**Biology 1 Mid-Term Exam Review**

**Chapter 1**

1. What is biology?
2. Explain the difference between independent and dependent variables.
3. What is data?
4. Identify and explain the characteristics of life.
5. Identify and explain the steps of the scientific method.

**Biochemistry – Chapter 6**

1. Explain the difference between ionic and covalent bonds.
2. Know how to use atomic mass and atomic number to find proton, neutron, and electron numbers.
3. Name the 3 particles found in an atom, their charge, and their location.
4. Name the four groups of organic biomolecules, which elements are found in them, their functions, and examples.

**The Cell – Chapter 7**

1. Name the parts of the cell theory.
2. Know the parts of a compound light microscope. How do you calculate total magnification?
3. Know the parts of a cell and their functions.
4. What is the difference between prokaryotic and eukaryotic cells? Provide an example of

 each.

**Cell Energy – Chapter 9**

1. What is photosynthesis? Where does it take place? What is its formula?
2. What is cellular respiration? Where does it take place? What is its formula?
3. What is the net gain of ATP with oxygen present?
4. Name the two types of fermentation and when they would occur.
5. How does an ATP molecule store and release energy?

**Cell Transport – Sections 6.2 & 8.1**

1. What is diffusion?
2. Name 3 types of passive transport.
3. What is active transport?
4. What happens to cells in isotonic, hypertonic, and hypotonic solutions?

**Cell Division – Mitosis and Meiosis**

1. Define each of the following terms: centromere, sister chromatid, and spindle fiber.
2. Know what happens during interphase.
3. Know the phases of mitosis and what happens during each.
4. Know the phases of meiosis and what happens during each.
5. What are the human haploid and diploid numbers?
6. Compare the end products of mitosis and meiosis.

**DNA and Protein Synthesis – Chapter 11**

1. Identify the parts of a DNA and RNA molecule.
2. Describe each of the following processes and identify where they take place – replication, transcription, and translation.
3. Explain the following mutations: point mutation, frameshift mutation, translocation, inversion, and deletion.

**Genetics – Section 10.1 and Chapter 12**

1. Know how to complete a Punnett square.
2. Define the following terms: heterozygous, homozygous, phenotype, genotype, dominant, and recessive.
3. What can a karyotype show?
4. Describe each of the following inheritance patterns: sex-linked, incomplete dominance, codominance, and multiple alleles.
5. Know how to read a pedigree.
6. Explain how each of the following disorders is controlled by genetics: PKU, sickle cell anemia, and color blindness.