CELLULAR RESPIRATION QUESTIONS - ANSWERS

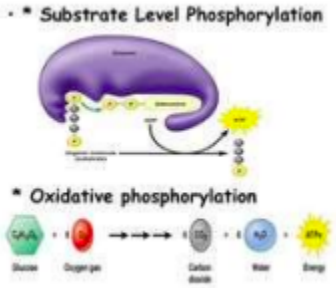
1. Write the balanced word and chemical equation for aerobic respiration.

$$C_6H_{12}O_6 + 6O_2 \xrightarrow{\text{Cellular respiration}} 6CO_2 + 6H_2O + ATP$$

4. What are the two mechanisms in which ATP is generated? Briefly describe each mechanism.

Substrate level phosphorylation: uses enzymes to add phosphate to ADP to create ATP

Oxidative phosphorylation: uses processes driven by oxygen (redox reactions) that result in the addition of phosphate to ADP to create ATP



6. Define the following terms:
   a. Aerobic cellular respiration **O2 present**
   b. Anaerobic cellular respiration **fermentation, no O2 present**
   c. Substrate level phosphorylation **use of an enzyme to add a phosphate**
   d. Oxidative phosphorylation **use of oxygen to drive a process that results in the addition of a phosphate**
   e. Chemiosmosis **movement of ions across a semiperimable membrane down their concentration gradient**
   f. Carboxylation **addition of carbon, decarboxylation – removal of carbon in form of CO2**

9. a. What is the purpose of glycolysis? **break down glucose into 2x 3-carbon molecules (pyruvate)**
   b. What are the products of glycolysis? **2 NADH, 2 ATP (net), 2 pyruvate**
   c. What gets oxidized? **glyceraldehyde 3-phosphate (G3P)** Reduced? **NAD+**