YUKON CHEMISTRY 12 (MCH--12) · UNIT D · 10 QUESTIONS

Electrochemistry — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Given $E°(Ni^{2+}/Ni) = -0.25$ V and $E°(Cu^{2+}/Cu) = +0.34$ V, the cell potential for $Ni + Cu^{2+} \rightarrow Ni^{2+} + Cu$, in volts, is**

- A 0.09
- B 0.59
- C 0.34
- D 0.84

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2 **Given $E°(Mg^{2+}/Mg) = -2.37$ V and $E°(Zn^{2+}/Zn) = -0.76$ V, the cell potential for Mg + $Zn^{2+} \rightarrow Mg^{2+} + Zn$, in volts, is**

A 1.61

B 2.37

C 3.13

D 0.76

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3 **A cell with a negative standard cell potential under standard conditions is**

A spontaneous

B at equilibrium

C nonspontaneous, and needs an external power supply to run

D a galvanic cell, which produces electricity from a spontaneous chemical reaction instead

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4 **The species with the larger, more positive, reduction potential is the one that is**

- A more easily reduced
- B more easily oxidized
- C the stronger reducing agent
- D never reduced

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5 **In a zinc-copper galvanic cell, the zinc electrode**

- A gains mass as copper plates onto it
- B does not change in mass
- C gains mass as zinc ions plate onto it
- D loses mass as zinc metal is oxidized

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6 **In a zinc-copper galvanic cell, the copper electrode**

A loses mass as copper metal is oxidized

B gains mass as copper metal plates onto it

C does not change in mass

D gains mass as zinc plates onto it

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7 **Electroplating is used to**

A remove metal from an object

B generate electricity from heat

C coat an object with a thin layer of metal

D purify water by boiling

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8 **During electrolysis, the external power supply forces**

- **A** a nonspontaneous redox reaction to occur
- **B** a spontaneous reaction to stop
- **C** electrons to flow from cathode to anode
- **D** ions to stop moving

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9 **Which equation is a balanced redox half-reaction for the oxidation of aluminium**

- **A** $Al + 3e^- \rightarrow Al^{3+}$
- **B** $Al \rightarrow Al^{3+} + e^-$
- **C** $Al \rightarrow Al^{3+} + 3e^-$
- **D** $Al^{3+} + 3e^- \rightarrow Al$

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10 **Which equation is a balanced redox half-reaction for the reduction of silver ions**

A $Ag \rightarrow Ag^{+} + e^{-}$

B $Ag^{+} \rightarrow Ag + e^{-}$

C $Ag^{+} + 2e^{-} \rightarrow Ag$

D $Ag^{+} + e^{-} \rightarrow Ag$

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ANSWER KEY

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

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