

NDA-CDS-AFCAT 2024

TOP 25 MCQs

CHEMISTRY

**PHYSICAL AND
CHEMICAL CHANGES**



SHIVANGI MA'AM

SSBCrack

The Process Of Burning Of A Candle Involves

- a) only physical reactions
- b) only chemical reactions
- c) both physical and chemical reactions
- d) More than one of the above

The Process Of Burning Of A Candle Involves

a) only physical reactions

b) only chemical reactions

c) both physical and chemical reactions

d) More than one of the above

- The physical change occurs when the wax of a candle melts and it loses its shape, and hence the physical state of the wax has changed from solid to liquid.
- The chemical change is the combustion of fuel in the presence of oxygen to produce carbon dioxide.

Which Of The Following Is An Exothermic Process?

- a) Reaction of water with quick lime
- b) Sublimation of Camphor
- c) Evaporation of water
- d) More than one of the above

Which Of The Following Is An Exothermic Process?

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- Reaction of water with quick lime is an exothermic process. When quick lime or CaO is reacted with water, Ca(OH)_2 is formed.
- The process releases heat and is exothermic.

Chemical Name Of Washing Soda Is:

- a) Sodium chloride
- b) Sodium hydrogen carbonate
- c) Sodium carbonate
- d) Sodium hydroxide

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a) Sodium chloride

b) Sodium hydrogen carbonate

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- Washing soda is a chemical compound with the formula Na_2CO_3 , known as sodium carbonate, and it's a salt of carbonic acid.

Which Of The Following Is Called 'Pearl Ash'?

a) Na_2CO_3

b) NaHCO_3

c) K_2CO_3

d) CaCO_3

Which Of The Following Is Called 'Pearl Ash'?

a) Na_2CO_3

b) NaHCO_3

c) K_2CO_3

d) CaCO_3

- Pearl ash, in ancient times, was created by baking potash in a kiln in order to remove impurities. The remaining fine, white powder was pearl ash.

How Many Water Molecules Are Present In One Molecule Of Washing Soda?

- a) 8
- b) 5
- c) 7
- d) 10

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a) 8

b) 5

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- We know the molecular formula for Washing Soda is $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$.

What Is The Common Name Of Mercury Sulfide?

- a) Marsh Gas
- b) Mohr's Salt
- c) Potash Alum
- d) Vermilion

What Is The Common Name Of Mercury Sulfide?

a) Marsh Gas

b) Mohr's Salt

c) Potash Alum

d) Vermilion

- It is a chemical compound composed of the chemical elements mercury and sulfur.
- The chemical formula of Mercury sulfide is HgS.

The reason for a physical change to be named as such is that the:

A) change occurs only in physical properties

B) transfer of energy takes place

C) is a reversible change

D) All of the above

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When Ice Is Heated, It Changes To Water And Water On Further Heating Gets Converted To Steam. What Happens When Steam Is Condensed?

- A) A new substance is formed
- B) No new substance is formed
- C) Gaseous phase changes to liquid phase
- D) Both (b) and (c) are correct

When Ice Is Heated, It Changes To Water And Water On Further Heating Gets Converted To Steam. What Happens When Steam Is Condensed?

A) A new substance is formed

B) No new substance is formed

- The process of change from gaseous to liquid phase is called condensation. Steam (water in gaseous state) after condensation yields water (liquid state).

C) Gaseous phase changes to liquid phase

D) Both (b) and (c) are correct

Which Of The Following Will Be Observed If An Apple Slice Is Left Exposed To Air?

- A) It under goes oxidation and become brown in colour
- B) Appearance of brown colour on the surface of apple slice is caused by a chemical reaction between air and enzymes
- C) Both the above are correct
- D) None of these

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The Shipping Industry Has To Bear Huge Financial Loss Because Of Rusting Of Ships. The Rusting Of Ships Occur Because:

- A) the body of ship is always in contact with water.
- B) the air around the ship is humid.
- C) presence of salts in sea water speed up the process of rusting.
- D) All of the above

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D) All of the above

- Rusting is a phenomena of formation of oxide layer on metal surface in presence of air and moisture.

Which Is The Best Method To Prevent Rusting?

A) Painting

B) Greasing

C) Galvanization

D) Precipitation

Which Is The Best Method To Prevent Rusting?

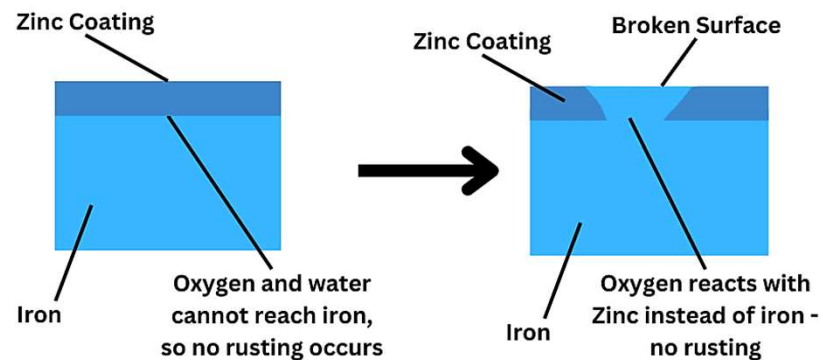
A) Painting

B) Greasing

C) Galvanization

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GALVANISATION OF IRON



- Galvanized iron is not used in making food cans because zinc ions are poisonous.

When Magnesium Is Burnt, Heat And Light Are Produced. The Burning Of Magnesium Is A:

A) reversible change

B) physical change

C) chemical and exothermic change

D) chemical and endothermic change

When Magnesium Is Burnt, Heat And Light Are Produced. The Burning Of Magnesium Is A:

A) reversible change

B) physical change

- A change accompanied by evolution of heat is an exothermic change.

C) chemical and exothermic change

D) chemical and endothermic change

Change of milk to curd is a:

A) physical change

B) chemical change

C) Both physical and chemical change

D) Neither physical nor chemical change

Change of milk to curd is a:

A) physical change

B) chemical change

- It is a chemical change. Properties of curd are different from those of milk.

C) Both physical and chemical change

D) Neither physical nor chemical change

Expansion on heating and contraction on cooling of metals is a:

A) chemical change

B) physical change

C) irreversible change

D) None of these

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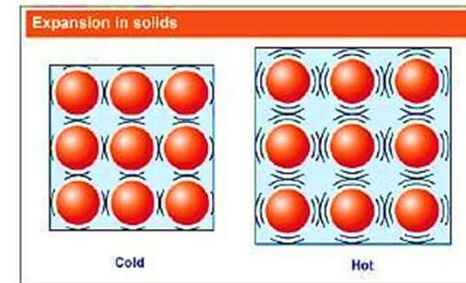
B) physical change

C) irreversible change

D) None of these

Expansion and Contraction

- When substances expand or contract, the particles stay the same size
- Only the spaces between the particles changes
- The particles in the solid vibrate more when it is heated thus take up more room - EXPANSION
- Similar to liquid and gases when heated



Hydrochloric Acid Is Added To A Beaker Containing A Piece Of Zinc. Zinc Chloride Is Formed And Hydrogen Gas Is Released. This Is An Example Of:

A) a chemical reaction

B) a physical change

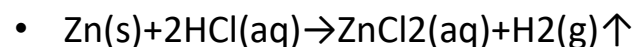
C) Crystallization

D) None of these

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Which Of The Following Statements Is Correct?

- A) Evaporation is a chemical change
- B) Digestion of food is a chemical change
- C) Burning of paper is a physical change
- D) All of the above

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A chemical reaction forms new products.



Combustion



Rotting



Rusting



Digestion

Which Of The Following Statements Is Correct?

- A) When coal is burnt no new substance is produced
- B) Rust is not formed in the absence of air or oxygen
- C) The fizz that comes out when a soda bottle is opened is due to a chemical change.
- D) Respiration is a physical process

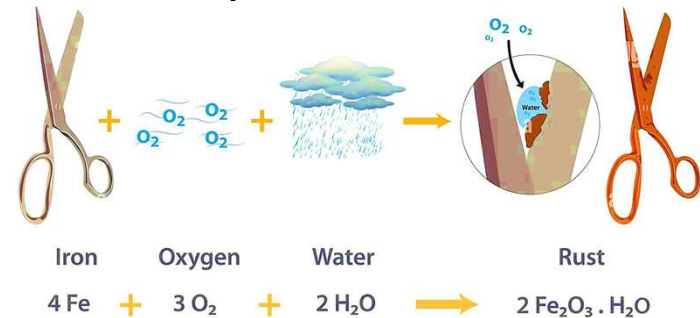
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In Which One Of The Following Situations Chemical Reaction Does Not Occur?

A) Common salt is exposed to air

B) Coal is burnt in air

C) Sodium is placed in water

D) Iron is kept in moist air

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A) Common salt is exposed to air

B) Coal is burnt in air

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When Common Salt is kept open, it absorbs moisture from the air



Pooja Took A Candle In A Vessel And Heated The Vessel. Even Though The Candle Did Not Burn, It Changed Its Shape And State. What Kind Of Change Is This?

A) Irreversible change

B) Physical change

C) Chemical change

D) None of these

Pooja Took A Candle In A Vessel And Heated The Vessel. Even Though The Candle Did Not Burn, It Changed Its Shape And State. What Kind Of Change Is This?

A) Irreversible change

B) Physical change

- Since no new substance was formed it is physical change.

C) Chemical change

D) None of these

Complete the following equation of rusting of iron.
Iron(Fe)+A+moisture→B

A) A = Oxygen, B = Carbon dioxide

B) A = Water, B = Oxygen

C) A = Oxygen, B = Rust (iron oxide)

D) A = Carbon dioxide, B = Oxygen

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Iron(Fe)+A+moisture→B

A) A = Oxygen, B = Carbon dioxide

B) A = Water, B = Oxygen

• Iron (Fe) + Oxygen (O₂) + moisture (H₂O) → Rust (iron oxide)

C) A = Oxygen, B = Rust (iron oxide)

D) A = Carbon dioxide, B = Oxygen

Choose correct option on the basis of statement (i) and (ii) (i) When hydrogen burns in oxygen, water is formed (ii) When water is electrolyzed, hydrogen and oxygen are formed.

A) (i) is a physical change and (ii) is a chemical change

B) (i) is a chemical change and (ii) is a physical change

C) Both (i) and (ii) are physical changes

D) Both (i) and (ii) are chemical changes

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On Adding A Few Drops Of Dilute Sulphuric Acid To The Blue Vitriol (Copper Sulphate) Solution, We Get A Blue Coloured Solution. When We Drop A Shaving Blade Into This Blue Coloured Solution Blue Colour Changes To Green After Sometime. Which Type Of Change Is Illustrated By This Activity?

A) Physical change

C) Both of these

B) Chemical change

D) None of these

On Adding A Few Drops Of Dilute Sulphuric Acid To The Blue Vitriol (Copper Sulphate) Solution, We Get A Blue Coloured Solution. When We Drop A Shaving Blade Into This Blue Coloured Solution Blue Colour Changes To Green After Sometime. Which Type Of Change Is Illustrated By This Activity?

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- Copper sulphate (blue) reacts with iron (in shaving blade) to form iron sulphate (green).

Surface Of A Reactive Metal May Be Attacked By Air, Water Or Other Substances Causing Corrosion. Corrosion Of Iron Is Called Rusting. The Product Formed By Rusting Is:

A) rust

B) a brown solid

C) Both of these

D) None of these

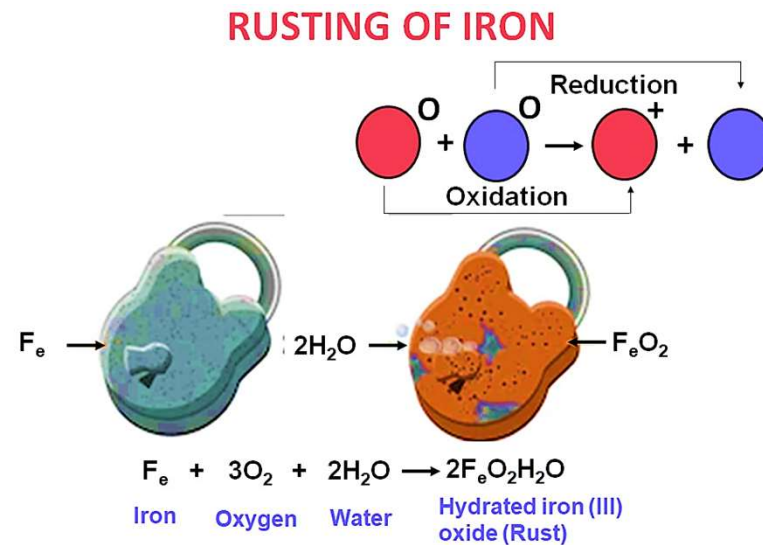
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A Metal When Left Exposed To The Atmosphere For Some Time Gets Coated With Green Basic Carbonate. The Metal In Question Is

A) Copper

B) Nickel

C) Silver

D) Zinc

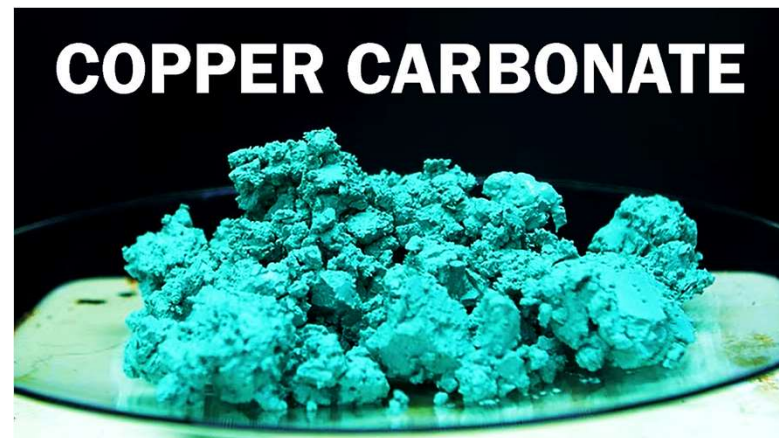
A Metal When Left Exposed To The Atmosphere For Some Time Gets Coated With Green Basic Carbonate. The Metal In Question Is

A) Copper

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C) Silver

D) Zinc



Some Pieces Of Chalk Were Taken And Mixed With Water. In This Change, How Many New Substances Are Formed?

A) 1

B) 2

C) 3

D) No new substances is formed

Some Pieces Of Chalk Were Taken And Mixed With Water. In This Change, How Many New Substances Are Formed?

A) 1

B) 2

- This is a physical change even though the characteristics of this mixture is different from the original substances, the substances retain their properties and can be recovered back easily.

C) 3

D) No new substances is formed

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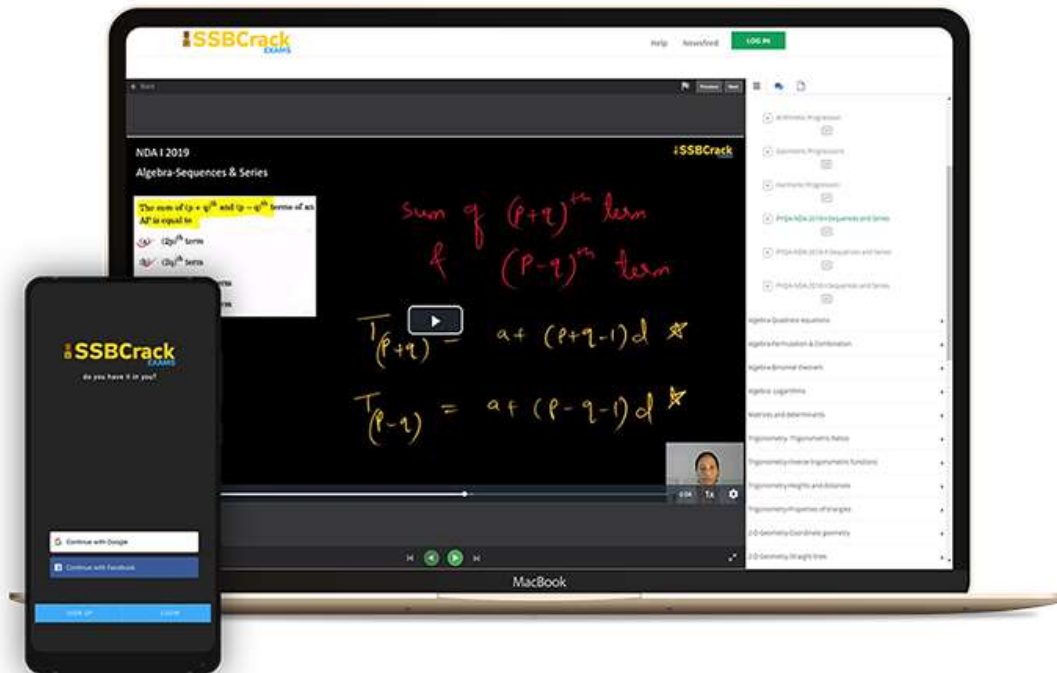
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