color vision mother, what are the chances that their children will be colorblind?
5. What is nondisjucntion?
6. What is the Human Genome Project? What is the goal?

**Chapter 13**

1. What is recombinant DNA?
2. What are restriction enzymes? What are they used for?
3. What is gel electrophoresis used for? How does it work?

**Chapter 3**

1. What are the levels of organization in the biosphere?
2. What is the main energy source for life on Earth?
3. What is a food chain? Give an example of one. In your example label producer, primary, secondary and tertiary consumer and add a decomposer.
4. If living organism need nitrogen and most of the nitrogen is in the air in the form of N2 gas, how does N2 gas turn into usable nitrogen?
5. Define limiting factor and give an example.

**Chapter 4**

1. Explain the difference between an abiotic factor and a biotic factor.
2. What is symbiosis?
3. Explain the 3 different types of symbiosis: mutualism, commensalism, and parasitism.
4. What is ecological succession?

**Chapter 5**

1. What are the factors that can affect population size?
2. What is the difference between exponential growth and logistic growth of a population?
3. What are some density-dependent factors that affect population growth?
4. What are some density-independent factors that affect population growth?

**Chapter 6**

1. What compound is causing ozone depletion? Where does the compound come from?
2. Explain the greenhouse effect and what causes it.

**Chapter 15**

1. What is a major concept included in Jean-Baptiste Lamarck’s theory of evolution? How is this different from Darwin?
2. Describe artificial selection.
3. What is a vestigial structure?

**Chapter 16**

1. Define gene pool.
2. What are the two main sources of genetic variation?
3. What does natural selection act apon?
4. Name the three ways in which natural selection affects the distribution of phenotypes in a population.
5. Define genetic drift.
6. Describe geographic isolation.

**Chapter 17**

1. What type of rock are fossils found in?
2. Define half-life.
3. According to the endosymbiont theory how did eukaryotic cells arise?
4. What were most likely the first organisms on Earth?

**Chapter 18**

1. What is binomial nomenclature? How would you write the scientific name of a polar bear?
2. What are Linnaeus’s 7 taxonomic categories, in order?
3. What are the characteristics of a mammal?
4. Which kingdoms are eukaryotic?
5. How are organisms in the Eubacteria kingdom different from those in the Archaebacteria kingdom?

**Chapter 19**

1. What are the three shapes of bacteria?
2. How do bacteria cause disease?
3. Describe the general structure of a virus.
4. What is the difference between the lytic and lysogenic cycle?

**Chapter 20**

1. Which phylum are amoebas, formainiferans, and heliozoans are part of?
2. What is phytoplankton?

**Chapter 21**

1. List the general characteristics of a fungus.
2. What part of a fungus is a mushroom?
3. What is the body of a fungus called?
4. How do fungi reproduce?

**Chapter 22**

1. List the characteristics of plants.
2. List the characteristics of bryophytes and give some examples.
3. What is the difference between a gymnosperm and angiosperm?
4. What are the difference between a monocot and dicot?

**Chapter 23**

1. What does vascular tissue consist of?
2. Name the difference plant tissues and their functions.
3. What are the small openings in the leaves called? What moves in and out of these openings?
4. Draw and label figure 23-18, page 596

**Chapter 24**

1. Draw the flower in figure 24-5, page 612 and label all the parts.
2. Describe the function of each of the parts.

**Chapter 29**

1. Which group of invertebrates has a closed circulatory system, nephridia and a hydrostatic skeleton?
2. What is a closed circulatory system?
3. What is the difference between a gastrovascular cavity and a digestive tract?
4. What type of respiratory system do insects have? Spiders?