**Biology Spring Final Exam Study Guide**

**DNA, RNA and Protein Synthesis:**

1. What is the central dogma?
2. Mutations in DNA occur on what level?
3. What is transcription? Translation?
4. What is tRNA? mRA? What are their 3 base pairs called?
5. What are 3 differences between DNA and RNA?
6. What base pairs go together on DNA? RNA?
7. How do you get identify an amino acid?

**Proteins and Enzymes:**

1. What is a protein?
2. What are some examples of proteins?
3. What is an enzyme?
4. What are some characteristics of an enzyme?
5. What does an enzyme to do a reaction’s activation energy?
6. What are the monomers of proteins?
7. Draw an amino acid
8. What is a catabolic reaction? Anabolic reaction?
9. What is the difference between a saturated and unsaturated fatty acid?

**Cell Membrane and Cell Transport:**

1. What is diffusion? Facilitated diffusion?
2. What is osmosis?
3. What is active transport?
4. How would you describe a hypertonic solution? Hypotonic solution? Isotonic solution?
5. What is the composition of the cell membrane?
6. What are the parts of a phosopholipid and how do they react with water?
7. What are the functions of the cell membrane?

**Cell Division (Mitosis and Meiosis):**

1. What is the order of the cell cycle?
2. What are the phases of Mitosis and what occurs during each phase?
3. What are the 3 phases of interphase and what occurs during each phase?
4. How many chromosomes does a human have?
5. What does the term diploid mean? Haploid?
6. What is Meiosis? What are the phases and what occurs during each phase?
7. What happens to the chromosome number during Meiosis?
8. What is something that happens during Meiosis that doesn’t occur during Mitosis?
9. What is a karyotype?
10. What is cancer?
11. What type of cells are produced by Meiosis?

**Genetics:**

1. What are alleles?
2. What does the term genotype mean? Phenotype?
3. What are Mendel’s 3 Laws?
4. What is Co-Dominance?
5. What is Incomplete Dominance?
6. What are Sex-linked traits?
7. How do you identify the type of inheritance using a pedigree?
8. What do the symbols on a pedigree stand for?

**Evolution:**

1. What are homologous structures? Analogous structures?
2. What was Lamarcks theory?
3. What is Stabilizing selection? Disruptive selection? Directional selection?
4. What is a species?
5. How do you read a cladogram?
6. Is evolution still occurring?

**Classification:**

1. What is binomial nomenclature?
2. What are the kingdoms under the domain Eukarya? What are some characteristics of each kingdom?
3. What is the order of taxonomy?
4. How do you use a dichotomous key?
5. What do we use to classify organisms?
6. What is homeostasis?