PDF Quiz 2: Chemical Speciation and Thermodynamics Last Name: Answers
RDCH 702
Assigned: 29-Aug-18 First Name:_____
Due: 10-Sep-18

negative enthalpy and Gibbs free energy are spontaneous.

1. Spontaneous reactions have a positive ΔH. No
2. Spontaneous reactions have what values for ΔG? Negative
3. Consider the reduction potential data below. For a cell with Ag and Cu in the metal and monovalent ion, which element will be reduced? Ag

Standard Reduction Potentials (in Volts), 25°C

Reaction	E^o
$Ag^+ + e^- \rightarrow Ag$	+0.80
$Fe^{3+} + e^- \rightarrow Fe^{2+}$	+0.77
$I_2 + 2e^- \rightarrow 2I^-$	+0.54
$Cu^+ + e^- \rightarrow Cu$	+0.52

Ag has the highest half cell reduction potential
Ag is favored to reduce

4. Carbonic acid would be a good buffer for which pH? 6.5

Carbonic acid has a Ka of 3.5E-6, which is a pKa of 6.5, which would be a pH of 6.5 as a buffer.

5. You have a carbonate solid in a solution that you wish to dissolve. It is taking a long time to dissolve the solid. What can be done to increase the rate of dissolution? Choose all that are correct.

❒ Freeze solution ■ Mix solution ❒ Evaporate solution in freeze drier ❒ Heat solution

❒ Bubble CO_2 into solution ■ Add dilute acid

Solid phase dissolution can be increased by mixing or heating.
The addition of acid can dissolve carbonates.

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