**Biology midterm review**

**Remember this is just to get you started. This is not necessarily everything.**

Chapter 1

1. Describe the use of the scientific method and list the steps.
2. What is bias and describe an example?
3. What is conflict of interest and describe an example.
4. What are the types of microscopes and how are resolution and magnification used?
5. What are SI units used for and give three examples of measurements and units.
6. List two lab safety practices and two microscope safety practices.

Chapter 2

1. What are activation energy, catalysts, and enzymes?
2. What are oxidation and reduction reactions?
3. What is the angle of water and is it polar or nonpolar?
4. What are cohesion and adhesion?
5. What is the difference between solute and solvent and give an example of each.
6. What are acids and bases, on the pH scale, and the chemical formulas?

Chapter 3

1. What are the four macromolecules with their monomers?
2. What are the macromolecules’ polymers, at least two for each?
3. What are the macromolecules functions, at least two for each?
4. What are the tests for each of the macromolecules, with positive results?
5. What is an active site and how is a substrate used?
6. Draw an example of each monomer, lipids get one polymer of triglyceride.

Chapter 4

1. List the three ways cells are diverse and the three ways cells are organized.
2. Draw and label the polar and nonpolar parts of the cell membrane and list three other names for it.
3. List all the parts of the animal cell and describe the function of five parts.
4. List all the parts of the plant cell and describe the function of five different parts.
5. List all the parts of the bacterial cell and describe the function of five more different parts.
6. List all the organelles that can be found in all three types of cells.

Chapter 5

1. Explain the difference between plasmolysis and cytolysis.
2. How is the sodium-potassium pump used?
3. What are the vesicles made of that are used in endo and exocytosis?
4. List two examples of each substance that each method uses to travel through.
5. What are the three stimuli that open or close the ion channels in facilitated diffusion?
6. Explain why turgor pressure is important.

Chapter 6

1. What compounds take electrons to the ETC and what products are made?
2. Define chemiosmosis.
3. List the four steps of the Calvin cycle.
4. Explain the difference between C3, C4 and CAM plants and give an example of each.
5. What are the three big factors of photosynthesis rates?
6. Is there a maximum of photosynthesis production and why?

Chapter 7

1. What are the steps of a glycolysis, where do they occur, and how many ATP molecules does each step produce?
2. Write the word and chemical formula for cellular respiration.
3. What are NADH and FADH2 used for in the ETC?
4. What do acetyl CoA, oxaloacetic acid, and citric acid each do?
5. What can the byproducts of the Krebs cycle be used for in the human body?
6. During aerobic respiration oxygen can accept both protons and electrons from the ETC; what does that produce?

Chapter 8

1. What is the difference between cellular division in prokaryotes and eukaryotes?
2. What are the steps of interphase?
3. What are the steps of mitosis and the number of products and the number of chromosomes?
4. What are the steps of meiosis and the number of products and the number of chromosomes?
5. What are two ways of chromosomes getting changed in meiosis and when do they occur?
6. What are three reasons for mitosis and three reasons for meiosis to occur?

Chapter 9

1. What are the four varieties of monohybrid crosses?
2. Explain the difference between genotype and phenotype and list the ratios for a heterozygous by heterozygous cross of red flowers.
3. Explain what the heterozygous traits would look like in codominance and incomplete dominance for red and white flowers.
4. Predict the gametes, phenotypic, and genotypic ratios for a heterozygous by heterozygous plant that is red and tall dominant.
5. In a monohybrid cross how many letters do the parent traits have versus the parent gametes have versus the offspring traits, draw a Punnett square if you need to?
6. Same for a dihybrid and trihybrid cross.