

Brett Robbins Academic Consulting

Chemistry 30 Practice Test

Unit B: Electrochemical Changes

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

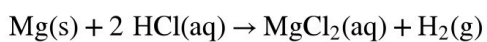
Question 1

The oxidation number of manganese in $\text{KMnO}_4(\text{s})$ is

- A) +2
- B) +5
- C) +7
- D) -7

Question 2

In the reaction represented by the equation

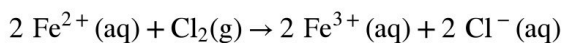


the species that is oxidized is

- A) $\text{Mg}(\text{s})$
- B) $\text{H}^+(\text{aq})$
- C) $\text{Cl}^-(\text{aq})$
- D) $\text{H}_2(\text{g})$

Question 3

In the reaction represented by the equation

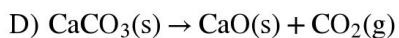
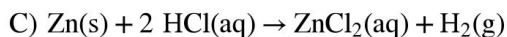
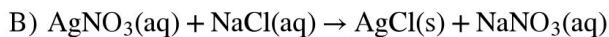
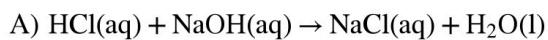


the reducing agent is

- A) $\text{Cl}_2(\text{g})$
- B) $\text{Fe}^{2+}(\text{aq})$
- C) $\text{Fe}^{3+}(\text{aq})$
- D) $\text{Cl}^-(\text{aq})$

Question 4

Which of the following equations represents a redox reaction?



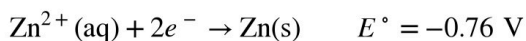
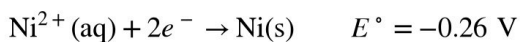
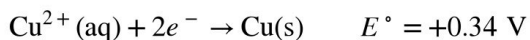
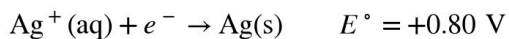
Question 5

The oxidation number of nitrogen in $\text{HNO}_2\text{(aq)}$ is + ____

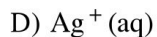
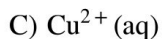
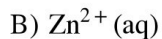
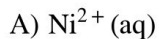
Record the single digit that completes the oxidation number.

Question 6

Use the following standard reduction potentials to answer this question.

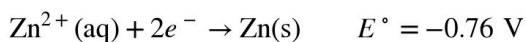
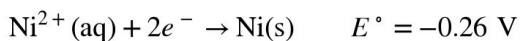
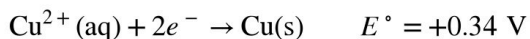
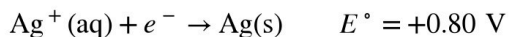


The strongest oxidizing agent in the table is

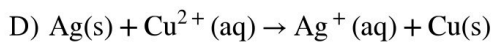
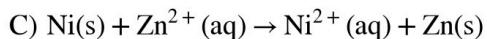
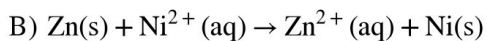
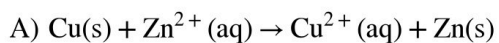


Question 7

Use the following standard reduction potentials to answer this question.

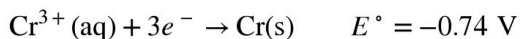


Which of the following reactions is spontaneous under standard conditions?



Question 8

A voltaic cell is constructed from the following half reactions.



The standard cell potential, E°_{cell} , is

A) $+0.60 \text{ V}$

B) $+0.88 \text{ V}$

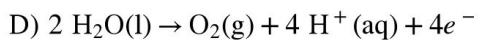
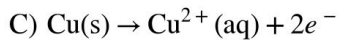
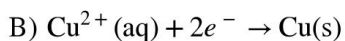
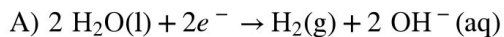
C) -0.60 V

D) -0.88 V

Question 9

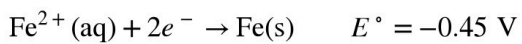
An electrolytic cell contains aqueous copper(II) sulfate and inert electrodes.

The reaction that occurs at the cathode is



Question 10

A voltaic cell is based on the half reactions



The value of E°_{cell} , in volts, is

Answer Key

- | | | |
|------|------|----------|
| 1. C | 5. 3 | 9. B |
| 2. A | 6. D | 10. 0.79 |
| 3. B | 7. B | |
| 4. C | 8. A | |

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