

Vitamin Problems for Week 8:

Chem 109C (Kahn)

Lipids: True or False

- 1) All lipids possess at least one carbonyl group?
- 2) Phosphatidylserine is a complex lipid found in cell membranes?
- 3) Vitamin E is antioxidant that protects cell membranes from oxidative damage?
- 4) Blood types A, B, and O are determined by the length of a fatty acid chain in sphingolipids?
- 5) Testosterone is a steroid hormone that stimulates muscle growth and social competition in animals?

Nucleosides and Nucleotides: Identify one *incorrect* statement

- 1) ATP hydrolysis into ADP and phosphate is the most exergonic reaction in biochemistry
- 2) ATP hydrolysis is strongly exergonic partially because the lone-pair electrons of phosphate oxygens are more extensively delocalized in the products
- 3) ATP hydrolysis is strongly exergonic partially because the product ions are solvated better than the reactant ion
- 4) ATP hydrolysis is strongly exergonic partially because the negatively charged phosphate groups in ATP interact unfavourably via charge-charge repulsion
- 5) ATP hydrolysis, despite being thermodynamically favorable, is not a very fast process in pure water