



CHEMISTRY 260 BIOCHEMISTRY
Exam 4 PRACTICE QUESTIONS

- 1) Book questions:
Chapter 16: 2 3 8 9 10 19 22 25 28
Chapter 17: 1 (a b c e(cytochrome c) g o p) 25
Chapter 18: 8 23 26
Chapter 19: 16(abcd) 17 23
Chapter 20: 4 6 15(effect on cAMP concentration; effect on protein kinases, protein phosphatases)
- 2) What molecules are produced from pyruvate under anaerobic conditions? What citric acid cycle molecules can be directly produced from pyruvate?
- 3) Know what reactions are oxidative decarboxylations with α -ketoacids and what are oxidative decarboxylations with β -ketoacids.
- 4) a) Be able to determine the net ATP production for the following molecules in glycolysis, pyruvate dehydrogenase complex, the citric acid cycle and oxidative phosphorylation:
glucose, fructose, sucrose, pyruvate, acetylCoA, \star glycerol (gets to glycolysis by first glycerol kinase then phosphoglycerol dehydrogenase (NAD^+))
b) Be able to determine the net ATP production for the following molecules in β -oxidation, the citric acid cycle and oxidative phosphorylation:
myristic acid (C14:0) palmitic acid (C16:0) stearic acid(C18:0)
- 5) Know the sequence of three reactions that will produce a 3-ketoacyl group starting with an acyl group. What pathways include these reactions? What groups are produced from the first and second reactions?
- 6) Know the sequence of molecules that electrons move through in the electron transport system starting with NADH or FADH_2 . Know how to calculate ΔG s from voltages in oxidation-reduction reactions. Know how to calculate ΔG s for transport of H^+ across a membrane.
- 7) Know the pairs of α -ketoacid/amino acid with 3, 4 or 5 carbons that are linked by aminotransferase reactions. What coenzyme is required for amino acid reactions? Given an amino acid structure, be able to draw the structure of the product molecule from aminotransferase, deamination or decarboxylation reactions. What sequence of two reactions will "remove" an amino group from an amino acid?