Chemistry - 11th Class Chemistry Short Questions Chapter 8 Preparation

Q1. What are buffer solutions? How a basis buffer can be prepared?

Ans 1: The solution that resists in pH changes when small amount of an acid or a base is added to it is called buffer solution. Basic buffers are formed by mixing a weak base and its salt with strong acid. Such solution will give basic buffers with pH more than 7. Mixing of NH_4OH and NH_4Cl is one of the best example of such a basic buffer.

Q2. Define pH and pOH. Give its equation?

Ans 1: pH: The negative logarithm of H^+ Ions concentration is called pH.

$pH = -LOG[H^+]$

pOH: The negative logarithm of OH^- Ions concentration is called pOH.

$pOH = -log[OH^-]$

Q3. Solubility of glucose increase in water by heating. Give reason?

Ans 1: Formation of solution of glucose in H_2O is an endothermic process. The solution becomes cold. Therefore, according to Le-Chatelier's principle an increase in temperature will favour the formation of glucose solution. Thus by increasing temperature more quantity of glucose will dissolve in water.

Q4. What will be the nature of solution having pH equal to 12?

Ans 1: The value of pH varies between 0-14. A solution having pH value 0-7 are acidic in nature while a solution having pH value 7-14 are basic in nature.
PH=12, This solution is basic

Q5. Write two application of equilibrium constant?

Ans 1: There are following applications of equilibrium constant.

- Prediction of direction of reaction.
- Extent of a chemical reaction.
- Effect of various factors on chemical equilibrium.

Q6. How can you determine K_{sp} From solubility?

Ans 1: Solubility are given in number of grams of solute per 100g of H_2O. Since density of H_2O is 1 gcm^{-3}. Therefore solubility can be written as number of grams of solute/100 cm^{-3} Of solvent. From the amount of solute/dm^3ls calculated. Then amount in grams is converted into moles and using equilibrium K_{sp} Can be calculated.

Q7.

How K_c predict the extent of chemical reaction?

Ans 1:

The value of K_c also helps us to predict extent of chemical reaction. There are three possibilities.

1. Large K_c Value: If K_c value is large it means reaction is almost completed.

2. Small K_c Value: If K_c value is small amount it means reaction does not proceed appreciably in forward direction. Small amount of product will be formed

3. K_c is in fractions: If K_c is in fractions. It means little forward reaction.

Q8. A mixture of NH_4OH and NH_4Cl gives a basic buffer.Justify the statement ?

Ans 1:   A buffer which consists of a weak base and its salt with strong acid is called basic buffer.Since NH_4OH is a weak base and NH_4Cl is its salt with strong acid.Therefore it is basic buffer.

Q9.

A catalyst does not affect the equilibrium position and K_c of a reversible reaction. Explain ?

Ans 1:

In most of the reversible reactions, the equilibrium is not always reached within a suitable short time. So an appropriate catalyst is added. A catalyst does not effect the equilibrium position of the reaction. It increases the rates of both forward and backward reactions and it reduces the time to attain the state of equilibrium. Actually a catalyst lowers the energy of activation of both forward and reverse steps by giving new path to the reaction.

Q10.

Give the physical significance of K_f and K_b?

Ans 1:

The rate of forward and reverse reaction tell us the condition on which a reaction will depend. It also tells about:

1. Direction of area action

2. Extent of reaction.