<Q>Metabolic water is produced from

<S>Y

<C+>reduction of oxygen

<C>beta-oxidation of fatty acids

<C>citric acid cycle

<C>pentose phosphate pathway

<Q>Glyceraldehyde-3-phosphate dehydrogenase catalyzes the reaction of glyceraldehyde-3-phosphate to give:

<S>Y

<C>dihydroxyacetone phosphate.

<C>3-phosphoglycerate.

<C+>1,3-bisphosphoglycerate.

<C>phosphoenolpyruvate.

<Q>The reactions of glycolysis occur in this eukaryotic cell compartment:

<S>Y

<C+>Cytoplasm

<C>Mitochondrion

<C>Nucleus

<C>Both cytoplasm and mitochondria

<Q>The fate of pyruvate produced during glycolysis depends primarily on the availability of:

<S>Y

<C>NAD+ to keep the pathway going.

<C+>Molecular oxygen.

<C>ADP for conversion to ATP.

<C>Coenzyme A for further metabolism of pyruvate.

<Q>Enzymes with the following name types are used in isomerization reactions:

<S>Y

<C>Dehydrogenase

<C>Kinase

<C+>Mutase

<C>Phosphatase

<Q>An enzyme that transfers a phosphate group from ATP to a substrate is usually called

<S>Y

<C+>a kinase.

<C>an isomerase.

<C>a mutase.

<C>a dehydrogenase

<Q>Glycolysis

<S>Y

<C+>does not require O2 to generate energy

<C>requires O2 to generate energy

<C>is inhibited by O2

<C>rate is increased in the presence of O2

<Q>In humans, pyruvate can be converted to

<S>Y

<C>acetyl-CoA only

<C>lactate only

<C>ethanol only

<C+>acetyl-CoA and lactate

<Q>The binding of glucose to hexokinase

<S>Y

<C>is an example of lock-and-key binding of a substrate to the active site of an enzyme

<C+>involves a large conformational change in the enzyme

<C>differs from the binding of substrates to other kinases

<C>is not well characterized

<Q>The reaction of fructose 1,6-bisphosphate to give glyceraldehyde-3-phosphate and dihydroxyacetone phosphate is an example of

<S>Y

<C+>a reverse aldol condensation

<C>hydrolysis

<C>oxidation

<C>dehydration

<Q>Pyruvate can be directly converted to all of the following EXCEPT:

<S>Y

<C+>phosphoenolpyruvate

<C>alanine.

<C>lactate.

<C>oxaloacetate.

<Q>The three enzymatic steps in glycolysis that are bypassed with different enzymes in gluconeogenesis are:

<S>Y

<C>hexokinase, phosphoglycerate kinase, pyruvate kinase

<C+>hexokinase, phosphofructokinase, pyruvate kinase

<C>hexokinase, phosphofructokinase, phosphoglycerate kinase

<C>phosphofructokinase, phosphoglycerate kinase, pyruvate kinase

<Q>Which of the following statements about pyruvate kinase (PK) is TRUE?

<S>Y

<C+>It is activated by fructose-1,6-bisphosphate

<C>It is activated by ATP

<C>It is activated by alanine

<C>A native PK molecule has three subunits

<Q>The inhibition of fructose-1,6-bisphosphatase by fructose-2,6-bisphosphate is greatly increased in the presence of:

<S>Y

<C>ATP

<C+>AMP

<C>IMP

<C>GTP

<Q>Glycolysis involves

<S>Y

<C>4 irreversible steps

<C+>3 irreversible steps

<C>2 irreversible steps

<C>1 irreversible step

<Q>Which of the following enzymes catalyzes a reversible reaction in glycolysis?

<S>Y

<C>Hexokinase.

<C>Phosphofructokinase.

<C+>Enolase.

<C>Pyruvate kinase.

<Q>Which of the following statements is CORRECT regarding phosphofructokinase

<S>Y

<C+>It acts at a control point in glycolysis

<C>Exists in blood in 4 different isozyme forms

<C>Its activity increases in presence of high concentrations of ATP

<C>Its activity is not affected by the level of fructose-2,6-bisphosphate

<Q>Cleavage of fructose-1,6-bisphosphate to give two 3-carbon fragments is catalyzed by:

<S>Y

<C+>Aldolase

<C>Enolase

<C>Isomerase

<C>Dehydrogenase

<Q>Which of the following enzymes catalyzes a control point in glycolysis?

<S>Y

<C+>phosphofructokinase-1

<C>phosphofructokinase-2

<C>fructose-2,6-bisphosphatase

<C>fructose-1,6-bisphosphatase

<Q>The only reaction of glycolysis that produces NADH is catalyzed by:

<S>Y

<C>enolase

<C>aldolase

<C>triose phosphate isomerase

<C+>glyceraldehyde-3-phosphate dehydrogenase

<Q>The first high energy intermediate produced in the conversion of glucose to pyruvate is:

<S>Y

<C>glucose-6-phosphate

<C>fructose-1,6-bisphosphate

<C+>1,3-bispbosphoglycerate

<C>glyceraldehydes-3-phosphate

<Q>In glycolysis the enzyme that is inhibited by ATP is:

<S>Y

<C+>phosphofructokinase

<C>hexokinase

<C>aldolase

<C>glyceraldehyde-3phosphate dehydrogenase

<Q>The enzyme that catalyzes substrate-level phosphorylation in glycolysis is

<S>Y

<C>glyceraldehyde-3-phosphate dehydrogenase.

<C>hexokinase.

<C>phosphofructokinase.

<C+>pyruvate kinase.

<Q>The steps of glycolysis between glyceraldehyde-3-phosphate and 3-phosphoglycerate involve all of the following EXCEPT:

<S>Y

<C+>synthesis of 2ATP

<C>utilization of phosphate group

<C>reduction of NAD⁺ to NADH.

<C>formation of 1,3-bisphosphoglycerate.

<Q>The enzymes fructose-2,6-bisphosphatase (F-2,6-BPase) and phosphofructokinase-2 (PFK-2) are present as a protein dimer, then

<S>Y

<C>they are activated together

<C>they are inhibited together

<C+>the first is activated by phosphorylation while the other is inactivated

<C>the first is inactivated by phosphorylation while the other is activated

<Q>Which of the following statements is CORRECT?

<S>Y

<C>lactate is oxidized to pyruvate in skeletal muscle cells

<C+>lactate is oxidized to pyruvate in liver cells

<C>lactate is oxidized to pyruvate in the citric acid cycle

<C>lactate is oxidized to pyruvate in the electron transport chain

<Q>In glycolysis the enzyme that is inhibited by glucose-6-phosphate is:

<S>Y

<C>phosphofructokinase

<C+>hexokinase

<C>aldolase

<C>glyceraldehyde-3-phosphate dehydrogenase

<Q>Which of the following statements is NOT CORRECT about glycolysis?

<S>Y

<C>Glucose is converted to pyruvate in a series of 10 reactions.

<C>It is the first stage of glucose metabolism from bacteria to humans.

<C>There is a net gain of three ATP molecules for each molecule of glucose-6-phosphate processed.

<C+>It contains three reversible reactions.

<Q> How many ATP molecules are consumed in glycolysis for every one molecule of glucose?

<S>Y

<C> 0; ATP is produced, not consumed, by glycolysis

<C> 1

<C+> 2

<C> 3

<Q> Transfer of a high-energy phosphoryl group to ADP, resulting in ATP occurs when:

<S>N

<C> 1,3-bisphosphoglycerate TO 3-phosphoglycerate

<C> phosphoenolpyruvate (PEP) TO pyruvate

<C> 3-phosphoglycerate TO 2-phosphoglycerate

<C+> Both A and B

<Q> Glyceraldehyde 3-phosphate dehydrogenase causes

<S>N

<C> the reduction and phosphorylation of glyceraldehyde 3-phosphate to produce 1,3-bisphosphoglycerate.

<C> the oxidation of a molecule of NAD+ to NADH.

<C+>Neither A nor B

<C> Both A and B

<Q> Which of the following is not regulated in glycolysis?

<S>Y

<C> pyruvate kinase

<C+>phosphoglycerate kinase

<C> hexokinase

<C> Phosphofructokinase (PFK)

<Q> The conversion of pyruvate to ethanol also causes the _____.

<S>Y

<C+>oxidation of NADH

<C> production of ADP

<C> consumption of O2

<C> generation of an ion gradient across mitochondrial membranes

Good Luck ^_^