

Potential Questions to Answer in Preparation for the Glycolysis and Cellular Respiration Exam

Glycolysis

Illustrate glycolysis before answering these questions !!

Where does glycolysis occur?

For what purpose are the two phosphorylation steps?

When does the six-carbon sugar split?

How do both compounds continue down the glycolytic pathway?

What is the next step?

How do the three carbon sugars get two phosphates?

What is the next step?

What is the difference between a redox reaction and Substrate Level Phosphorylation?

Between the two-substrate level phosphorylations, what happens?

Describe the ATP score sheet for glycolysis?

Name the last compound formed in glycolysis?

Transition Stage

Illustrate the transition stage before answering these questions !!

What is the function of the transition stage?

Where does this stage occur?

What compound do we start with?

How many steps occur during this stage?

What are the three “outcomes” of the transition stage?

What is coenzyme A?

What is the final compound of the transition stage?

What is oxidized and what is reduced?

Kreb's Cycle

Illustrate the Kreb's cycle before answering these questions !!

How does the transition stage "feed" into the Kreb's cycle?

What compound is formed?

What is referred to by "series of manipulations"?

Describe what happens during the loss of the first CO₂?

Describe what happens during the loss of the second CO₂?

Describe what happens to the four-carbon compound?

What is the last "event" of the Kreb's cycle?

Electron Transport Chain

Illustrate the Electron Transport Chain before answering these questions !!

What are the functions of the NADH and FADH₂ receptors (or carrier molecules (there are a few)?

What are the purpose of electrons in the ETC?

What are the purpose of hydrogen ions in the ETC?

Why does FADH₂ only yield two ATP whereas NADH yields three?

How does ATP synthase generate ATP?

What is an electro-chemical gradient, and what is it's significance?

What is referred to by the phrase, "dynamic equilibrium"?

What is the significance if O₂ in the ETC?

Why does NADH from glycolysis produce 4, or 5, or 6 ATP?

What is the concentration of H⁺ in the intermembrane space?

Score Sheet

Illustrate the Glycolysis and Cellular Respiration before answering these questions !!

Using your illustration, what is the ATP production per one glucose molecule?