1. (2 points) Indicate the steps of the cycle which must occur for compound A to be converted to compound B. For each step list the name of the compound, the enzyme name, the direction of the reaction, and the product's name.

![Chemical structures]

2. (1.0 point) Write out the reaction catalyzed by α-ketoglutarate dehydrogenase. Indicate the names of the substrates and products (structures are NOT required for this answer), the direction of the reaction, and the names of any cofactors which may be required.

![Chemical reaction]

3. (1.0 point) List below the enzyme(s) which catalyze reactions which result in the generation of an intermediate with a high energy thioester bond (a sulfur attached to a carbonyl group).

α ketoglutarate dehydrogenase

4. (1.0 point) List below the enzyme(s) which catalyze reactions which result in the production of FADH2.

succinate dehydrogenase