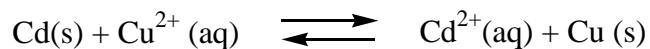


Problem of the Day 42 CHEM 1252

1. a) Is the following redox reaction spontaneous as written under standard conditions.

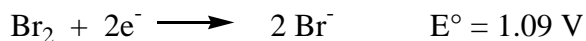
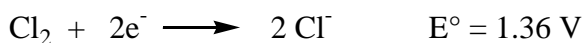


<p><i>Circle One.</i></p> <p style="text-align: center;">yes</p> <p style="text-align: center;">no</p>	<p><i>Justify your answer here.</i></p>
	<div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block; text-align: center; line-height: 20px;">6</div>

b) Calculate K for the reaction.

4

2. a) A voltaic cell is composed of the following half-reactions. Write the anode and cathode half-reaction.



<p><i>anode half-reaction</i></p>	<p><i>cathode half-reaction</i></p>
<div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block; text-align: center; line-height: 20px;">2</div>	<div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block; text-align: center; line-height: 20px;">2</div>

b) Sketch the voltaic cell; include the direction of electron flow and the direction of ion migration through the salt bridge.

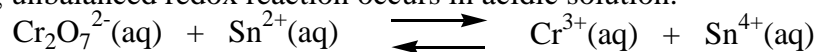
8

2. (cont'd)

c) Give the overall balanced reaction and determine E°_{cell} for the voltaic cell.

	6
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3. The following unbalanced redox reaction occurs in acidic solution.



a) Balance the half reaction that occurs at the anode. You must show your work.

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Write balanced reaction here.

5

b) Balance the half reaction that occurs at the cathode. You must show your work.

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Write balanced reaction here.

5

c) Using standard reduction potentials found in Appendix E in your textbook, calculate E°_{cell} for the reaction.

	5
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d) Is this reaction spontaneous under standard conditions? You must justify your answer.

	2
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