

NDA-CDS-AFCAT 2024

TOP 25 MCQs

CHEMISTRY

**ACIDS, BASES &
SALTS**



SHIVANGI MA'AM

Which Of The Following Household Items Contains Sulphuric Acid?

- A. Battery
- B. Vinegar
- C. Toothpaste
- D. More than one of the above

Which Of The Following Household Items Contains Sulphuric Acid?

A. Battery

B. Vinegar

C. Toothpaste

D. More than one of the above

- Battery acid is sulfuric acid that has been diluted with water to attain a 37% concentration level.

Acids That Contain Hydrogen And Other Non-metallic Element(s), Except Oxygen, Are Called:

- a) Dilute acids
- b) Hydracids
- c) Strong acids
- d) More than one of the above

Acids That Contain Hydrogen And Other Non-metallic Element(s), Except Oxygen, Are Called:

a) Dilute acids

b) Hydracids

- The acids that contain hydrogen and other non-metals but not oxygen are called Hydracids. Examples- Hydrochloric acid (HCl), Hydrobromide acid (HBr), Hydrogen Cyanide (HCN) etc.

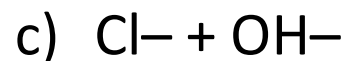
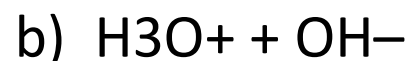
c) Strong acids

d) More than one of the above

Which Of The Following Are Present In A Dilute Aqueous Solution Of Hydrochloric Acid?

- a) $\text{H}_3\text{O}^+ + \text{Cl}^-$
- b) $\text{H}_3\text{O}^+ + \text{OH}^-$
- c) $\text{Cl}^- + \text{OH}^-$
- d) More than one of the above

Which Of The Following Are Present In A Dilute Aqueous Solution Of Hydrochloric Acid?



d) More than one of the above

- When dilute aqueous solution of hydrochloric acid is added to water then the following reaction takes place:
- $\text{HCl}(\text{aq}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{H}_3\text{O}^+(\text{aq}) + \text{Cl}^-(\text{aq})$
- Thus, the product side, H_3O^+ and Cl^- are formed.

Acids React With Metals To Liberate :

- a) Carbon monoxide
- b) Water
- c) Hydrogen
- d) More than one of the above

Acids React With Metals To Liberate :

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b) Water

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- Metal + acid \rightarrow salt + hydrogen
- Hydrochloric acid + magnesium \rightarrow magnesium chloride + hydrogen.

Which Acid Is Present In Tamarind?

- a) Tartaric acid
- b) Citric acid
- c) Acetic acid
- d) More than one of the above

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- There are different types of food acids like citric acid, malic acid, and tartaric acid that are naturally occurring food acids.

Sulphur Dioxide When Dissolved In Water Forms-

- a) Sulphur Trioxide
- b) Sulphurous acid
- c) Sulphuric acid
- d) Sulphur

Sulphur Dioxide When Dissolved In Water Forms-

a) Sulphur Trioxide

b) Sulphurous acid

c) Sulphuric acid

d) Sulphur

- When Sulphur dioxide is dissolved in water it forms Sulphurous acid. The chemical formula of Sulphur dioxide is SO_2 .
- $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_3$

What Is The Ph Value Of Acid Rain?

- a) Less than 5.6
- b) More than 5.6
- c) Equal to 7.0
- d) More than 7.0

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b) More than 5.6

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- Acid rain is caused by a chemical reaction that begins when compounds like sulfur dioxide and nitrogen oxides are discharged into the air, where they mix and react with water, oxygen, and other chemicals to form more acidic pollutants, known as acid rain.

Which Of The Following Contains Citric Acid?

- a) Tomato
- b) Orange
- c) Tamarind
- d) Sour milk

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a) Tomato

b) Orange

c) Tamarind

d) Sour milk

- These are sour in taste and are a good source of Vitamin C, thus help in preventing the disease caused by the deficiency of Vitamin C, i.e., Scurvy.

Which Type Of Medicines Are Used For Treating Indigestion?

- a) Antibiotic
- b) Analgesic
- c) Antacid
- d) Antiseptic

Which Type Of Medicines Are Used For Treating Indigestion?

a) Antibiotic

b) Analgesic

- Antacids are medicines that counteract (neutralize) the acid in your stomach to relieve indigestion and heartburn.

c) Antacid

d) Antiseptic

An Acid Is A Substance Which

- a) donates a proton
- b) accepts an electron pair
- c) gives H^+ in water
- d) all of these

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- It capable of donating a proton and accepting an electron pair.
- In water, it releases a proton (H^+) into the solution.
- The strong acids are hydrochloric acid, nitric acid, sulfuric acid, hydrobromic acid, hydroiodic acid, perchloric acid, and chloric acid.

Lemon Fruit Is A Rich Source Of

- a) malic acid
- b) citric acid
- c) tartaric acid
- d) acetic acid

Lemon Fruit Is A Rich Source Of

a) malic acid

b) citric acid

c) tartaric acid

d) acetic acid

- Citric acid is a weak organic acid.
- It is a six-carbon tricarboxylic acid.
- A manufactured form of citric acid is commonly used as an additive in food, cleaning agents, and nutritional supplements.

Which Of The Following Substances Can Be Used For Identifying An Acid Solution?

- a) NaCl
- b) KNO₃
- c) Na₂CO₃
- d) K₂SO₄

Which Of The Following Substances Can Be Used For Identifying An Acid Solution?

a) NaCl

b) KNO₃

- KNO₃ is completely ionized in the water that gives the Nitric acid which is a strong acid. So KNO₃ can be used for identifying an acid solution.

c) Na₂CO₃

d) K₂SO₄

Oxalic Acid Is Found In _____

a) Vinegar

b) Orange

c) Spinach

d) Ant sting

Oxalic Acid Is Found In _____

a) Vinegar

b) Orange

c) Spinach

d) Ant sting

Substance	Acid
Lemon \ Orange	Citric Acid
Ant Sting	Formic Acid
Vinegar	Acetic Acid
Curd	Lactic Acid
Grapes	Tartaric acid
Amla (Vitamin C)	Ascorbic Acid
Spinach	Oxalic Acid

Which Acid Does An Ant Sting Possess?

- a) Methanoic acid
- b) Oxalic acid
- c) Lactic acid
- d) Citric acid

Which Acid Does An Ant Sting Possess?

a) Methanoic acid

b) Oxalic acid

c) Lactic acid

d) Citric acid

- Formic acid (systematically called methanoic acid) is the simplest carboxylic acid.
- Molecular formula: HCOOH
- It is quite fatal for those ants as after stinging, their stinger is lost and they forcibly release formic acid from their poison gland.

What Is The ph Value Of A Salt Made Up Of A Strong Acid And A Weak Base?

- a) More than 7
- b) Less than 7
- c) Between 10 to 14
- d) More than one of the above

What Is The pH Value Of A Salt Made Up Of A Strong Acid And A Weak Base?

a) More than 7

b) Less than 7

c) Between 10 to 14

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- All substances can be classified as neutral (with a pH of about 7), basic (pH greater than 7), or acidic (pH less than 7), and the pH tells us how strong or weak that substance is as well. For example, a substance with pH = 8 is a very weak base, but a substance with pH = 3 is a strong acid.

Which Of The Following Is False?

- a) Water of crystallization is the fixed number of water molecules present in one formula unit of a salt.
- b) Acidic nature of a substance is due to the formation of OH^- (aq) ions in solution
- c) Acidic solutions in water conduct electricity because they produce hydrogen ions.
- d) More than one of the above

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Ethanoic Acid Liberates Hydrogen Gas When It React With Which Of The Following?

- a) NaOH
- b) NaHCO₃
- c) Na₂CO₃
- d) Na

Ethanoic Acid Liberates Hydrogen Gas When It React With Which Of The Following?

a) NaOH

b) NaHCO₃

c) Na₂CO₃

d) Na

- Chemical formula - CH₃COOH.
- $2\text{CH}_3\text{COOH} + 2\text{Na} \rightarrow 2\text{CH}_3\text{COONa} + \text{H}_2 \text{ (gas)}$

ph Of A Tomato Juice Is 4. Calculate The Concentration Of Hydronium Ions In It.

a) 0.0001

b) 0.4

c) 4.0

d) 0.04

ph Of A Tomato Juice Is 4. Calculate The Concentration Of Hydronium Ions In It.

a) 0.0001

b) 0.4

c) 4.0

d) 0.04

$$\text{pH} = -\text{Log}[\text{H}^+]$$

Substituting $\text{pH} = 4$, we get:

$$4 = -\text{Log}[\text{H}^+]$$

$$[\text{H}^+] = 10^{-4} = .0001$$

Hence, the concentration of hydronium ions in tomato juice is **.0001**.

The Amphoteric Oxide Among The Following Is:

a) Ga_2O_3

b) CaO

c) SiO_2

d) CO_2

- dissolves in acids as well as alkalies to form the corresponding salts.

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- dissolves in acids as well as alkalies to form the corresponding salts.

What is the chemical name of baking soda?

- (a) Calcium Carbonate
- (b) Potassium Chloride
- (c) Sodium Bicarbonate
- (d) Hydrogen Chloride

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(a) Calcium Carbonate

(b) Potassium Chloride

(c) Sodium Bicarbonate

(d) Hydrogen Chloride

- Baking soda is the common name of sodium bicarbonate. The chemical formula of baking soda is NaHCO_3 . Baking Soda is also defined as Sodium Bicarbonate.

What is formed when zinc reacts with sodium hydroxide?

- (a) Zinc hydroxide and sodium
- (b) Sodium zincate and hydrogen gas
- (c) Sodium zinc-oxide and hydrogen gas
- (d) Sodium zincate and water

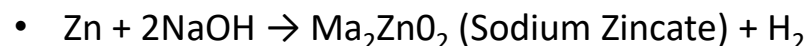
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Which of the Following given options is coated on a Photographic plate?

(a) Sodium Hydroxide

(b) Potassium Chloride

(c) Silver oxide

(d) Silver Bromide

Which of the Following given options is coated on a Photographic plate?

(a) Sodium Hydroxide

(b) Potassium Chloride

(c) Silver oxide

(d) Silver Bromide

- Photographic plates are coated with Silver Bromide.

What is the chemical name of Bleaching Powder?

- (a) Calcium Oxychloride
- (b) Ammonium Chloride
- (c) Calcium Carbonate
- (d) Calcium Hydroxide

What is the chemical name of Bleaching Powder?

(a) Calcium Oxychloride

(b) Ammonium Chloride

(c) Calcium Carbonate

(d) Calcium Hydroxide

- Calcium Oxychloride is the chemical name of Bleaching Powder.

**An element 'X' reacts with oxygen to produce an oxide whose solution turns red litmus blue.
Which of the following could be X?**

- a) Sulphur
- b) Magnesium
- c) Carbon
- d) More than one of the above

**An element 'X' reacts with oxygen to produce an oxide whose solution turns red litmus blue.
Which of the following could be X?**

a) Sulphur

b) Magnesium

c) Carbon

d) More than one of the above

- when magnesium burns in the air it combines with the oxygen of the air to form magnesium oxide.
- $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- Then, magnesium oxide dissolves in water to form a magnesium hydroxide solution that is alkaline in nature.
- This magnesium hydroxide turns red litmus to blue litmus which shows its alkaline nature.

3 Solutions A, B and C are taken in a test tube. On adding China rose indicator, A turned green, B remained colorless whereas C turned dark pink in colour.

What is the nature of A, B and C ?

- a) A - Acidic, B- Basic, C - Salt
- b) A - Basic, B - Salt, C -Acidic
- c) A - Salt, B - Basic, C - Acidic
- d) More than one of the above

3 Solutions A, B and C are taken in a test tube. On adding China rose indicator, A turned green, B remained colorless whereas C turned dark pink in colour.

What is the nature of A, B and C ?

a) A - Acidic, B- Basic, C - Salt

b) A - Basic, B - Salt, C -Acidic

c) A - Salt, B - Basic, C - Acidic

d) More than one of the above

- A turning green with China rose indicator suggests that it is a basic solution. China rose indicator is a pH indicator that changes color in the presence of acidic and basic solutions. In this case, the green color indicates that solution A has a basic nature.
- B remaining colorless with China rose indicator suggests that it is a neutral solution. The lack of color change indicates that solution B has a pH value close to 7, which is considered neutral on the pH scale.
- C turning dark pink in color with China rose indicator suggests that it is an acidic solution. China's rose indicator turns pink or dark pink in the presence of acidic solutions, indicating that solution C has an acidic nature.

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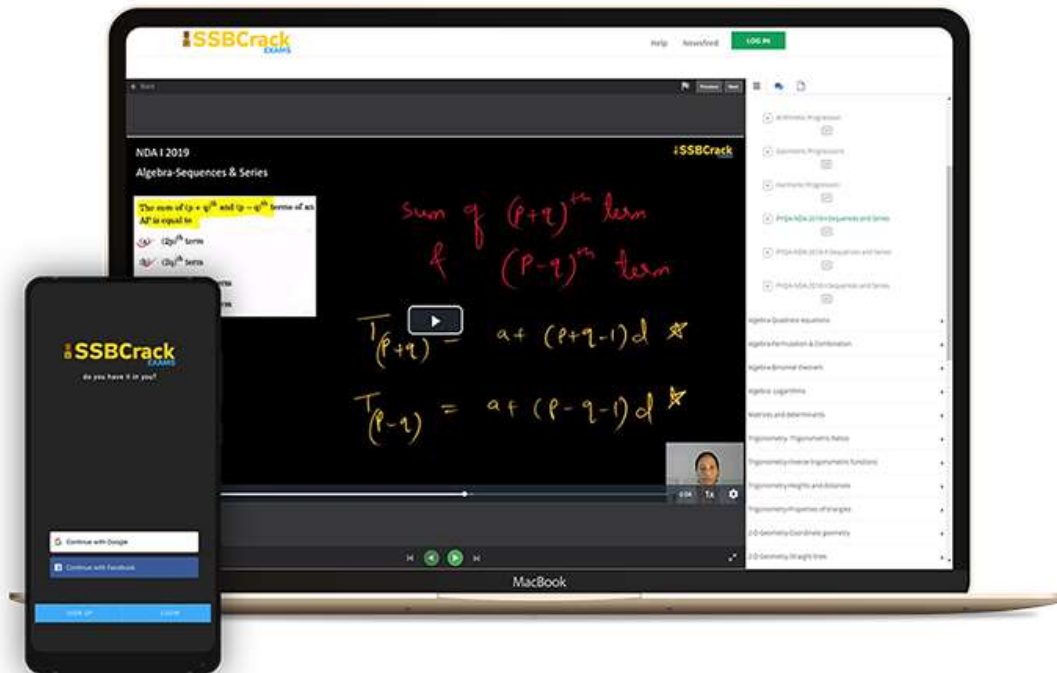
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