Mohamed Boudiaf M’sila University

Faculty of Sciences

M’sila Medicine Annex

First year medicine

Homework No. 2 : carbohydrate metabolism

**Exercise 01:**

Write the overall reaction of Pyruvate by Krebs Cycle.

**Exercise 02:**

The Krebs cycle operates under conditions of aerobic metabolism

 true

 false

The Krebs cycle is not a source of high energy phosphate bonds ‎‎5‎

 true

 false

Krebs cycle reactions can run in the direction of reduction

 true

 false

It is the carbon atoms of acetate that are oxidized in the Krebs cycle ‎‎3‎

 true

 false

Feedback inhibition created by the accumulation of 02 products: acetyl coA and NADH, H+

 true

 false

Energy balance of the complete oxidation of a Glucose molecule is 34

 true

 false

**Exercise 03:**

One mole of glucose labeled with 14C at the C1 level is incubated in the presence of liver tissue and pyruvic acid is isolated.

1- Describe the important stages of glycolysis.

2- Which carbon atom of pyruvic acid will be labeled with 14C

3- What will be the percentage of marked pyruvic acid?

4- Give the biochemical and energy balance expressed in ATP.

**Exercise 04:**

Give among the following enzymes the one(s) involved in an irreversible reaction(s) of the Krebs cycle, and detail their reaction:

1. α-ketoglutarate dehydrogenase
2. pyruvate kinase
3. pyruvate dehydrogenase
4. citrate synthase
5. succinate dehydrogenase
6. isocitrate dehydrogenase