

XIV) Selecting Preferred Reactions

April 30, 2018 8:37 PM

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In many reaction environments, there's more than one substance that can reduce, and/or more than one substance that can oxidize. How can you determine the reaction that actually occurs?

1. When several different reductions can occur,

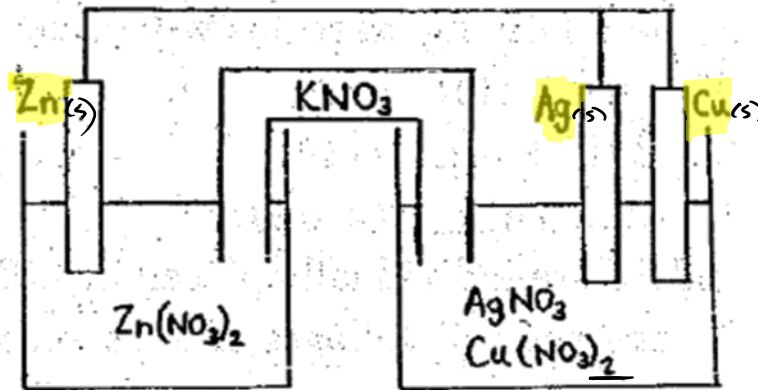
The rxn with the highest E°_{cell} will occur preferentially (highest/strongest O.A) + lowest/strongest R.A.

→ further apart on Table.

2. When several different oxidations can occur,

strongest R.A will be as above. lowest on the table.

Write the redox equation that will occur for the following cell:



A method to deduce the actual reaction occurring:

i) List all possible oxidizing agents

cations
 H_2O
 $Ag^+(aq)$
 $Cu^{2+}(aq)$
 $Zn^{2+}(aq)$

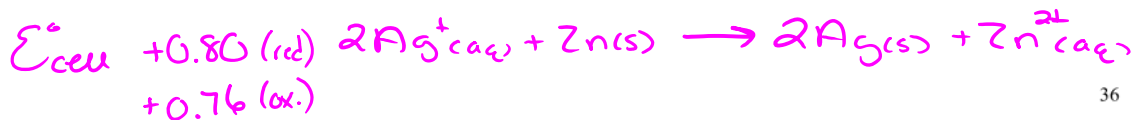
reducing agents (solid metals - will oxidize)

$Ag(s)$
 $Cu(s)$
 $Zn(s)$

H_2O ← always an option when there is an (aq) solution.

ii) Circle each agent that is the most preferred

iii) Write the overall reaction.



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+ 1.56 V "preferred rxn's" should be spontaneous

