Which reactions of glycolysis operate far from equilibrium under cellular conditions?

|  |  |  |
| --- | --- | --- |
|  |  | hexokinase, phosphofructokinase, pyruvate kinase |
|  |  | aldolase, phosphoglycerate kinase, enolase |
|  |  | hexokinase, phosphoglucoisomerase, phosphofructokinase, aldolase |
|  |  | phosphoglucoisomerase, aldolase, glyceraldehyde-3-phosphate dehydrogenase |

Fructose is rapidly metabolized by the liver and enters glycolysis at the level of:

|  |  |  |
| --- | --- | --- |
|  |  | fructose-6-phosphate |
|  |  | glyceraldehyde-3-phosphate and dihydroxyacetone phosphate |
|  |  | fructose-1-phosphate |
|  |  | fructose-2-phosphate |

Which enzyme catalyzes the reaction that is the "break even point" in glycolysis?

|  |  |  |
| --- | --- | --- |
|  |  | glyceraldehyde-3-phosphate dehydrogenase |
|  |  | phosphoglycerate kinase |
|  |  | lactate dehydrogenase |
|  |  | pyruvate kinase |
|  |  | phosphofructokinase |
|  |  |  |
|  |  |  |
|  |  |  |

Phosphoglucoisomerase catalyzes the isomerization of glucose-6-phosphate to:

|  |  |  |
| --- | --- | --- |
|  |  | fructose-1,6-bisphosphate |
|  |  | fructose-6-phosphate |
|  |  | fructose-1-phosphate |
|  |  | fructose-2,6-bisphosphate |

Which metabolic intermediate is NOT found in the pathway of galactose metabolism to glycolytic intermediates?

|  |  |  |
| --- | --- | --- |
|  |  | galactose-1-phosphate |
|  |  | galactose-6-phosphate |
|  |  | UDP-glucose |
|  |  | glucose-1-phosphate |
|  |  |  |

The conversion of glucose to lactate involves:

|  |  |  |
| --- | --- | --- |
|  |  | no net oxidation or reduction |
|  |  | one oxidation step |
|  |  | one reduction step |
|  |  | All of the Above |

Which enzyme catalyzes substrate-level phosphorylation?

|  |  |  |
| --- | --- | --- |
|  |  | phosphofructokinase |
|  |  | phosphoglycerate kinase |
|  |  | glyceraldehyde-3-phosphate dehydrogenase |
|  |  | phosphoglycerate mutase |

Under anaerobic conditions, which reaction is used to re-oxidize the NADH formed in glycolysis? Reduction of:

|  |  |  |
| --- | --- | --- |
|  |  | dihydroxyacetone phosphate to glyceraldehyde-3-phosphate |
|  |  | pyruvate to acetaldehyde |
|  |  | pyruvate to lactate |
|  |  | glyceraldehyde to acetaldehyde |