شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية

حلول مراجعة لأهم الأسئلة والنقاط وفق الهيكل الوزاري انسباير

موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف الثامن ⇦ علوم ⇦ الفصل الثالث ⇦ الملف

التواصل الاجتماعي بحسب الصف الثامن

روابط مواد الصف الثامن على تلغرام

التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات

المزيد من الملفات بحسب الصف الثامن والمادة علوم في الفصل الثالث

1	حل نموذج أسئلة وفق الهيكل الوزاري انسباير
2	أسئلة الامتحان النهائي الالكتروني بريدج
3	أسئلة الامتحان النهائي الورقي انسباير
4	أسئلة الامتحان النهائي الورقي بريدج
5	حلول مراجعة لأهم الأسئلة والنقاط وفق الهيكل الوزاري انسباير

1- State the law of conservation of mass.

2- What evidence would you observe if the law of conservation of mass is obeyed when mixing two solutions?

Ans:

According to law of conservation of mass the total mass of the products always equal the total mass of the reactants.

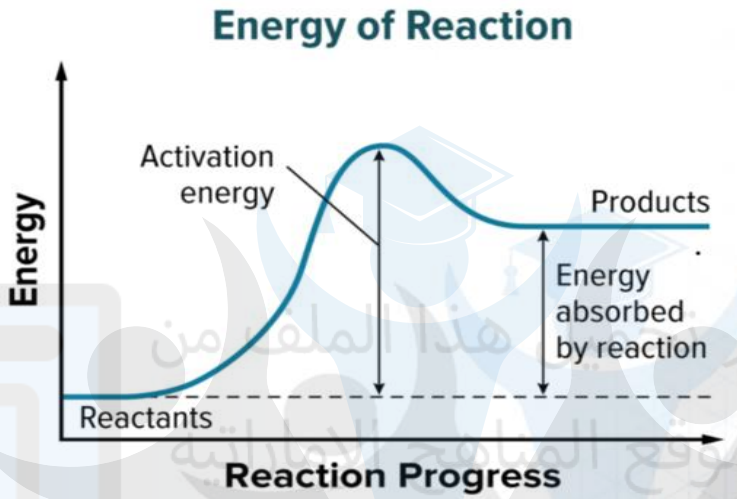
Mass is neither created nor destroyed

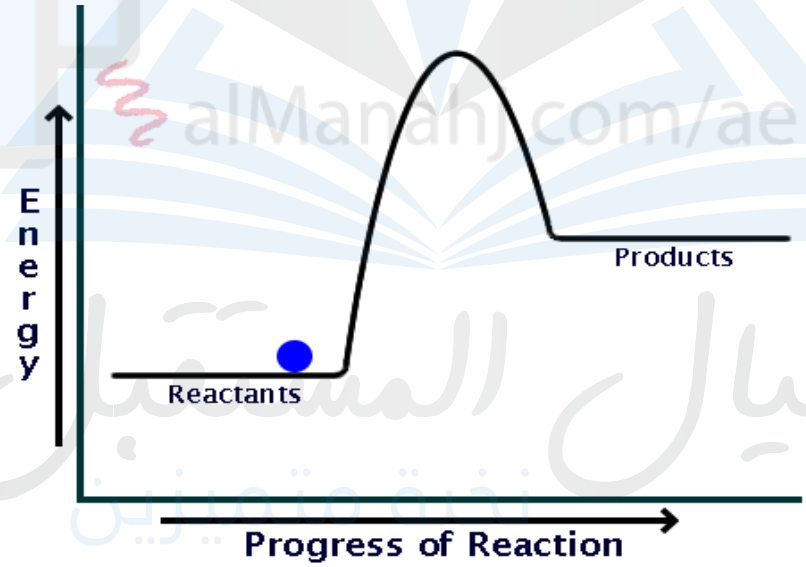
Reactant Mass = Product Mass

3- What is an endothermic reaction

✓ When the energy needed to keep an endergonic reaction going is in the form of thermal energy,

(Absorb Of Thermal Energy "heat")





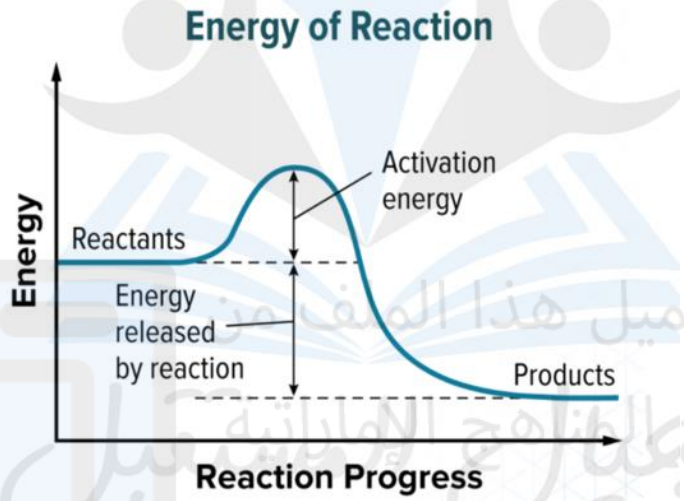
Note That:

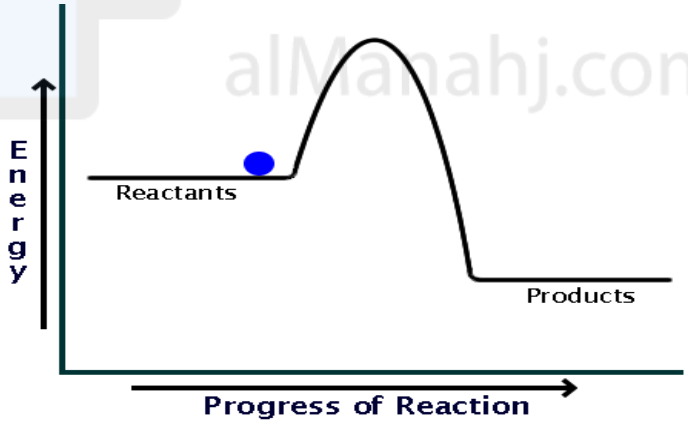
the temperature (energy) of the reactants is higher than the temperature of the products . (Cools the surrounding)

4- What is an exothermic reaction?

✓ exothermic reaction : When the energy of an exergonic reaction is given off mostly in the form of thermal energy

(release Of thermal Energy (heat) with the product)





Note That👀:

the temperature (energy) of the products is higher than the temperature of the reactants . (Hot surrounding)

5- What is the difference between chemical properties and physical properties?

6- Give examples of physical properties/ chemical properties

Ans:

physical property **:is a characteristic of a substance that can be observed or measured without changing the identity of the substance.**

Examples of physical properties include:

boiling point, melting point, freezing point, volume , density texture, color, odor, shape, solubility

Chemical properties: **are properties that can be observed or measured when a substance undergoes a chemical change (A change from one substance to new substance)**

Examples of chemical properties :

- **Compressibility, radioactivity, toxicity, flammability, heat of combustion, reactivity between chemicals,**

7-What is solubility?

Ans:

Solubility: is the maximum amount of a solute that can be dissolved in a given amount of solvent at a given temperature.

Solubility is often expressed as grams of solute per 100 g of water.

8- What is conductivity?

Ans:

Conductivity is a measure of the ability of water to pass an electrical current.

Remember That :

- ✓ **Electrolytes: are compounds that produce ions in water. (electrolytes conduct electricity)**
- ✓ **non electrolytes: Substances that form no ions in water and do not conduct electricity**

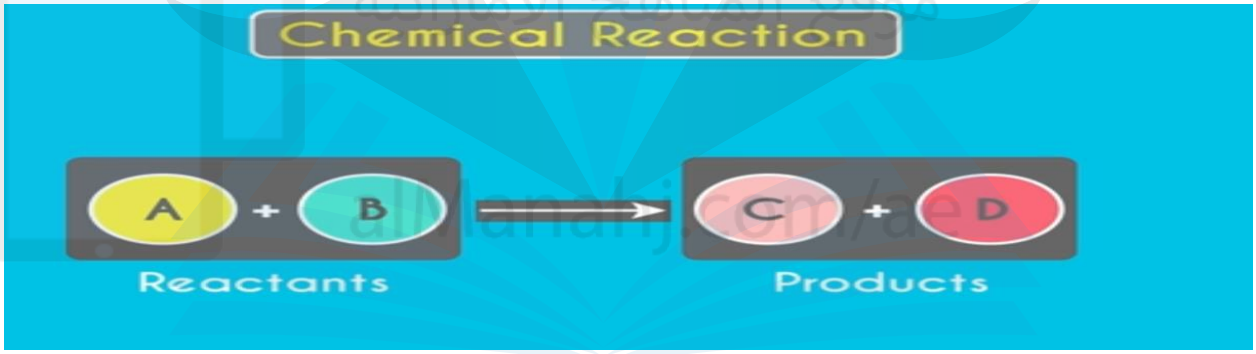
9- How do you define reactants and products in a chemical reaction?

Ans.

Reactants: The substances present at the beginning of the reaction

Reactants: the substances that react

Products: The new substances produced



Reactant: Before the Arrow
Product: After the Arrow

10- What is a chemical reaction?

Ans.

chemical reaction is a change in which one or more substances are converted into new substances.

11- Characterize each reaction by determining its reaction type.

$CaO+H_2O$ ———> $Ca(OH)_2$. (Synthesis reaction)

$Fe+CuSO_4$ ———> $FeSO_4+Cu$. (Single displacement)

$C_{10}H_8+12O_2$ ——-> $10CO_2+4H_2O$. (combustion Reaction)

$NaCl+ AgNO_3$ ———-> $NaNO_3 + AgCl$ (Double displacement Reaction)

NH_4NO_3———> $N_2O+ 2H_2O$ (Decomposition reaction)

Don't Forget👀:

- **combustion reaction**

occurs when a substance reacts with oxygen to produce energy in the form of heat and light.

Example:

$C(s) + O_2(g) \longrightarrow CO_2(g)$

Note That 👀:

In combustion reaction we Find in

In the reactant: Oxygen(O_2)

In the product: CO_2 OR Heat OR light

- **synthesis reaction**

(composition Reaction)

two or more substances combine to form another substance.

Example:

$H_2(g) + Cl_2(g) \longrightarrow 2\,HCl(g)$

$A + B \longrightarrow AB$

decomposition reaction

one substance breaks down into two or more substances.

Example:

$2H_2O_2(l) \longrightarrow O_2(g) + 2H_2O(l)$

$AB \longrightarrow A + B$

single-displacement reaction

one element replaces another element in a compound.

Example:

$Cu(s) + 2AgNO_3(aq) \longrightarrow Cu(NO_3)_2(aq) + Ag(s)$

$A + BC \longrightarrow AC + B$

double-displacement reaction

the positive ion of one compound replaces the positive ion of the other, forming two new compounds

$CuCl_2(aq) + 2NaOH(aq) \longrightarrow Cu(OH)_2(s) + 2NaCl(aq)$

$AB + CD \longrightarrow AD + CB$

12- Compare and contrast synthesis reactions and decomposition reactions.

- **synthesis reaction**
  (composition Reaction)
  two or more substances combine to form another substance.
  Example:
  $H_2(g) + Cl_2(g) \longrightarrow 2\ HCl(g)$
  $A + B \longrightarrow AB$

decomposition reaction
one substance breaks down into two or more substances.
Example:
$2H_2O_2\ (l) \longrightarrow O_2(g) + 2H_2O(l)$

$AB \longrightarrow A + B$

13- What kind of reaction produces a precipitate?

Ans.

Double displacement Reaction

Note That:

Precipitate: an insoluble compound that comes out of solution during this type of reaction. (Solid Formed in the Product)

$CuCl_2(aq) + 2NaOH\ (aq) \longrightarrow Cu(OH)_2(s) + 2NaCl(aq)$

14- Describe what happens in a single displacement/ double displacement reaction?

single-displacement reaction

one element replaces another element in a compound.

Example:

$Cu(s) + 2AgNO_3(aq) \longrightarrow Cu(NO_3)_2(aq) + Ag(s)$

$A + BC \longrightarrow AC + B$

double-displacement reaction

the positive ion of one compound replaces the positive ion of the other, forming two new compounds

$CuCl_2(aq) + 2NaOH(aq) \longrightarrow Cu(OH)_2(s) + 2NaCl(aq)$

$AB + CD \longrightarrow AD + CB$

Remember that👀:

Single displacement reaction where A metal will replace any less active metal.

15- Describe what happens in an oxidation-reduction reaction? Give examples of oxidation-reduction reactions.

16- Compare and contrast oxidation and reduction.

Ans.

Oxidation is the loss of electrons.

Reduction is the gain of the lost electrons.

Note that :

Reduction and oxidation always work as a pair (in the Same time)

Example:

$Na - 1e \longrightarrow Na^+$ (Oxidation reaction)

$Cl + 1e \longrightarrow Cl^-$ (reduction reaction)

$$H_2 + F_2 \longrightarrow 2HF$$

$$H_2 \longrightarrow 2H^+ + 2e^-$$

$$F_2 + 2e^- \longrightarrow 2F^-$$

17- Describe how hydrogen ions are associated with both acids and bases

Ans.

- ✓ Solutions are classified as acidic or basic based on their hydrogen ion concentration relative to pure water.
- ✓ An acid is any substance that donates H+ to a base.
- ✓ A base is any substance that accepts H+ from acids.

Note that:

Acidic solutions have a higher H+ concentration in water while basic (alkaline) solutions have a lower H+ concentration in water

18- Describe how an acidic solution forms when an acid is mixed in water and how a basic solution forms when a base is mixed in water?

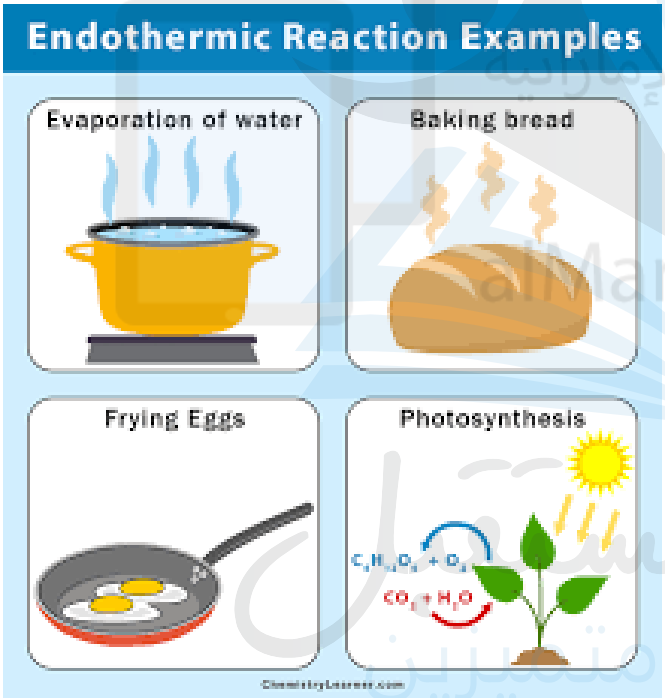
- ➢ *An acid* is a substance that produces hydrogen ions (H+) in a water solution.
  An acid ionizes in water, producing hydronium ions

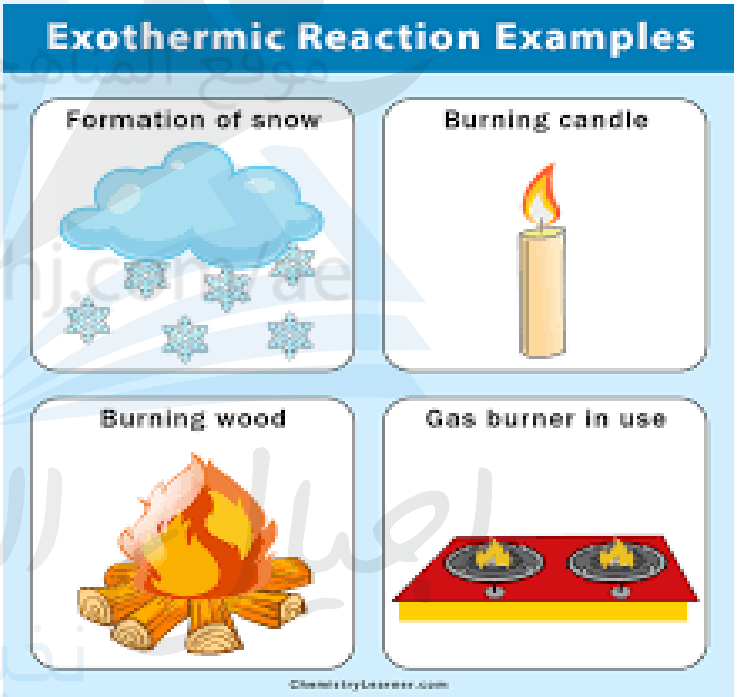
- ➢ *A base* is a substance that produces hydroxide ions (OH^-) when it is dissolved in water.
  Also, a base is any substance that accepts H+ from acids.
  In water, such bases dissociate, forming positive metal ions and hydroxide ions.

19- Explain how a reaction could be endothermic but not exothermic.

Ans.

- **An exothermic process releases heat**, causing the temperature of the immediate surroundings to rise.
- **An endothermic process absorbs heat** and cools the surroundings





20- Why is a log fire considered to be an exothermic reaction?

Ans.

Because The combustion of wood is an exothermic reaction that releases a lot of energy as heat

21- What is the energy required to start a chemical reaction called?

Ans.

Activation energy

22- Why do most of the chemical reactions need activation energy?

Ans.

- ✓ Because activation energy is the minimum amount of energy that make the reactant react to result in a chemical reaction.
- ✓ the energy required to start a chemical reaction

23- How do you know which substance is the solute in a solid solution?

Ans.

- ✓ **When a solid or gas dissolves in a liquid, the solid or gas is the solute, and the liquid is the solvent.**
- ✓ **A solute is the material present in the smaller amount in the solution.**

Note That👀:

A solute: is a substance being dissolved. (the smaller quantity)

A solvent: is a substance in which a solute is dissolved. (larger quantity)

24- What is an alloy?

Ans.

Alloy: is a mixture of elements that has metallic properties. (mix of two metals)

Example:

a) Sterling silver is an alloy of 92.5 percent silver (solvent) and 7.5 percent copper (solute).

b) alloy of 99 percent gold (solvent) and 1 percent copper (solute)

c) Alloy of 85 percent copper and 15 percent tin

25- Why does breaking up a solid solute into smaller pieces help it dissolve more quickly?

Ans.

Because Breaking a solute into smaller pieces increases its surface area and increases its rate of solution.

Remember that :

- More surface area means that more solute comes in contact with the solvent. When the surface area of the solute increases, the solute dissolves more quickly

26- Describe how stirring, surface area and temperature affect the rate of dissolving

Ans.

The rate at which a solute dissolves into a solvent can be increased by:

a) **stirring**

b) **increasing the surface area of the solute**

c) **increasing the temperature of the solvent**

Read that👀:

a) **Stirring a solution speeds up the dissolving process by making the solvent and solute particles move faster. More solvent particles come into contact with more solute particles. The solid solute dissolves more quickly.**

b) **When you break a solid solute into smaller pieces, you increase its surface area. More surface area means that more solute comes in contact with the solvent. When the surface area of the solute increases, the solute dissolves more quickly**

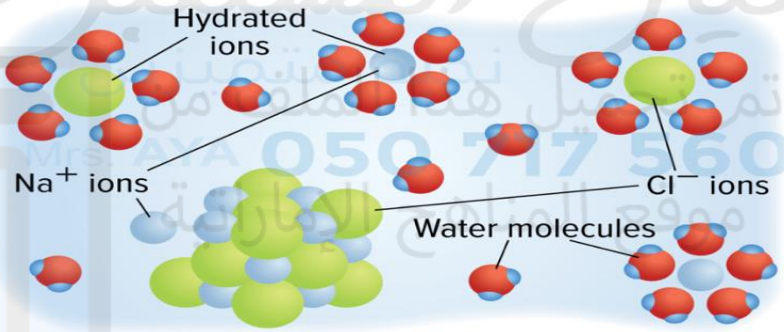
c) **Solvent particles move faster when the temperature of the solvent increases. Fast-moving solvent particles have more chances to come in contact with solute particles.The more often they come in contact, the faster the solute particles break loose and dissolve.**

27- Compare and contrast the differences and similarities between ionization and dissociation.

Ionization: is a process in which molecular compounds dissolve in water and separate into charged particles (ions)

Example: H20 surrounds HCl molecules and pulls them apart to form H+ and Cl^- ions.

Dissociation: is a process in which positive and negative ions of an ionic solid mix with solvent to form a solution.



28- Describe the two ways that solutions of electrolytes form

Ans.

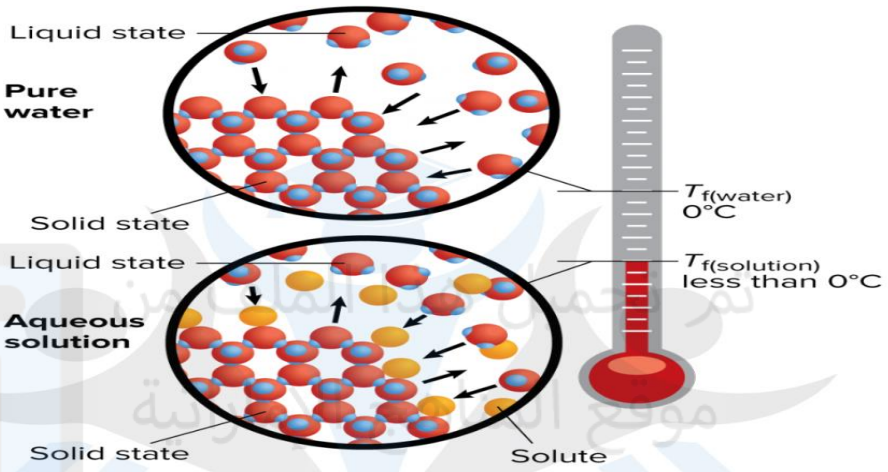
ionization and dissociation

- ✓ **Ionization** is a process in which molecular compounds dissolve in water and separate into charged particles (ions) (conversion of a substance into ions)

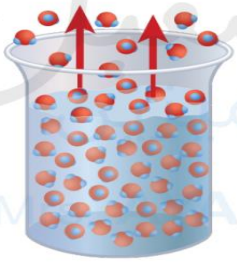
- ✓ **Dissociation** is a process of separation of charged particles which already exist in a compound.

29- Explain how the concentration of a solute in a solution influences its boiling point and freezing point

- **Adding a solute to a solvent lowers the freezing point.**
  The solute interferes with the arrangement of particles as the solid forms.
  Example: antifreeze



- **Adding a solute to a solvent raises the boiling point.**
  Solute particles blocks the surface



In a beaker of pure water, water molecules vaporize freely from the surface.

Solute particles block part of the surface, making it more diffcult for solvent to vaporize.

30- Describe how antifreeze affect the vapor pressure of a pure solvent.

Ans.

Freezing point is the temperature at which vapor pressure of solution and liquid phase becomes equal.

Reason: On adding antifreeze, vapor pressure decreases so Freezing Point also decreases depression in Freezing Point.

Note That 👀:

- ✓ **Antifreeze molecules added to the water block the formation of ice crystals.**
- ✓ **When enough solute particles are present, water cannot freeze at 0°C.**
- ✓ **Solute particles block part of the surface, so fewer water molecules can reach the surface and vaporize. The solution cannot boil because the vapor pressure of the solution is lower than the vapor pressure of the solvent. Energy must be added to overcome the interference and raise the vapor pressure of the solution to make it boil. The added energy means the solution boils at a temperature higher than the boiling of the pure water**

31- Why is it dangerous to take large doses of some non polar vitamins?

Ans.

Some vitamins, such as vitamin A, are non polar. They dissolve in fat, which is also non polar.

They can accumulate to toxic levels in your body if you take too many.

Note That 👀:

Some vitamins, such as vitamin A, are non polar.

- They dissolve in fat, which is also non polar.
- They can accumulate to toxic levels in your body if you take too many.

Other vitamins, such as vitamins B and C, are polar molecules,

so they dissolve in water.

They do not accumulate in tissue because excess vitamin is washed away by water in the body.

32- Why is it necessary to replace water-soluble vitamins more quickly than fat-soluble vitamins?

Ans.

- ✓ **Because water-soluble vitamins cannot be stored in your body for very long, because excess of polar vitamins is washed away by water in the body.**

33- Explain how a polar solvent dissolves a polar solute and how a nonpolar solvent dissolves a nonpolar solute?

Ans.

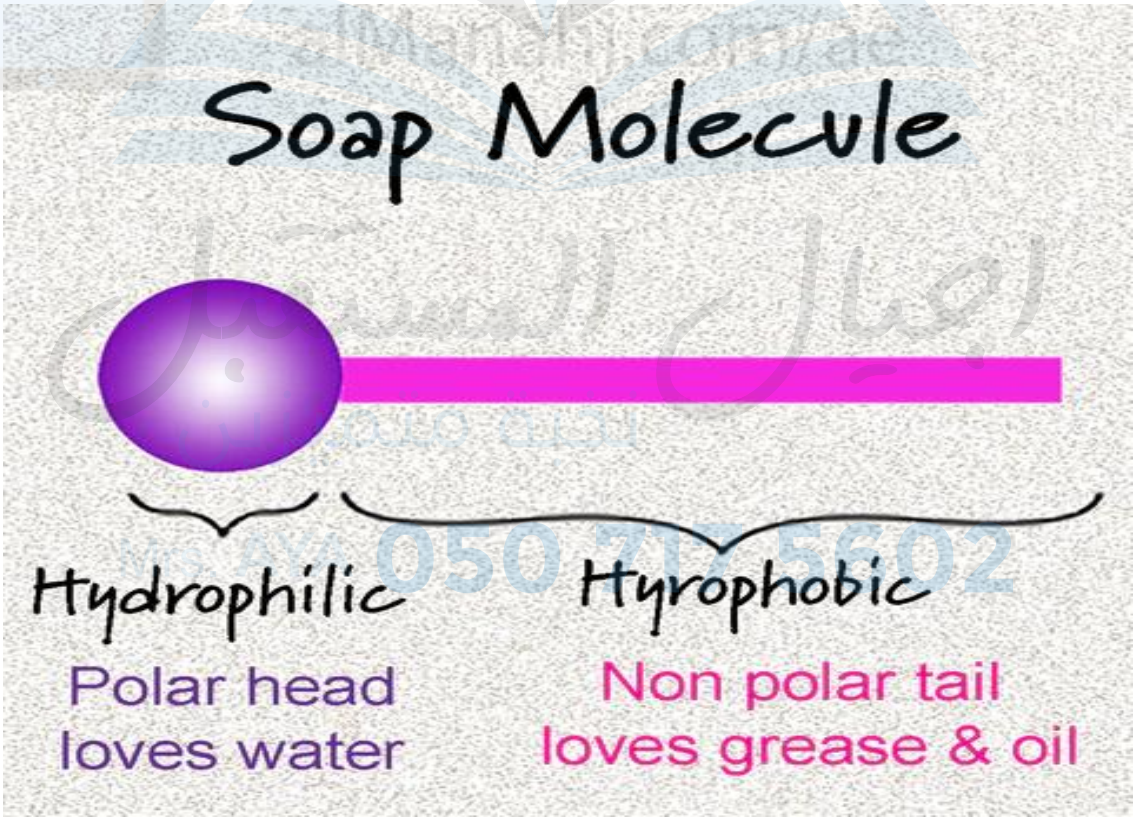
Polar solvents: will dissolve polar and ionic solutes because of the attraction of the opposite charges on the solvent and solute particles.

Non-polar solvents: will only dissolve non-polar solutes because they cannot attract the ions as they does not have positive and negative areas.

34- Explain how one solute can dissolve in both polar and non-polar solvents.

Ans.

- ✓ Some substances -such as soap and ethanol have a polar end and a non-polar end.
- ✓ The non-polar end of soap dissolves in non polar solvents (as oil),
- ✓ while the polar end of soap dissolves in polar solvents(as water).
- ✓ This allows one solute to dissolve in both polar and non polar



35- Identify and describe three ways equilibrium can be shifted in a reversible reaction. Explain each shift in terms of Le Châtelier's principle and identify whether the shift will be toward products or reactants.

Ans.

$N_2 (g) + 3H_2(g) = 2NH_3(g) + energy$

✓ **Changing concentration,** The concentration of ammonia decreases, which causes the rate of the reverse reaction to decrease. As a result, the forward reaction is temporarily faster than the reverse reaction- described as a shift to the right-and more ammonia is formed.

✓ **Changing temperature** If the temperature is reduced the equilibrium responds by reacting to release energy and raise the temperature. A shift to the right occurs. More ammonia is formed as a result.

✓ **Changing volume and pressure** The pressure can be reduced by decreasing the number of gas molecules. Because the product (NH_3) side of the equation has fewer gas molecules (2) than the reactant side (4), the equilibrium shifts to the right. More ammonia is formed as a result.

36- Compare and contrast chemical and physical equilibrium.

Ans.

- **A physical equilibrium** is a state of equilibrium in which the physical state of the system remains unchanged.
- **Chemical equilibrium** is a state of affairs in which the concentrations of reactants and products do not change during the reaction.

Note That👀:

When opposing physical changes take place at equal rates, a state of physical equilibrium exists.

Similarly, when opposing chemical reactions take place at equal rates, a state of chemical equilibrium exists.

$N_2(g) + 3H_2(g) \leftrightarrows 2NH_3(g) + energy$

37- What is the effect of increasing/decreasing the pressure of a gas over a liquid?

38- What happens to the solubility of a gas in a liquid if the temperature of the gas is increased?

Ans.

Solubility of gases increases by

1- Increasing the pressure

2- Decreasing the temperature

Note that👀:

- ✓ **Increasing the pressure of a gas over a liquid forces more gas to dissolve in the liquid.**
- ✓ **Cooling a liquid increases the amount of gas that will dissolve in it.**

39- Explain how the temperature of a liquid solvent affects the solubility of a solid compound?

Ans.

- **As the temperature of a liquid solvent increases, the amount of solid solute that can dissolve into it increases (Solubility increases)**

40- Compare and contrast solubility and concentration.

Ans.

- **The concentration of a solution: is the amount of solute dissolved in a given amount of solvent.**
- **Solubility: is the maximum amount of a solute that can be dissolved in a given amount of solvent at a given temperature.**

Remember That:

- ✓ **Concentration** gives the amount of substances in a solution.
- ✓ **Solubility** is the ability of a substance to dissolve in another substance.
- ✓ If the solubility of a material is high in a solvent, then its concentration will be high in the solution. Similarly, if the solubility is low, concentration will be low

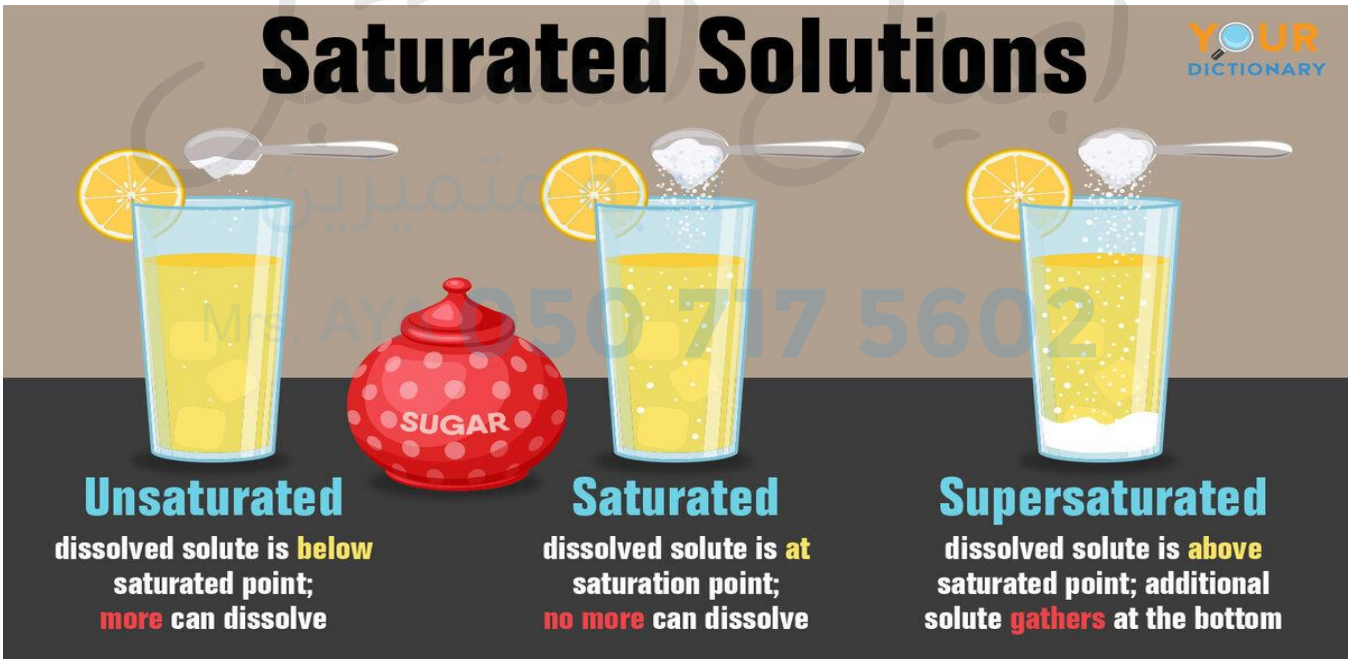
Don't Forget :

- ➢ **Concentration: is percentage by volume.**
- ➢ Solubility is often expressed as grams of solute per 100 g of water.

41- You are given a solution containing potassium nitrate dissolved in water. How could you determine whether the solution is unsaturated, saturated, or supersaturated?

Ans.

- If the amount of added solute is less than the solubility number then this solution is unsaturated solution
- If the amount of added solute is equal to the solubility number then this solution is saturated solution
- A supersaturated solution: is one that contains more solute than a saturated solution at the same temperature. They may form crystals or precipitate or remains of undissolved solute when a more solute is added.



➢ Acid and bases Notes

Acids

- An **acid** is a substance that **produces hydrogen ions (H^+)** in a water solution. The H^+ ions interact with water molecules to produce **hydronium ions:** H_3O^+.
- Acids are corrosive,
- Acids cause the sour taste in foods such as limes and pickles.
- Acids react with indicators. **Blue litmus paper turns red in acids**.

Reaction of acids with water

An acid ionizes in water, producing hydronium ions when the hydrogen ions from the acid become attracted to water molecules.

Bases

- **base is a substance that produces hydroxide ions OH^- when it is dissolved in water.**
- **Also, a base is any substance that accepts H+ from acids. (Can react with acids)**
- **bases feel slippery and have a bitter taste. They are corrosive and can burn skin.**
- **Red litmus paper turns blue in bases.**

Reaction of bases with water

Most bases are ionic compounds, made up of positive metal ions and hydroxide ions. In water, such bases dissociate, forming positive metal ions and hydroxide ions.

Only Read this point :

- ❖ Some bases accept H+ ions from acids.
- ❖ These types of bases ionize to produce hydroxide ions in solution, even though they do not have the letters OH in their formulas.
- ❖ For example, ammonia, NH3, reacts with water to produce hydroxide ions in solution. In this case, water acts as an acid.

In case of

- ✓ strong acid, all the acid ionizes upon dissolving in water.
- ✓ weak acid, only a small fraction of the molecules ionize upon dissolving in water.

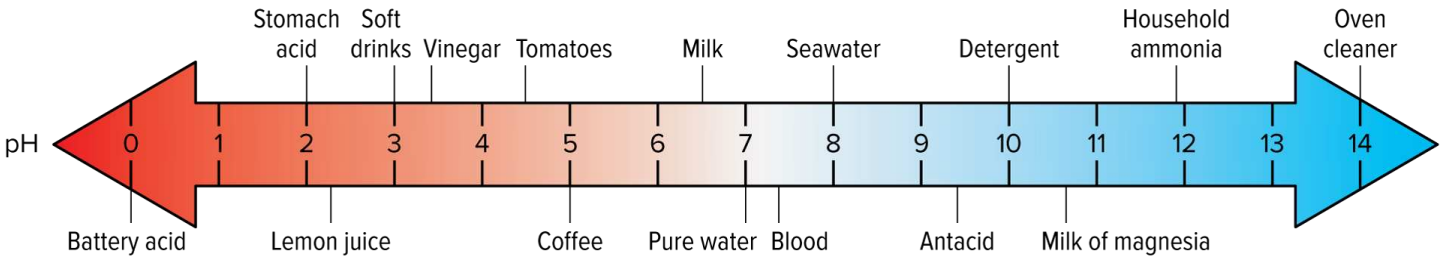
In case of

- ✓ strong base dissociates completely upon dissolving in water.
- ✓ weak base is one that does not ionize completely.

Strong and weak refer to the degree of ionization of the acid or base.

The pH of a solution is a measure of the concentration of H+ (H3O+) ions in solution.

- ✓ **Solutions with pH lower than 7 are acidic.**
- ✓ **Solutions with pH greater than 7 are basic.**
- ✓ **A solution with a pH of 7 is a neutral solution.**



- ✓ **Buffers** are solutions containing ions that react with acids or bases to minimize their effects on pH
- ✓ **Neutralization** is a chemical reaction in which an acid and a base form a salt and water.
- ✓ **Titration** is the process in which a solution of known concentration is used to determine the concentration of another solution

❖ Surface area calculations

Dimensions:

$l = 2\text{cm}$ - length
$w = 1\text{cm}$ - width
$h = 0.5\text{cm}$ - heigth

⋆ Surface area for rectangular solid is given as:

$$A = 2(wl + hl + hw)$$

Substitute given values and calculate surface area:

$$\begin{aligned} A &= 2(wl + hl + hw) \\ &= 2(1 \cdot 2 + 0.5 \cdot 2 + 0.5 \cdot 1) \\ &= 7\text{cm}^2 \end{aligned}$$

Identify the following chemical reaction.

$Pb + FeSO_4 \text{ ----> } PbSO_4 + Fe$

answer choices

- Synthesis (or combination)
- Decomposition
- Single displacement
- Double displacement

compound ---> element + element

answer choices

- synthesis
- decomposition

Very Important

Is the following equation balanced?

$4Fe + 3O_2 \text{ ---> } 2Fe_2O_3$

answer choices

- YES
- NO

Is the following equation balanced?

$Al + O_2 \text{ ---> } 2Al_2O_3$

answer choices

- YES
- NO

What is the general reaction scheme for a decomposition reaction?

answer choices

- A + B --> AB
- AB --> A + B
- A + CD --> C + AD
- AB + CD --> CB + AD
- $C_xH_y + O_2 -> CO_2 + H_2O$

$2\ NH_3 + 1\ H_2SO_4 \text{ ----> } 1\ (NH_4)_2SO_4$

answer choices

- Synthesis (or combination)
- Decomposition
- Single displacement
- Double displacement

Very Important

What type of reaction is the following:

$C_{11}H_{24} + 17O_2 -> 11CO_2 + 12H_2O$

answer choices

- Combination
- Decomposition
- Single Replacement
- Double Replacement
- Combustion

Very Important

A chemical change in which two or more substances react to form a new substance is a _____.

answer choices

- decomposition reaction
- synthesis reaction
- double displacement reaction
- combustion reaction

Very Important

Is the following equation balanced?

$Al + O_2 \dashrightarrow 2Al_2O_3$

answer choices

- YES
- NO

The number of atoms you begin with in a chemical reaction ...

answer choices

- must be the same as the number of atoms you end with
- must be an even number
- can be different to the number you finish with
- changes depending on how much energy is formed

What is the term for the → sign in a reaction?

answer choices

- makes
- produces
- yields
- all are correct

A precipitate is...

answer choices

- a solid that falls out of a liquid solution
- a reactant in a reaction
- a clear substance
- the mass of a product

An gel ice pack getting cold after you put it in the freezer for an hour.

answer choices

- Chemical Change
- Physical Change

Very Important

What is a double replacement?

answer choices

- Two compounds react to form two new compounds.
- One compound reacts to form two separate elements.
- Two elements reacting to form a single compound.
- A hydrocarbon and

Very Important

What reaction has the following general formula:

$C_xH_y + O_2 -> CO_2 + H_2O$

answer choices

- Combination
- Decomposition
- Single Replacement
- Double Replacement
- Combustion

A chemical change in which two or more substances react to form a new substance is a _____.

answer choices

- decomposition reaction
- synthesis reaction
- double displacement reaction
- combustion reaction

Energy is _____ when bonds break.

answer choices

- gained
- lost
- released
- absorbed

Very Important

Energy is _____ when new bonds form.

answer choices

- absorbed
- released
- lost
- gained

Very Important

The energy required to start a chemical reaction is ___.

answer choices

- endothermic
- exothermic
- activation
- released

Very Important

An _____ reaction is when more thermal energy is absorbed than is released.

answer choices

- endothermic
- endergonic
- exothermic
- exergonic

Very Important

An _____ reaction is when more thermal energy is released than is absorbed.

answer choices

- endothermic
- endergonic
- exothermic
- exergonic

In a ____ reaction, the reactants have more energy than the products.

answer choices

- endergonic
- exergonic

An _____ reaction is when more energy is released than is absorbed. This energy can be in the form of light, heat, electricity, etc.

answer choices

- endothermic
- endergonic
- exothermic
- exergonic

In a ____ reaction, the products have more energy than the reactants.

answer choices

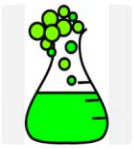
- exergonic
- endergonic

An _____ reaction is when more energy is absorbed than is released. This energy can be in the form of light, heat, electricity, etc.

answer choices

- endothermic
- endergonic
- exothermic
- exergonic

Very Important



If a chemical reaction produces light or sound, it is likely a ____ reaction.

answer choices

- EXOthermic
- ENDOthermic

Making ice (freezing liquid water) is a _____ reaction.

Very Important

answer choices

- EXOthermic
- ENDOthermic

he Law of Conservation of Energy states that_____

answer choices

- The overall amount of energy remains the same but some energy is completely destroyed during energy transformations
- The overall amount of energy remains the same energy cannot be created or destroyed.
- The overall amount of energy can change depending on the energy conversions that take place.
- The overall amount of energy can change because sometimes energy is lost to the environment

What happens when chemical bonds break and new bonds form?

answer choices

- a chemical change.
- mattered is destroyed.
- surface area increases.
- a physical change

n an endothermic reaction, heat is ,,,

answer choices

- taken in
- given out

Baking bread and cooking an egg are examples of....?

answer choices

- Endothermic processes
- Exothermic processess

f a chemical reaction is EXOTHERMIC, the temperature would....

answer choices

- Stay the same
- Increase
- Decrease

Very Important

Is the combustion of gasoline endothermic or exothermic?

answer choices

- Endothermic
- Exothermic

Very Important

How does an exothermic reaction feel?

answer choices

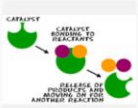
- cold
- warm
- You can't feel it
- None of the above

A chemical change is different than a physical change because in a chemical change

answer choices

- chemicals are used
- molecules do not physically touch
- a new substance is formed and in a physical no new substance is formed
- the change can be seen but in a physical change it cannot

Very Important



Some chemical reactions require a substance called a catalyst. The purpose of a catalyst is

answer choices

- to warm up the reaction
- to speed up the reaction
- to create more reactants
- to stop the reaction

The Law of Conservation of Energy states:

answer choices

- Energy can created or destroyed but not transformed
- Energy cannot be created or destroyed, it can only transformed
- Energy can't be created, destroyed or transformed

Very Important

The process by which one or more substances change to produce one or more different substances

answer choices

- Chemical Process
- Reactant
- Chemical Reaction

Very Important

Determine whether the following equation is balanced or unbalanced. $2Fe + 3Cl_2 \rightarrow FeCl_3$

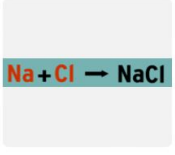
answer choices

- Balanced
- Unbalanced

Determine whether the following equations is balanced or unbalanced. $H_4 + O_2 \rightarrow 2H_2O$

answer choices

- Balanced
- Unbalanced



In this image, what are the information in red is called the_____.

answer choices

- Product
- Reactant
- Chemical Subscript
- Coefficient

Is burning wood a chemical or physical change?

answer choices

- chemical
- physical

Very Important

Match the following

answer choices

- Reversible reaction → ⇌
- dissolved in water → (aq)
- gas → (g)
- liquid → (l)
- yeilds (becomes) → →

Exothermic reactions do not require any activation energy.

answer choices

- True
- False

Very Important

All chemical reactions occur at the same rates.

answer choices

- True
- False

Molar mass is in units of _____.

answer choices

- grams
- grams/mole
- mole
- moles/gram

How many moles are present in 32.3 grams of carbon dioxide (CO_2)?

answer choices

- 44.01 moles
- 1421.52 moles
- 32.3 moles
- 0.73 moles

How many water molecules are in 5.2 moles of water?

answer choices

- 6.02×10^{23}
- 5.2
- 3.1304×10^{24}
- 8.638×10^{-24}

1 mole is equivalent to 6.02×10^{23}

answer choices

- False
- True

1 mole of Ca and 1 mole of Na have the same number of atoms.

answer choices

- True
- False

Vitamin C, also known as ascorbic acid, is water soluble and cannot be produced by the human body. Each day, a person's diet should include a source of Vitamin C, such as orange juice. Ascorbic acid has a molecular formula of $C_6H_8O_6$ and a molar mass of 176 grams per mole.
Determine the number of moles of vitamin C in an orange that contains 0.171 grams of vitamin C.

answer choices

- 30.1 moles
- 1030 moles
- .000971 moles
- .0001 mole

What is Avogadro's Number?

answer choices

- 6.02×10^{23}
- $-6.02\ 10^{23}$
- 6.02×10^{22}
- 6,020,000,000,000

What is the mole used for?

answer choices

- To measure the amount of grams in a substance
- To measure the amount of atoms or molecules in a substance
- To measure the amount of energy in a substance
- To measure the amount of bonding in a substance

The substances that go into a reaction are called the _____.

answer choices

- products
- reactants

So, the Law of Conservation of Mass would tell us that *the mass of all the REACTANTS must _____ the mass of all PRODUCTS in a chemical reaction.*

Very Important

answer choices

- equal
- be greater than
- be less than

An ENDOTHERMIC reaction would feel _____ to the touch, while an EXOTHERMIC reaction would feel _____ to the touch.

Very Important

answer choices

- hot ; cold
- cold ; hot

Is the following equation balanced?
$4Fe + 3O_2 \rightarrow 2Fe_2O_3$

answer choices

- yes
- no

Smaller particle size allows for a _____ surface area to be exposed for the reaction.

Very Important

answer choices

- larger
- smaller

Which of the following is a measure of how much area of an object is exposed to the outside environment ?

answer choices

- Catalyst
- Surface Area
- Rate of Reaction
- Temperature
- Concentration

Very Important

Which of the following is a substance that speeds up the rate of a chemical reaction without being used up itself or changed?

answer choices

- Catalyst
- Surface Area
- Rate of Reaction
- Temperature
- Concentration

Very Important

Which of the following is a measure of how quickly products form, or given amounts of reactants react, in a chemical reaction

answer choices

- Catalyst
- Surface Area
- Rate of Reaction
- Temperature
- Concentration

When you walk through a crowded hallway at school, you are more likely to bump into another person. To which of the following factors that affect rate of reaction is this analogy referring?

answer choices

- catalyst
- temperature
- surface area
- concentration

Increasing which of the following will increase the frequency of collisions?

answer choices

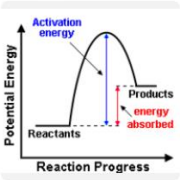
- temperature and surface area only
- surface area and concentration only
- temperature and concentration only
- temperature, concentration, and surface area

Very Important

If the temperature is reduced, a reaction rate will _____

answer choices

- increase
- stay the same
- decrease

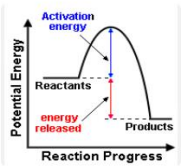


The graph above is from which type of reaction?

Very Important

answer choices

- Endothermic reaction
- Exothermic reaction



The graph above is from which type of reaction?

Very Important

answer choices

- Endothermic reaction
- Exothermic Reaction

Ice cubes in your glass of soda melt.

answer choices

- endothermic
- exothermic

Baking pizza in the oven

answer choices

- endothermic
- exothermic

Which of the following will lower the rate of reaction?

Very Important

answer choices

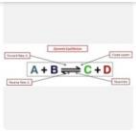
- adding an enzyme to the reaction
- decreasing the temperature from 40°C to 10°C
- breaking a chunk of calcium up into smaller pieces
- increasing the amount of solute dissolved in a solution

How does concentration increase the rate of a chemical reaction?

Very Important

answer choices

- Provides lower energy route for the reaction so that a greater number of particles have enough energy to react.
- Increased number of collisions increases the chance of a 'successful collision'
- Particles collide faster and harder so a lagrer proportion have greater energy than the required activation energy.
- Greater number of 'active sites' available for a reaction to take place (referring to solids)



The following factors affect the position of equilibrium EXCEPT

answer choices

- Concentration
- Pressure
- Temperature
- States of matter

Very Important

2. Multiple-choice

$2SO_{2(g)}+O_{2(g)} \leftrightharpoons 2SO_{3(g)} + Heat$

Adding $SO_{2(g)}$ will

answer choices

- shift equilibrium right
- shift equilibrium left
- increase rate of reaction
- have no change

Very Important

$2SO_2(g)+O_2(g) \leftrightharpoons 2SO_3(g) + Heat$

Increasing the temperature will...

answer choices

- shift equilibrium right
- shift equilibrium left
- increase pressure
- have no change

Very Important

$2SO_{2(g)} + O_{2(g)} \leftrightharpoons 2SO_{3(g)} + Heat$

Removing $O_{2(g)}$ will

answer choices

- shift equilibrium right
- shift equilibrium left
- increase pressure
- have no change

Very Important

$2SO_2(g)+O_2(g) \leftrightharpoons 2SO_3(g) + Heat$

Adding $SO_3(g)$ will

answer choices

- shift equilibrium right
- shift equilibrium left
- increase K
- have no change

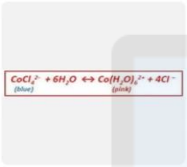
$2SO_2(g) + O_2(g) \leftrightharpoons 2SO_3(g) + Heat$

Using a catalyst

answer choices

- shift equilibrium right
- shift equilibrium left
- increase the rate of reaction
- have no change

Very Important



$CoCl_4^{2-} + 6H_2O \rightarrow Co(H_2O)_6^{2+} + 4Cl^-$.

What would happen when H_2O is added?

answer choices

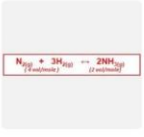
- Position of equilibrium will shift to left (and become more blue)
- Position of equilibrium will shift to right (and become more pink)
- K_{eq} will increase as H_2O is added
- Position of equilibrium will shift to left to reduce the added H_2O

$CoCl_4^{2-} + 6H_2O \rightarrow Co(H_2O)_6^{2+} + 4Cl^- + Heat$

What will happen when the temperature is increased?

answer choices

- Position of equilibrium will shift to left and become more blue
- Position of equilibrium will shift to right and become more pink
- No change in position of equilibrium
- Position of equilibrium will shift to left and become more pink



$1N_2 + 3H_2 \rightarrow 2NH_3$

When the pressure on the system is increased, the equilibrium position shifts to the right. Why?

answer choices

- To increase the amount of products
- To reduce the pressure, as the right side has fewer molecules of gas
- K_{eq} will increase when it is shifted to the right
- To increase the pressure, as the right side has more molecules of gas

$CoCl_4^{2-} + 6H_2O \rightarrow Co(H_2O)_6^{2+} + 4Cl^-$

What will happen when Cl^- ions are added?

Very Important

answer choices

- Position of equilibrium will shift to left and become more pink
- Color of system will turn to all pink
- Concentration of reactants and products remain unchanged
- Position of equilibrium will shift to left to reduce the added Cl^- ions

$2CrO_4^{2-} + 2H^+ \rightarrow Cr_2O_7^{2-} + H_2O$

What will happen when H^+ ions are added to the system?

answer choices

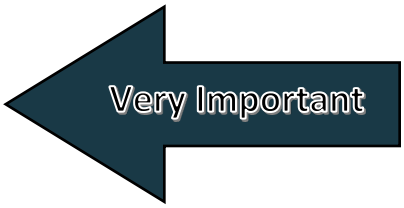
- Position of equilibrium will shift to left and become more yellow
- Color of system will turn all yellow
- Color of system will turn all orange
- Equilibrium will shift to right and become more orange

Unit 2 extra important questions

A mixture that appears to have the same composition, color, and density and is mixed at the molecular level is called a(n) _____.

answer choices

- solution
- heterogeneous mixture
- suspension
- element



Which of the following is a solution?

answer choices

- salt water
- milk
- muddy water
- chlorine

A _____ is the substance being dissolved in a solution.

answer choices

- solvent
- insolvent
- substrate
- solute

Air contains 78 percent nitrogen, 21 percent oxygen, and one percent argon. Which gas is the solvent?

answer choices

- oxygen
- argon
- nitrogen
- none of the answers are correct

Sterling silver contains 92.5 percent silver and 7.5 percent copper. Which substance is the solute?

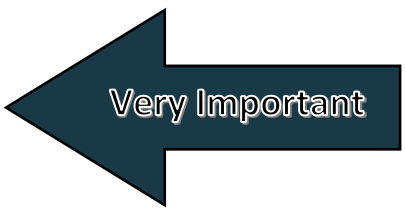
answer choices

- silver
- copper
- platinum
- solids do not form solutions

Which of the following actions increases the rate of dissolving?

answer choices

- decreasing the temperature
- keeping the pressure constant
- decreasing the pressure
- stirring the solution



As the temperature of a liquid solvent increases, the amount of solute that can dissolve it _____.

answer choices

- decreases
- remains constant
- increases
- decreases by 1° Celsius for every milliliter of solvent

Very Important

A solution is a _____.

answer choices

- Homogeneous mixture
- Heterogeneous mixture
- Colloid
- Pure substance

Very Important

The substance doing the dissolving is called a:

answer choices

- Solvent
- Solute
- Reactant
- Product

Very Important

Small amounts of fuel injector cleaner are sometimes added to the petrol when you fill up a car. Which is the solvent in this case?

answer choices

- The fuel injector cleaner
- The car
- The petrol

Brass is an alloy made of 85% copper and 15% tin. Which is the solute in this case?

answer choices

- Brass
- Copper
- Tin
- Alloy

Which of the following can help to speed up the process of dissolving? Select all that apply

answer choices

- Stirring/shaking
- Heating up
- Cooling down
- Increasing surface area

When water is dissolving salt, the negative ends of the water molecules attach to negative chloride ions and pull them out into the water solution.

answer choices

- True
- False

Very Important

All solutions have to be liquids.

answer choices

- True
- False

A solution of metals is often called a:

answer choices

- Solute
- Alloy
- Colloid
- Solvent

Very Important

Which of the following are considered to be a homogeneous mixture?

answer choices

- Colloid
- Solution
- Suspension
- All Mixtures

Very Important

A measure of the amount of solute in a given amount of solvent or solution is...

answer choices

- saturated
- solubility
- concentration
- miscible

Very Important

A saturated solution is one that....

answer choices

- contains the maximum amount of dissolved solute.
- contains less solute than a saturated solution.
- contains more solute than a saturated solution.
- is the amount of a substance required to form a saturated solution.

Very Important

A supersaturated solution is one that....

answer choices

- contains the maximum amount of dissolved solute.
- contains less solute than a saturated solution.
- contains more solute than a saturated solution.
- is the amount of a substance required to form a saturated solution.

Very

An unsaturated solution is one that....

answer choices

- contains the maximum amount of dissolved solute.
- contains less solute than a saturated solution.
- contains more solute than a saturated solution.
- is the amount of a substance required to form a saturated solution.

Very Important

An electrolyte is...

answer choices

- The rapid, random movement of particles in colloidal dispersion.
- A substance that dissolves in water and conducts electric current.
- A substance that dissolves in water and does not conduct electric current.
- The solution process when water is the solvent.

Very Important

A nonelectrolyte is...

answer choices

- The rapid, random movement of particles in colloidal dispersion.
- A substance that dissolves in water and conducts electric current.
- A substance that dissolves in water and does not conduct electric current.
- The solution process when water is the solvent.

Very Important

The dissolving medium in a solution is called ...

answer choices

- colloid
- solution
- solute
- solvent

Very Important

The substance dissolved in a solution is called ...

answer choices

- colloid
- solution
- solute
- solvent

What does it mean to dilute a solution?

answer choices

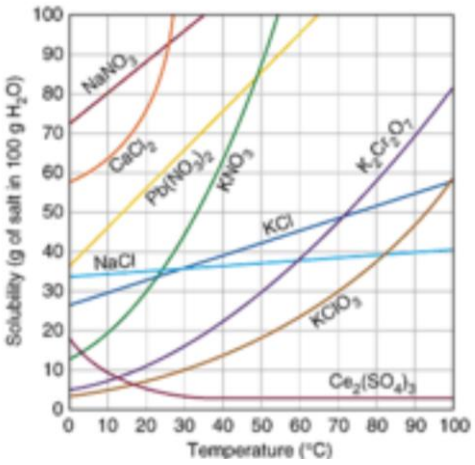
- lower the concentration of solute per solvent
- increase the concentration of solute per solvent

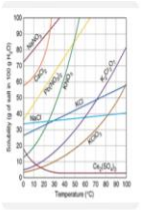
What is a solvent

answer choices

- the liquid in which a solute is dissolved to form a solution.
- Another word for solution
- A thing that make drinks turn colors
- Its a metal molecole

Very





When 40 grams of NaCl is dissolved in 100 grams of water at 90 °C, the solution can be correctly described as:

answer choices

- supersaturated
- saturated
- unsaturated

You can make a solution more concentrated by adding _____.

answer choices

- solute
- solvent
- water

Very Important

Solution where more solute can still be dissolved at the given temperature.

answer choices

- Saturated
- Unsaturated
- Supersaturated
- Homogeneous solution

Very Important

Graph that shows the amount of solute that can be dissolved in 100 g of water at a certain temperature.

answer choices

- Solubility curve
- Saturation curve
- Concentration curve
- Molarity curve

Water is considered polar due to:

answer choices

- its neutral poles
- its charged poles
- the odd number of atoms involved

Define the term insoluble.

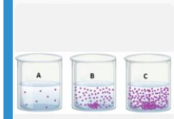
answer choices

- Can dissolve in water.
- Cannot dissolve in water.
- Partially dissolves in water.

The ___ is the thing being dissolved.

answer choices

- solute
- solvent
- mixture
- solution



Which of the following statements is true?

answer choices

- B is a saturated solution
- A is a supersaturated solution
- C is an unsaturated solution
- None of the above

_____ are made up of solutes and solvents.

answer choices

- Solutions
- Suspensions
- Heterogeneous Mixtures
- Pure Substances

If I dissolve carbon dioxide in water, what is my solvent?

answer choices

- Carbon Dioxide
- There is no solvent
- Oxygen
- Water

A solution that can hold more solute is called

answer choices

- saturated
- supersaturated
- unsaturated
- insoluble

Very Important

When a solvent contains as much of the solute as it can hold, the solution is said to be

answer choices

- supersaturated
- diluted
- saturated
- unsaturated

The substance that gets dissolved is called solvent.
True or False?

answer choices

- True.
- False.

Water does not dissolve ___

answer choices

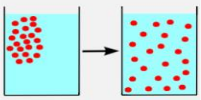
- non-ionic, nonpolar substances
- ionic, nonpolar substances
- non-ionic, polar substances
- ionic, polar substances

Very Important

What is the reason why oil and water don't mix?

answer choices

- Oil is too heavy to mix with water
- Water can only mix with polar molecules
- Water can only mix with non-polar molecules
- Oil is too light to mix with water



Look at the diagram. In this diagram, the red dots represent

answer choices

- the solute
- the solvent
- the solution

Which of the following word pairs correctly completes the sentence below?
_____ are corrosive substances characterized as having a strong smell, a sour taste, and a _____.

answer choices

- Acids; pH less than 7
- Acids; pH greater than 7
- Bases; pH greater than 7
- Bases; pH less than 7

A substance is found to have the following characteristics:

Very bitter taste
Feels slippery to the touch
Produces OH- ions when dissolved in water

In what category would the substance be classified?

Very Important

answer choices

- acid
- base
- enzyme
- fatty acid

When an acid is dissolved in water, it turns red litmus paper blue.

answer choices

- True
- False

Bases turn blue litmus paper red.

answer choices

- True
- False

Which of the following word pairs correctly completes the sentence below?

_____ are corrosive substances characterized as having a oily feel, a bitter taste, and a _____.

answer choices

- Acids; pH less than 7
- Acids; pH greater than 7
- Bases; pH greater than 7
- Bases; pH less than 7

Pure water has a pH of 7. Pure water _____.

answer choices

- is a base
- is a neutral substance
- could be either an acid or a base
- is an acid

Which type of ion does an acid produce when it is dissolved in water?

answer choices

- oxide
- oxygen
- hydronium
- hydroxide

دعاء الامتحان:

اللهم لا سهل الا جعلته سهلا و انت تجعل الحزن اذا شئت سهلا يا ارحم الراحمين

مع اطيب التمنيات بالنجاح و التوفيق

أستاذ/ محمد مصطفي