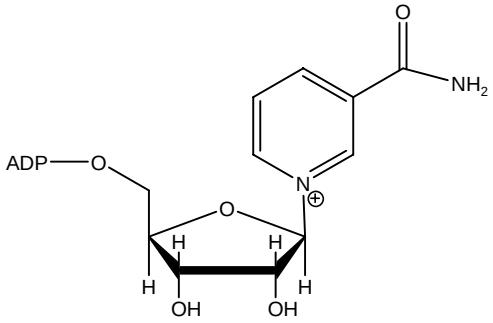
CH1010 Tutorial 7

Name:

1. Draw the **citric acid cycle** illustrating the **coenzymes**, **enzymes** and **substrate(s)** at each step.
   - What is the function of **NAD^+** in this process?

2. Match a term or structure from the list below to each of the following definitions or names. Place the letter of the term or structure in the blank to the left of the definition (or name) it describes.

A. electron transport chain

B. 

C. Krebs cycle

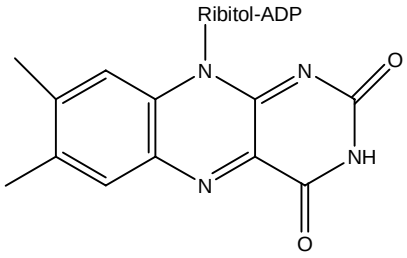
D. metabolism

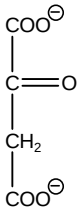
E. catabolism

F. acetyl-CoA

G. ADP

H. ATP

I. 

J. 

K. β-oxidation pathway

L. anabolism

- Those reactions that put smaller molecules together to synthesize larger biomolecules are known as _____.
- Acetyl groups are oxidized to yield carbon dioxide in the _____.
- The "energy currency" of the cell is _____.
- _____ Coenzyme NAD^+ required in the β-oxidation of fatty acids, glycolysis, and the citric acid cycle.
- The energy carriers produced in the citric acid cycle are used by the _____ to make ATP.
- _____ is the product of the citric acid cycle, which is also a reactant in the first step.

3. How are **glycolysis** and the **citric acid cycle linked**? Provide a detailed answer including equations to support it where possible

4. Using an equation illustrate how **ATP** functions as a **carrier of energy** in cellular systems.
   - Draw a **detailed structure** of ATP.
   - Explain where the energy comes from in the molecule and what type of energy it is (kinetic, potential, …).
   - Provide an example of the use of ATP in cellular biochemistry.