

Chapter 4 Chemical Equilibrium

- Which of the following species are Lewis Acid?
(A) I_2
(B) BF_3
(C) SiF_4
(D) NH_3
- Which of the following are equal to zero for an ideal solution?
(A) ΔH_{mix}
(B) ΔS_{mix}
(C) ΔV_{mix}
(D) $\Delta P = P_{observed} - P_{raoult}$
- Which salt are derived from a strong acid and a strong soluble base?
(A) $MgCl_2$
(B) $Ba(NO_3)_2$
(C) $LiClO_4$
(D) $CsBr$
- Which of the following are strong electrolytes?
(A) $HClO_3$
(B) $MgCl_2$
(C) H_2CO_3
(D) KBr
- When a salt of weak acid and weak base is dissolved in water at $25^\circ C$, the pH of the resulting solution will always
(A) be greater than 5
(B) depends upon value of K_b
(C) be less than 7
(D) depends upon value of K_a
- The buffers present in the blood contain
(A) HCO_3^-
(B) $Ca(OH)_2$
(C) Hemoglobin
(D) $H_2PO_4^-$
- For which of the following reactions K_p is greater than K_c ?
(A) $2HI \leftrightarrow H_2 + I_2$
(B) $N_2 + O_2 \leftrightarrow 2NO$
(C) $N_2O_4 \leftrightarrow 2NO_2$
(D) $2SO_2 + O_2 \leftrightarrow 2SO_3$
- Which of the following are CORRECT about a phase diagram.

- (A) It gives information on transformation rates
(B) Relative amount of different phases can be found under given equilibrium conditions
(C) It indicates the temperature at which different phases start to melt
(D) Solid solubility limits are depicted by it
9. On which factor the rate constant of a reaction depend upon?
(A) Temperature
(B) Activation energy
(C) Catalyst
(D) Concentration of reactants and products
10. Which are TRUE for a second order reduction?
(A) It can have rate constant $1 \times 10^{-2} \text{ L mol}^{-1} \text{ s}^{-1}$
(B) Its half-life is inversely proportional to its initial concentration
(C) Time to complete 75% reaction is twice of half-life
(D) $T_{50} = 1/(k_a \cdot A_0)$

Answer

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