ALBERTA CHEMISTRY 30 · UNIT D · 5 QUESTIONS

Equilibrium, Acids & Bases — Practice Test

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1 **The equilibrium law expression for the reaction $N_2(g) + 3\ H_2(g) \rightleftharpoons 2\ NH_3(g)$ is**

A $\dfrac{[N_2][H_2]^3}{[NH_3]^2}$

B $\dfrac{[NH_3]^2}{[N_2][H_2]^3}$

C $\dfrac{[NH_3]}{[N_2][H_2]}$

D $\dfrac{[2NH_3]}{[N_2][3H_2]}$

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2 **A solution has a hydroxide ion concentration of 1.0×10^{-3} mol/L. The pOH of the solution is**



A 3.0

B -3.0

C 11.0

D 1.0×10^{-11}

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3 **Use the following equation to answer this question.**

$H_2S(aq) + H_2O(l) \rightleftharpoons HS^-(aq) + H_3O^+(aq)$

In this equation, the species that acts as a Brønsted-Lowry acid is

- A $H_2O(l)$
- B $HS^-(aq)$
- C $H_3O^+(aq)$
- D $H_2S(aq)$

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4 **Which of the following statements correctly describes a system at dynamic equilibrium?**

- A The rates of the forward and reverse reactions are equal, and the concentrations of all species remain constant.
- B The concentrations of the reactants and the products are equal.
- C The forward reaction stops, while the reverse reaction continues.
- D No reactions occur at the molecular level.

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5

Consider the following equilibrium system.

$CO(g) + Cl_2(g) \rightleftharpoons COCl_2(g)$

The graph shows the concentration of CO(g) over time. The equilibrium concentration of CO(g), in mol/L, is ____.

ANSWER

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ANSWER KEY

1. B
2. A
3. D
4. A
5. 0.40

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