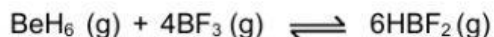
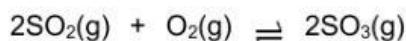


23. Equilibrium constant, K_p , for the equilibrium



is 2.94 at 296K. What is the value of equilibrium constant, K_c for this equilibrium at the same temperature?

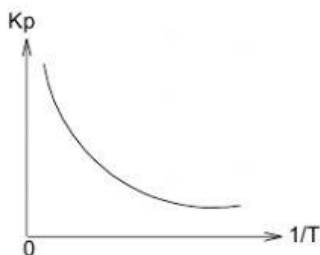
- A. 0.121 mol L^{-1} C. 71.4 mol L^{-1}
 B. 8.26 mol L^{-1} D. 2.94 mol L^{-1}
24. The formation of Sulphur trioxide gas SO_3 is given as:



Initially, 2 mol of Sulphur dioxide gas, SO_2 and 1 mol of oxygen gas, O_2 is placed in 1.0 L flask. At equilibrium, 57% of oxygen was completely reacted. Calculate the percentage of Sulphur trioxide, SO_3 at equilibrium.

- A. 50.5% C. 75%
 B. 46.9% D. 63%

25. The graph below shows the effect of temperature, T on the equilibrium constant, K_p for the reaction



Which of the following statements about the reaction is true

- A. The forward reaction is endothermic.
 B. The forward reaction is exothermic
 C. At high temperature, the amount of Z in the equilibrium mixture decreases.
 D. At higher Temperature, K_p increase.
26. An aqueous solution of a weak acid, **HX**, is prepared by dissolving 0.020 mol of **HX** in water to yield 1.0L of solution. At 25.0°C ,

the pH of the solution was 4.93. Calculate the K_a value for **HX**.

- A. 1.37×10^{-10} C. 1.17×10^{-5}
 B. 6.85×10^{-9} D. 5.85×10^{-4}
27. Calculate the pH of a 0.02M solution of $\text{Ca}(\text{OH})_2$ at 25°C
- A. 0.04 C. 1.69
 B. 1.40 D. 12.6
28. Choose the **CORRECT** statement regarding buffer solutions
- A. A buffer capacity is the pH of a buffer after mixing an acid and base pair in limited amount.
 B. A buffer made from strong acid and strong base is normally able to resist changes in pH better.
 C. A buffer solution made from NH_3 and NH_4Cl pair will have pH in the acid range.
 D. A buffer is characterized by its pH, and its buffer capacity upon the addition of small amounts of strong acid or strong base.
29. If the molar solubility of PbBr_2 is 0.01 mol L^{-1} , what is the solubility constant, K_{sp} ?
- A. $4.0 \times 10^{-6} \text{ mol}^3 \text{ L}^{-3}$
 B. $4.0 \times 10^{-6} \text{ mol}^2 \text{ L}^{-2}$
 C. $3.0 \times 10^{-6} \text{ mol}^3 \text{ L}^{-3}$
 D. $1.0 \times 10^{-6} \text{ mol}^3 \text{ L}^{-3}$
30. Choose the **CORRECT** statement(s) regarding 0.0010M NH_3 solution. [$K_b \text{ NH}_3 = 1.8 \times 10^{-5}$]
- A. The concentration of NH_4^+ is $4.24 \times 10^{-4} \text{ M}$
 B. The concentration of H^+ is $7.46 \times 10^{-11} \text{ M}$
 C. pOH of the solution is 10.13
 D. pH of the solution is 3.8

END OF QUESTION PAPER.