

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

أسئلة ميد تيرم سابقة في مادة الكيمياء الفزيائية



اللهم نسألك باسمك الأكرم
الذي إذا دُعيت به أجبت
اللهم أنصر أخواننا في فلسطين
اللهم وحد صفهم وأجمع كلمتهم على الحق
اللهم عليك بالصهاينة المعتدين الغاصبين
اللهم أرنا بهم عجائب قدرتك واشف صدور
قوم مؤمنين يا ذا الجلال والإكرام

The solubility of a solute is generally rises with:

- (a) increase in temperature .
- (b) decrease in temperature.
- (c) increases in volume of the solvent
- (d) none of these

In a super saturated solution, the amount of solute is ----- in comparison to saturated solution.

- (a) less (b) more (c) equal to (d) none of these



A saturated solution is defined as one which is ----- with the excess of solid at a particular temperature.

- (a) in contact (b) in equilibrium
(c) contains impurities (d) none of these

A saturated solution of KCl on heating becomes

- (a) unsaturated (b) supersaturated
(c) hydrated (d) none of these

The concentration of a solution is defined as:

- (a) The amount of solvent present in a given amount of solution
- (b) The amount of solute present in a given amount of solution
- (c) The amount of solute present in a given amount of solvent
- (d) The amount of solvent present in a given amount of solute

If n represents the number of moles of a solute and N represents the number of moles of a solvent, the mole fraction of the solvent is given by:

(a) $\frac{n}{n + N}$

(b) $\frac{N}{n + N}$

(c) $\frac{n + N}{n}$

(d) $\frac{n + N}{N}$

The molarity is defined as the number of moles of solute present in:

(a) one liter of the solvent .

(b) one liter of the solution.

(c) one kilogram of the solvent.

(d) one kilogram of the solution.

The molality of a solution is defined as the number of moles of solute present in:

(a) one liter of the solvent

(c) one kilogram of the solvent

(b) one liter of the solution

(d) one kilogram of the solution



The weight percent of a solute in a solution is given by:

$$(a) \frac{w_B}{w_A + w_A} \times 100$$

$$(b) \frac{w_B}{w_A} \times 100$$

$$(c) \frac{w_B}{w_A + w_B} \times 100$$

$$(d) \frac{w_A}{w_A + w_B} \times 100$$

Normality of a solution is the number of -----

(a) moles

(b) equivalents

(c) formula weight

(d) mole fraction

The number of moles of a solute per kilogram of the solvent is called:

(a) formality

(b) normality

(c) molarity

(d) molality



For a gas in contact with a solvent at a constant temperature, the concentration of the gas that dissolves in the solvent is directly proportional to the pressure of the gas. This law:

(a) Henry's law

(b) Raoult's law

(c) Dalton's law

(d) van't Hoff

The Henry's law is applicable if:

- (a) the temperature and pressure are moderate
- (b) the solubility of the gas in the solvent is low
- (c) the gas does not react with the solvent to form a new species
- (d) all of the above

Mathematically, Henry's law can be expressed as (C is the concentration of the gas in solution and P is the pressure of the gas)

- (a) $C \propto P$
- (b) $C = k P$
- (c) $k = C/P$
- (d) all of these

The Henry's law gives the relationship between:

- (a) the pressure and solubility of a gas in a particular solvent
- (b) the temperature and solubility of a gas in a particular solvent
- (c) the composition of the mixture and solubility of a gas in a particular solvent
- (d) none of these

When the attraction of molecules of A for B or B for A is less than for A-A or for B-B attraction. Then the molecules of A or B tend to escape from the solution relatively easier than from pure A or pure B. In this case,

- (a) The vapour pressure of the solution will be greater than that given by Raoult's Law.
- (b) The vapour pressure of the solution will be greater than that given by Henry's law .
- (c) The vapour pressure of the solution will be greater than that given by Dalton's Law.
- (d) The vapour pressure of the solution will be greater than that given by van't Hoff law.

Negative Deviation occurs :

- (a) When the attraction between A to B molecules is greater than attraction between A to A molecules or the molecules B to B .
- (b) When the attraction between A to B molecules is less than attraction between A to A molecules or the molecules B to B .
- (c) When the attraction between A to B molecules is equal to the attraction between A to A molecules or the molecules B to B .
- (d) none of these.

A chemical system is at equilibrium

- (a) when the rate of the forward reaction becomes zero.
- ☒ (b) when the rates of the forward reaction and the reverse reaction are equal.
- (c) when all of the reactants have been used up.
- (d) when the rates of the forward reaction and the reverse reaction are both zero.

Equilibrium reactions are characterized by

- (a) Going to completion.
- (b) Being non-spontaneous.
- ☒ (c) The presence of both reactants and products in a definite proportion.
- (d) none of these.



A dynamic equilibrium

- (a) is when the rate of the forward reaction is equal to the rate of the reverse reaction.
- (b) is a form of static equilibrium.
- (c) only occurs in chemical equilibrium.
- (d) involves radioactivity.

**The equilibrium mixture $2\text{NO}_{2(\text{brown})} \rightleftharpoons \text{N}_2\text{O}_{4(\text{colourless})}$;
What happens to the colour if pressure is increased?**

- (a) No change in colour intensity.
- (b) Colour intensity first increases and then decreases.
- (c) Colour intensity increases.
- (d) Colour intensity decreases.



If catalyst accelerates both the forward and backward reactions to the same extent;

- ☒ (a) The net result is to shorten the necessary time to reach the equilibrium.
- (b) The net result is to extended the necessary time to reach the equilibrium.
- (c) The net result is no effect on the necessary time to reach the equilibrium.
- (d) The net result is little time to reach the equilibrium.



The catalyst accelerates the forward reaction only, without affecting the backward reaction.

- (a) So the catalyst is said to be positive catalyst.
- (b) So the catalyst is said to be negative catalyst.
- (c) So the catalyst is said to be neutral catalyst.
- (d) So the catalyst is said to be little catalyst.

The catalyst accelerates the backward reaction only , without affecting the backward reaction.

- (a) So the catalyst is said to be positive catalyst.
- (b) So the catalyst is said to be negative catalyst.
- (c) So the catalyst is said to be neutral catalyst.
- (d) So the catalyst is said to be little catalyst.



If you have the following reaction:



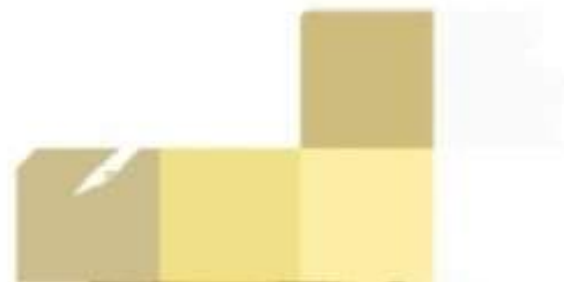
what happened when we added ammonium chloride to the reaction.

- (a) An increase in intensity of the red color.
- (b) Causes the color to become paler.
- (c) An increase in intensity of the blue color.
- (d) none of these

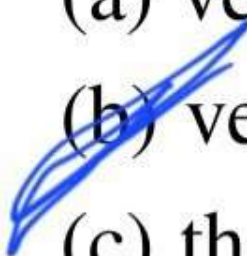
Which of the following will shift the reaction:

$\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightleftharpoons 2\text{NH}_{3(g)}$, to the right side?

- (a) Increasing volume of $\text{NH}_{3(g)}$.
- (b) Increasing pressure of the system.**
- (c) Introducing an inert gas to the system.
- (d) none of these

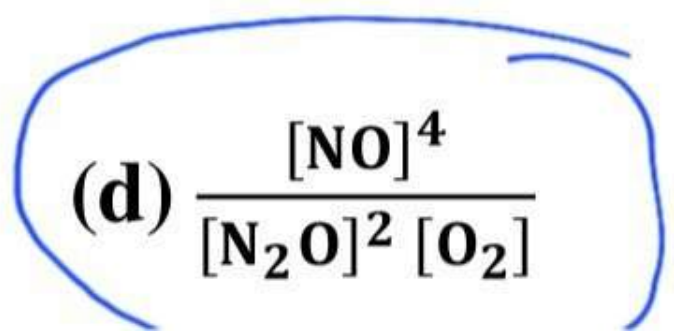


If the equilibrium constant for a reaction is large, what can be said about the reaction.

- (a) very little product is formed
-  (b) very little reactants remains at equilibrium
- (c) the reaction goes to completion
- (d) large quantities of reactants will remain at equilibrium

What is the expression for K_{eq} or K_C for the reaction:



- (a) $\frac{[\text{N}_2][\text{O}_2]}{[\text{NO}]}$ (b) $\frac{[\text{NO}]^4}{[\text{N}_2\text{O}]^2}$ (c) $\frac{[\text{N}_2\text{O}]^2 [\text{O}_2]}{[\text{NO}]^4}$  (d) $\frac{[\text{NO}]^4}{[\text{N}_2\text{O}]^2 [\text{O}_2]}$

A reaction is at equilibrium. What happens to the value of the equilibrium constant if an additional quantity of reactant is added to the reaction mixture.

- (a) the equilibrium constant is shifted to favour production of more reactant.
- (b) the equilibrium constant is shifted to favour production of more product.
- (c) the equilibrium constant is increased.
- (d) the equilibrium constant stays the same.

In writing equilibrium constant expressions, which of the following quantities can be used to represent the amount of reactants and products.

- (a) concentrations.
- (b) partial pressures.
- (c) mole fractions .
- (d) (a) and (b) only.

Which one of the following is incorrect:

- (a) equilibrium is dynamic, as some molecules are always reacting.
- (b) the equilibrium constant is just the ratio of forward to reverse rate constants.
- (c) at equilibrium the concentrations no longer change with time.
- (d) the equilibrium constant is not affected by temperature changes.

The yield of $\text{AB}_{(g)}$ for the reaction:

$\text{A}_{(g)} + \text{B}_{(g)} \rightarrow \text{AB}_{(g)} + \text{heat}$, would be increased by:

- (a) decreasing the pressure.
- (b) adding additional AB to the reaction mixture.
- (c) decreasing the temperature.
- (d) adding a non-reactive liquid to the reaction mixture.

We can Applied the Law of Mass Action to Solutions of

- (a) Strong acid.
- (b) Strong base.
- (c) Strong acid and Strong base.
- (d) weak Electrolytes.

In Ostwald Law of Dilution, "the dissociation degree, α ,"

- (a) increases with dilution.
- (b) decreases with dilution.
- (c) unaffected with dilution.
- (d) increases with Concentration.



When a soluble salt (say A^+C^-) is added to a solution of another salt (A^+B^-) containing a common ion (A^+), the dissociation of AB is suppressed. $AB \rightleftharpoons A^+ + B^-$

- ~~(a)~~ the degree of dissociation of AB will be reduced.
- (b) the degree of dissociation of AB will be increases.
- (c) the degree of dissociation of AB will be unaffected.
- (d) the degree of dissociation of AB will be stopped.

When solid NH_4Cl is added to NH_4OH solution, the equilibrium shifts to the left:

- ~~(a)~~ the equilibrium concentration of OH^- decreases.
- (b) the equilibrium concentration of OH^- increases.
- (c) the equilibrium concentration of OH^- unaffected.
- (d) the equilibrium concentration of OH^- neutralized.

If we have a weak electrolyte such as acetic acid in equilibrium, when we added a strong electrolyte having an ion in common to this solution. The resulting equilibrium

(a) shifted to the right.

(b) shifted to the left.

(c) will be unaffected.

(d) will be stopped

In neutral solutions:

(a) $[H^+] = 10^{-7}$

(b) $[OH^-] = 10^{-7}$

(c) $pH = pOH$

(d) All of these

It is known that pH of water = 7,

- (a) If we added one ml of 0.1 N hydrochloric acid to one liter water, the pH value of water is altered to 4.
- (b) If we added one ml of 0.1 N NaOH alters the pH value to 10.0 .
- (c) the addition of slight amounts of dilute acids or dilute bases to water, its pH values greatly affected.
- (d) All of these.

It known that, acetic acid (CH_3COOH) and sodium acetate (CH_3COONa), as buffer solutions. if we added a small amounts of H^+ ions to such a solution; it will combined with;

(a) the acetate ions (from acetic acid).

(b) the acetate ions (from sodium acetate).

(c) sodium ion (from sodium acetate).

(d) OH^- (from ionization of water).



thank you



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♥ وفقكم الله إن شاء الله يا علماء المستقبل