Jonathan Quang 11/17/2014  
1WW Biology- Mrs.Prabhu

Homework 11B

Part II: Key Terms

Aerobic: The condition of requiring oxygen  
Alcoholic fermentation: The process after glycolysis that occurs when there is no oxygen during cellular respiration.  
Anaerobic: The condition where there is no oxygen.  
Cellular respiration: The second stage of glucose breakdown after glycolysis.  
Chemiosmosis: The process by which energy is used to generate a concentration gradient of H+ and then the diffusion of H+ as it flows back down its gradient is used to generate ATP.  
Electron Transport Chain: The process where electron carrying molecules donate their electrons to fuel chemiosmosis.  
Fermentation: The second stage of glucose breakdown under anaerobic conditions.  
Flavin adenine diucleotide: A high energy electron carrier similar to NADH  
Glycolysis: The breakdown of glucose into 2 net ATP molecules, 2 NADH molecules, and 2 pyruvate molecules.  
Intermembrane space: The space between the inner and outer membrane of an organelle that posses inner and outer membranes.  
Krebs Cycle: The next set of mitochondrial matrix reactions after the breakdown of pyruvate that yields 3 NADH, FADH2, 2 CO2, and ATP.  
Lactic acid fermentation: Fermentation of pyruvate to lactate.  
Matrix: The fluid contained within the inner membrane of the mitochondrion.  
Mitochondrion: Organelles in eukaryotic cells where cellular respiration takes place.  
Nicotinamide adenine dinucleotide: Another high-energy electron carrier that can store two high-energy electrons and a hydrogen ion.

Part III: Fill in the blanks  
1.glycolysis, cellular respiration, cytosol, motchondria, cellular respiration  
2. anaerobic, glycolysis, two, fermentation, NAD+  
3.ethanol, carbon dioxide, lactic acid, lactic acid  
4. EPO, red blood, oxygen, cellular respiration  
5.matrix, intermembrane space, concentration gradient, chemiosmosis, ATP synthase  
6.Krebs, pyruvate, two, NADH, FADH2

Part IV:

Part V: There are several differences between cellular respiration and photosynthesis. First of all, in animal cells, only cellular respiration occurs. In plant cells, both cellular respiration and photosynthesis occur. ATP production is different in both processes. In cellular respiration, 36-38 ATP is produced. 2 from glycolysis, 2 from Krebs cycle, and 36 from the electron carriers NADH and FADH2 powering an electron transport chain. However, photosynthesis yields 1 glucose molecule (which required 18 ATP and 12 NADPH to make from light reactions occuring twice). In animals, the ATP would be put straight into use for activities such as movement and cell division. However, in plants, the glucose is sent to the mitochondria where cellular respiration takes place to turn the glucose into ATP.