DC Biology Fall 2013 Review

1. What is the basic unit of:
   1. Protein
   2. Carbohydrate
   3. Lipid
   4. Nucleic Acid
2. What are three functions of:
   1. Protein
   2. Carbohydrate
   3. Lipid
   4. Nucleic Acid
3. What is the function of an enzyme?
4. Describe the following components of an enzyme:
   1. Active Site
   2. Allosteric Site
   3. Substrate
   4. Inhibitor
5. Describe the following about phospholipids:
   1. Hydrophobic tail
   2. Hydrophilic head
   3. Where are they found in a cell?
6. Describe the following aspects of diffusion:
   1. Correlation between concentration and movement
   2. Facilitated diffusion
7. What is osmosis?
8. Describe the three types of osmosis (direction of water & solute concentration)
   1. Isotonic
   2. Hypotonic
   3. Hypertonic
9. What is concentration gradient?
10. Describe the types of active transport:
    1. Role of ATP
    2. Phagocytosis
    3. Pinocytosis
11. Differences between eukaryotic vs prokaryotic cells.
    1. Presence of nucleus
    2. Types of organisms
    3. Presence of membrane-bound organelles
12. Function of the following organelles:
    1. Nucleus
    2. Ribosome
    3. Lysosome
    4. Cell membrane
    5. Mitochondria
    6. Chloroplast
13. Describe in what stage (Glycolysis, Kreb’s Cycle, Electron Transport Chain) the reactants go and how they are used:
    1. Glucose
    2. Oxygen
14. Describe how the following products in cell respiration are produced and in what stage:
    1. Water
    2. ATP
    3. Carbon Dioxide
15. What are the reactants and products of photosynthesis?
16. Describe the chromosomes in each phase of mitosis:
    1. Prophase
    2. Metaphase
    3. Anaphase
    4. Telophase
17. Describe the phases of interphase:
    1. G1
    2. S
    3. G2
18. What is checked in the following checkpoints of the cell cycle?
    1. G1
    2. M
    3. G2
19. What are the components of the MPF complexes?
    1. Enzyme
    2. Substrate
20. Compare mitosis and meiosis
    1. Number of resulting cells
    2. Sets of chromosomes
    3. Types of cells
    4. Number of divisions
21. Define the following:
    1. Recombination
    2. Independent Assortment
    3. Crossing over