***CHEM-115 Quiz 9 (Chapter 14) December 8, 2017***

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_

1. What is the first common molecule that all major catabolic pathways end up producing during the breakdown of lipids, carbs or proteins?
2. Pyruvate b) Glucose c) Acetyl-CoA d) Citrate
3. The major functional group that Coenzyme-A uses to combine with other molecules during various catabolic pathways is its \_\_\_\_\_\_\_\_\_\_\_ group.
4. Amide b) Alcohol c) Ether d) Sulfhydryl (aka. thiol) e) Amine
5. The three “*oxidative decarboxylation*” reactions that occur in the intermediate step & citric acid cycle all produce CO2 and \_\_\_\_\_\_\_\_\_\_\_\_.

 a) NADH b) FADH2 c) acetyl-CoA d) citrate e) protons

1. Both beta-oxidation & the citric acid cycle occur in what cellular compartment?
2. Cytosol b) mitochondrial matrix c) ribosome d) mitochondrial intermembrane space
3. The diagram below summarizes the 6th step of the TCA cycle. What kind of reaction is occurring?



1. hydrolysis
2. hydration
3. redox
4. isomerization
5. NADH releases its electrons into \_\_\_\_\_\_\_\_\_, whereas FADH2 releases them into \_\_\_\_\_\_\_\_\_\_\_.

 a) Complex I; Complex II c) Both Complex I e) Complex III; Complex IV

 b) Complex II; Complex Id) Complex II; Complex III

1. Which of the following molecules serves as a mobile electron carrier in the electron transport chain? *Circle all that apply.*

 a) Coenzyme-A b) Coenzyme-Q c) Cytochrome C d) pyruvate

1. Which of the electron transport chain complexes does not “pump” protons (H+)? *Circle all that apply.*
2. Complex I b) Complex II c) Complex III d) Complex IV e) All do
3. What form of energy is stored in the proton gradient used to drive ATP synthase?

 a) potential b) kinetic c) thermald) chemical

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Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_

1. The citric acid cycle enzymes are located in the \_\_\_\_\_\_\_\_\_\_\_, while the electron transport chain complex are located in the \_\_\_\_\_\_\_\_\_\_\_.
2. Cytosol; mitochondrial matrix c) Mitochondrial matrix; inner mito membrane
3. Mitochondrial matrix; outer mito membrane d) Inner mito membrane; cytosol
4. Which of the following macromolecules we have studied produces acetyl-CoA as an intermediate in it catabolism? *Circle all that apply.*
5. Carbohydrates b) Proteins c) Fatty acids d) Sterols
6. The three “*oxidative decarboxylation*” reactions that occur in the intermediate step & citric acid cycle all produce CO2 and \_\_\_\_\_\_\_\_\_\_\_\_.

 a) FADH2 b) acetyl-CoA c) citrate d) NADH e) protons

1. The major functional group that Coenzyme-A uses to combine with other molecules during various catabolic pathways is its \_\_\_\_\_\_\_\_\_\_\_ group.
2. Sulfhydryl (aka. thiol) b) Ketone c) Amine d) Alcohol e) Aldehyde
3. The diagram below summarizes the 2nd step of the TCA cycle. What kind of reaction is occurring?



1. hydrolysis
2. hydration
3. redox
4. isomerization
5. FADH2 releases its electrons into \_\_\_\_\_\_\_\_\_, whereas NADH releases them into \_\_\_\_\_\_\_\_\_\_\_.

 a) Complex I; Complex II c) Complex II; Complex I e) Complex III; Complex IV

 b) Both Complex I d) Complex II; Complex III

1. What form of energy is stored in the proton gradient used to drive ATP synthase?

 a) potential b) kinetic c) thermald) chemical

1. Which of the following molecules serves as a mobile electron carrier in the electron transport chain? *Circle all that apply.*

 a) Coenzyme-Q b) Coenzyme-A c) citrate d) Cytochrome C

1. Which of the electron transport chain complexes does not “pump” protons (H+)? *Circle all that apply.*
2. All of them do b) Complex I c) Complex II d) Complex III e) Complex IV