

SSC CGL Exam (2017-2018)

75+ Chemistry Questions



1. Methyl propane is an isomer of which of the following?

- A. N-Butane
- B. N-Pentane
- C. N-Hexane
- D. N-Propane

Ans. A

Sol. * **Butane or C₄H₁₀ has two structural isomers** called **normal butane and isobutane**, or i-butane.

* According to IUPAC nomenclature, these isomers are called butane and 2-methylpropane.

* Isomers are molecules that have the same molecular formula but different chemical structures.

* In the case of butane, its two isomers will have these structural formulas.

2. Which one of the following elements is a metalloid?

- A. Tin
- B. Silicon
- C. Phosphorus
- D. Bismuth

Ans. B

Sol. * A metalloid is a chemical element that exhibits some properties of metals and some of non-metals.

* **Boron, silicon, germanium, arsenic, antimony, tellurium, and polonium are metalloids.**

* Metalloids tend to be semiconductors and silicon is the best-known example of a semiconductor.

* Most microchips and microprocessors are made with silicon.

3. The virtue of catenation prevails in _____.

- A. Sulfur
- B. Nitrogen
- C. Silicon
- D. Carbon

Ans. D

Sol. * In chemistry, **catenation is the bonding of atoms of the same element into a series**, called a chain.

* A chain or a ring shape may be open if its ends are not bonded to each other, or closed if they are bonded in a ring (a cyclic compound).

* **Catenation occurs most readily with carbon**, which forms covalent bonds with other carbon atoms to form longer chains and structures.

* This is the reason for the presence of the vast number of organic compounds in nature.

4. Which gas in its solid state is also called dry ice?

- A. Carbon dioxide
- B. Oxygen
- C. Nitrogen
- D. Hydrogen

Ans. A

Sol. * **Dry Ice is the common name for solid carbon dioxide (CO₂).**

* It gets this name because it does not melt into a liquid when heated; instead, it changes directly into a gas (This process is known as sublimation).

5. Which of the following is aldehyde?

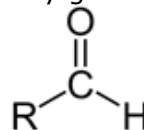
- A. Propine
- B. Propanone
- C. Propenal
- D. Propanol

Ans. C

Sol. * **Propenal is an aldehyde.**

* The name of aldehyde groups is generally ends with 'al'.

* An aldehyde is a compound containing a functional group with the structure -CHO, consisting of a carbonyl center (a carbon double-bonded to oxygen) with the carbon atom also bonded to hydrogen and to an R group, which is any generic alkyl or side chain. Such as



6. Which of the following has a very strong aroma of the fruit?

- A. Methanol
- B. Ethyl Acetate
- C. Methyl chloride
- D. Methanoic acid

Ans. B



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Sol. * **Ethyl acetate is the organic compound with the formula CH₃-COO-CH₂-CH₃**, simplified to C₄H₈O₂.

* This colorless liquid has a characteristic sweet smell and is used in glues, nail polish removers, decaffeinating tea and coffee.

7. Buckminsterfullerene is an allotrope of which of the following?

- A. Phosphorus
- B. Iron
- C. Carbon
- D. Boron

Ans. C

Sol.

* **Bulkminster Fullerene is an allotrope of carbon.**

* It comprises of C-50, C-60 carbon atoms.

* It contains pentagonal and hexagonal carbon cycles arranged in a football shaped.

* It is a radical scavenger and also has vital applications in nano technology.

8. Rust needs which of the following three components to occur?

- A. Steel, iron and oxygen
- B. Iron, oxygen and moisture
- C. Iron, nitrogen and moisture
- D. Helium, hydrogen and nitrogen

Ans. B

Sol. • **Rust needs iron, oxygen and moisture to occur.**

• There is anodic dissolution or oxidation of- $2\text{Fe} \rightarrow 2\text{Fe}^{2+} + 4\text{e}^-$

• Cathodic reduction of oxygen-O₂ + 2H₂O + 4e⁻ → 4OH⁻

• The iron ion and the hydroxide ion react to form iron hydroxide: $2\text{Fe}^{2+} + 4\text{OH}^- \rightarrow 2\text{Fe}(\text{OH})_2$

• The iron oxide reacts with oxygen to yield red rust, Fe₂O₃.H₂O

9. Which of the following acid found in Apple?

- A. Malic Acid
- B. Nitric Acid
- C. Formic Acid
- D. Sulphuric Acid

Ans. A

Sol. • **The acid found in apples is known as mallic acid.**

• Malic acid and it is also found in grapes and rhubarb.

• *Malic acid* is an organic compound with the molecular formula C₄H₆O₅.

• It is a dicarboxylic acid and used as food additive.

10. During photosynthesis, green plants use energy from sunlight to synthesise _____ from carbon dioxide and water.

- A. Glucose
- B. Sucrose
- C. Galactose
- D. Fructose

Ans. A

Sol. • **Glucose is produced by plants through photosynthesis.**

• In this process the plant absorb sunlight and convert carbon dioxide and water into glucose and oxygen.

• The oxygen is provided to atmosphere through plants where glucose is used to its own growth.

11. Ricket' is a disease associated with the deficiency of _____.

- A. Vitamin D
- B. Vitamin C
- C. Vitamin B
- D. Vitamin A

Ans. A

Sol. • **Rickets is caused due to deficiency of Vitamin D.**

• Rickets leads to softening and weakening of the bones and is seen most commonly in children 6-24 months of age.

• Different types of rickets are- hypophosphatemic ricket, renal or kidney rickets, and most commonly, nutritional rickets.

12. _____ was the first person to isolate methane gas. He discovered that methane mixed with air could be exploded using an electric spark.

- A. Alessandro volta
- B. William Thomson
- C. Louis Pasteur



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D. William Crookes

Ans. A

Sol. • **Alessandro volta** was the first person to isolate methane gas.

- He is also recognized as inventor of electric battery.
- He invented the Voltaic pile in 1799.

13. Which of the following acids is present in ant bites?

- A. Nitric acid
- B. Perchloric Acid
- C. Malic acid
- D. Formic acid

Ans. D

Sol. • **Formic Acid** is present in Ant Bites. It is a simplest carboxylic acid.

- It is commonly used as a preservative and antibacterial agent in livestock feed.
- Formic acid is a colourless liquid with a pungent odour.

14. What is the dominant chemical present in detergent powder?

- A. Sodium alkyl sulphate
- B. Calcium carbonate
- C. Sodium carbonate
- D. Hydrochloric acid

Ans. C

Sol. • **Sodium Carbonate is dominantly present in Detergent.**

- The sodium carbonate "softens" water helping other cleaning ingredients lift soil from the fabrics and suspend the soil in the wash water.
- Na_2CO_3 is the chemical formula of sodium carbonate.

15. Blue litmus paper turns _____ on contact with an acidic solution.

- A. Brown
- B. Yellow
- C. Green
- D. Red

Ans. D

Sol. • **The blue litmus will turn red or pink when it comes into contact with an acidic solution.**

- Turning of colour of Blue Litmus varies from pink, red, to purple based on the strength of acid.

- Litmus is a water-soluble mixture of different dyes extracted from lichens. Litmus paper is made of it to carry out various chemical experiments.

16. 'Nitrous Oxide' is the chemical name of _____.

- A. Tear Gas
- B. Fire Extinguisher
- C. Laughing Gas
- D. Mosquito Repellent

Ans. C

Sol. • **Nitrous Oxide is also known as Laughing gas.**

- It is used as anaesthetic and pain reducing medicine in surgery and dentistry.
- Its name "laughing gas", coined by Humphry Davy, is due to the euphoric effects upon inhaling it.

17. _____ gases trap heat in the atmosphere which makes the Earth warmer, causing global warming.

- A. Compound
- B. Elemental
- C. Nobel
- D. Greenhouse

Ans. D

Sol. • Greenhouse gas that contribute to the greenhouse effect that is warming the Earth by absorbing the infrared radiations.

- Carbon Dioxide and chlorofluorocarbons are examples of greenhouse gases.

18. The process of change from liquid to gas is called _____.

- A. Vaporization
- B. Decantation
- C. Condensation
- D. Precipitation

Ans. A

Sol. • **Vaporization** is the process in which element is converted from a liquid or a solid to a gas.

- **Decantation** is a process for the separation of mixtures of immiscible liquids.

- **Condensation** is a process of the conversion of a vapour or gas to a liquid.



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• **Precipitation** is the creation of a solid from a solution.

1. Rusting is _____.

- A. Electrolysis
- B. Oxidation
- C. Redox reaction (Oxidation & Reduction)
- D. Reduction

Ans. C

Sol.

- Rusting is a redox reaction where oxidation and reduction takes place simultaneously.
- Rusting takes place when iron is in contact with oxygen and water.
- Iron is oxidized by losing an electron and becoming ferric and oxygen is reduced by gaining an electron and becoming hydroxide and rusting is a result due to formation of ferric hydroxide.

2. Which amongst the following is not a Cation?

- A. Aluminium ion
- B. Copper ion
- C. Sulphate ion
- D. Zinc ion

Ans. C

Sol. Sulphate ion is not a cation. Cation is a positively charged ion but sulphate ion is a negatively charged ion as it gains electrons and forms a covalent bond with oxygen. Hence sulphate ion is an anion.

3. Which of the following is not a component of Smog?

- A. Volatile organic compounds
- B. Nitrogen Oxide
- C. Sulphur dioxide
- D. Chlorine oxide

Ans. D

Sol. Chlorine oxide is not a component of Smog. Smog an air pollutant is composed mainly of tropospheric ozone and primary particulate matter such as pollen and dust along with other particulate matter such as sulphur oxides, volatile organic compounds, nitrogen oxides and ammonia gas.

4. What is dry ice?

- A. Solid Carbon dioxide
- B. Solid Nitrogen dioxide

- C. Solid Sulphur dioxide
- D. Solid Water

Ans. A

Sol.

• Dry ice is the solid form of **carbon dioxide**.

• It is known as dry ice because it does not melt into a liquid when heated instead it changes directly into a gas due to sublimation process.

• It is a cooling agent and is mostly used for preserving frozen foods. However, sometimes its harmful leading to frost bites.

5. Which among the following metal is used for galvanization?

- A. Zinc
- B. Copper
- C. Iron
- D. Silver

Ans. A

Sol. Zinc is used for galvanization. Galvanization is the process of applying a protective zinc coating to steel or iron, to prevent rusting, oxidation and weathering. Zinc coating is a cost effective method to improve the shelf life of steel and iron and helps in corrosion resistance.

6. Which of the following is most compressible?

- A. Solid
- B. Liquid
- C. Gas
- D. Solid and Liquid

Ans. C

Sol.

• In Gas, particles are well separated with no regular arrangement, and also vibrate and move freely at high speed.

• While in Liquid, particles are close together with no regular arrangement, and vibrate and move to and fro at their mean position.

• In Solid, particles are tightly packed with a regular arrangement and also shake at their position but do not move from place to place.



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• That is why **Gas is highly compressible** in nature than liquid and solid, respectively.

7. Oxide of which of the following will turn red litmus blue?

- A. Magnesium B. Phosphorus
C. Sulphur D. Carbon

Ans. A
Sol.

• Litmus paper is a neutral paper made of wood cellulose infused with a water-soluble dye made from specific lichens (which are small symbiotic organisms made up of a fungus and an alga living as one organism).

• Litmus paper can be either red or blue in color which are tests for acids and bases but the original color of litmus paper is blue. When red litmus paper comes into contact with a base, it returns to its original blue color.

• Few examples of bases are: Sodium Bicarbonate (i.e. Baking Soda), Human blood, Milk of Magnesia, Ammonia, Lime, lye, Magnesium oxide (MgO, it is a base because Magnesium is a metal and like most of the metals, it forms basic oxides).
Note: Acid turns blue litmus paper red. Bases turn red litmus paper blue.

8. PET is a very familiar form of _____. It is used for making bottles.

- A. Nylon B. Acrylic
C. Polyester D. Rayon

Ans. C

Sol. PET is a very familiar form of Polyester. It is used for making bottles, utensils, films, wire. Polyesters are polymers formed from a dicarboxylic acid and a diol. Their most familiar applications are in clothing, food packaging and plastic water and carbonated soft drink bottles.

9. Which of the following gases is heavier than oxygen?

- A. Carbon dioxide B. Ammonia
C. Methane D. Helium

Ans. A

Sol. Carbon dioxide is heavier than oxygen. carbon dioxide is CO_2 , one atom

of carbon attached to two of oxygen, weight- $12 + 2 * 16 = 12 + 32 = 44$, it is heavier than air. Weight of ammonia gas is 17.031. weight of methane gas is 16. Weight of helium gas is 4.002.

10. Anions are formed by _____?

- A. Losing of electrons
B. Gaining of electrons
C. Gaining of neutrons
D. Losing of neutrons

Ans. B

Sol.

• Anions are negatively-charged ions which are formed by gain of electrons.

• Since they now have more electrons than protons, **anions** have a negative charge.

• For example, chloride ions Cl^- , bromide Br^- , iodide I^- .

11. Process of losing electrons is known as _____?

- A. Oxidation
B. Reduction
C. Radiation
D. Both oxidation and reducing

Ans. A

Sol.

• Process of losing electrons is known as oxidation.

• In oxidation there is gain of oxygen atoms and loss of hydrogen atoms. Example during rusting iron oxide is converted to iron hydroxide due to gain of oxygen atom.

12. Which among the following is the major cause of acid rain?

- A. Carbon dioxide
B. Carbon monoxide
C. Nitrogen dioxide
D. Oxygen

Ans. C

Sol. Acid rain is caused by emissions of sulfur dioxide and nitrogen dioxide from earth surface which react with the water molecules and oxygen in the atmosphere



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to produce acidic pollutants and resulting in acidic rain. It has harmful effects plants, humans and aquatic animals.

13. Which of the following is a characteristic of an exothermic reaction?

- A. Release of heat
- B. Absorption of heat
- C. Doesn't involve any change in temperature
- D. None of the option is correct

Ans. A

Sol.

- An exothermic reaction is a chemical reaction that releases energy by light or heat causing the temperature of surroundings to rise.
- It takes place when the energy used to break the bonds in the reactants is less than the energy given out when bonds are formed in the products. Example: combustion.

14. What is the chemical formula for Sodium Chloride (Salt)?

- A. NaCl_2
- B. NaCl
- C. Na_2Cl
- D. Na_2C

Ans. B

Sol. NaCl is the chemical formula for Sodium Chloride. It is a ionic compound with 1:1 ratio of sodium and chloride used for cooking purpose as a condiment and food preservative. It is extracted from oceans.

15. Which of the following gas contributes the maximum to the phenomena of global warming?

- A. Methane
- B. Chlorofluorocarbon (CFC)
- C. Nitrogen dioxide
- D. Carbon dioxide

Ans. D

Sol. Carbon dioxide gas contributes the maximum to the phenomena of global warming. Global warming is the increase in the temperature of the Earth due to increase in amount of gases like carbon dioxide, water vapor, methane which captures the heat radiated by Earth. Carbon dioxide from the burning of fossil fuels is the largest single source of

greenhouse gas emissions from human activities.

16. Which of the following gas was released during Bhopal gas tragedy?

- A. Methyl isocyanate
- B. Sodium isothiocyanate
- C. Nitrogen isothiocyanate
- D. Potassium isothiocyanate

Ans. A

Sol. Methyl isocyanate CH_3NCO was released during Bhopal gas tragedy. It is a colorless, odorful highly flammable liquid that evaporates quickly when exposed to the air. Methyl isocyanate is used in the production of pesticides, polyurethane foam, and plastics.

17. What is an endothermic reaction?

- A. Reaction in which heat is released.
- B. Reaction in which heat is absorbed.
- C. Reaction in which neither heat is released nor absorbed.
- D. None of these

Ans. B

Sol.

- An endothermic reaction is one in which **heat is absorbed** from the surroundings resulting in fall of temperature.
- It occurs when the energy used to break the bonds in the reactants is greater than the energy given out when bonds are formed in the products.
- Example: melting ice cubes.

18. Which of the following is an ore of Aluminium?

- A. Galena
- B. Cryollite
- C. Cinnabar
- D. Epsom Salt

Ans. B

Sol. Cryollite is an ore of Aluminium. It helps in reducing the melting point of alumina and through process of electrolysis it helps in separation of Aluminum from oxygen in alumina.

19. What is an exothermic reaction?

- A. Reaction in which heat is released.
- B. Reaction in which heat is absorbed.
- C. Reaction in which neither heat is released nor absorbed.
- D. None of these



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Ans. A

Sol. An exothermic process is a chemical reaction in which heat is released, causing the temperature of the immediate surroundings to rise. Examples are combustion, evaporation.

20. What are the main components of Brass Alloy?

- A. Copper and Zinc
- B. Copper and Strontium
- C. Copper, Zinc and Nickel
- D. Copper and Nickel

Ans. A

Sol. Copper and zinc are the main components of Brass Alloy. It is a substitutional alloy with strength, ductility, wear-resistance, hardness, colour, antimicrobial, electrical and thermal conductivity, and corrosion resistance. It is used in musical instruments, wax statues.

21. What is the common name of Sodium Bicarbonate?

- A. Baking Soda
- B. Washing Powder
- C. Plaster of Paris
- D. Fly Ash

Ans. A

Sol. Baking Soda is the common name of Sodium Bicarbonate with its chemical formula NaHCO_3 . It is a crystalline white solid that is salty and alkaline. It is used for cooking purpose, pest control and as the fire extinguisher.

22. Which of the following is an ore of iron?

- A. Dolomite
- B. Epsom Salt
- C. Siderite
- D. Galena

Ans. C

Sol. Siderite is an ore of iron. It contains around 50% iron carbonate, followed by zinc and magnesium. It is lustrous and hard found in hydrothermal veins and sedimentary rocks at shallow depths.

23. Which of the following cannot be beaten into Sheets?

- A. Gold
- B. Silver
- C. Potassium
- D. Aluminum

Ans. C

Sol. Potassium cannot be beaten into sheets as it is highly reactive and non malleable. At the same time it is very soft as it can be cut even with a knife.

24. Which among the following is used to treat Indigestion?

- A. Antacid
- B. Antiseptic
- C. Analgesic
- D. Antibiotic

Ans. A

Sol. Antacid is used to treat Indigestion. Antacids are medicines that neutralize the acid in your stomach to relieve indigestion and heartburn. They are available as liquid or chewable tablets containing composition like aluminum, calcium and magnesium which act as bases to counteract the stomach acid and lower the pH.

25. Minamata disease is a nervous disorder caused by eating fish, polluted with _____.

- A. Iron
- B. Mercury
- C. Lead
- D. Nickel

Ans. B

Sol.

• Minamata disease is a nervous disorder caused by eating fish, polluted with Mercury.

• The disease has Symptoms like numbness in the hands and feet, general muscle weakness, loss of peripheral vision and damage to hearing and speech. It can be treated with surgical intervention.

26. What are the main components of Bronze Alloy?

- A. Copper and Zinc
- B. Copper and Tin
- C. Zinc and Nickel
- D. Aluminum and Nickel

Ans. B

Sol. The main components of Bronze alloy are copper and tin. In such combination copper is the main element accompanied by other metals like Tin and some cases even aluminum, manganese and so on. These combination gives out different



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ranges of Bronze which is often harder than copper alone.

27. Which of the following causes fly ash?

- A. Hydroelectric Power Station
- B. Coal Combustion Power Plant
- C. Nuclear Power Plant
- D. Tidal Power Plant

Ans. B

Sol. It's from the coal combustion power plant that Fly ash generally arises. Such ash comprises particulate matters (fine particles of fuel) and is driven out by gases arises during the burning of the fuel. Moreover ash that settles at the bottom of the boiler is called as bottom ash.

28. What is the process of conversion of solid state directly to gaseous state called?

- A. Evaporation
- B. Condensation
- C. Sublimation
- D. Distillation

Ans. C

Sol. The process of conversion of solid state directly to gaseous state is called as Sublimation. This is an endothermic process that occurs at temperature and pressure below a substance's triple point. Apart from this, conversion of solid to liquid is called as melting, whereas the conversion of liquid- to solid is called as freezing; and to gaseous form is called as evaporation.

29. Fog, clouds, mist are examples of ____.

- A. Aerosol
- B. Solid sol
- C. Foam
- D. Gel

Ans. A

Sol. Fog, clouds and mists are example of Aerosol. These are colloid of fine particles or liquid droplets in air or another gas. Apart from being natural, aerosol can be from anthropogenic sources too, for instance, haze, particulate matters and so on.

30. Which of the following is a chemical formula of quicklime?

- A. Ca_2O
- B. Ca_2O_3
- C. CaO_2
- D. CaO

Ans. D

Sol. The chemical formula of quicklime is CaO , which is also known as calcium oxide. This element is generally made up via the thermal decomposition of materials such as limestone or seashells.

31. Which of the following is also known as Carboic Acid?

- A. Phenol
- B. Hydroxide
- C. Sulphuric Acid
- D. Ethanol

Ans. A

Sol. Phenol is also known as carboic acid and is a corrosive poisonous crystalline acidic compound. It is obtained from coal tar and wood, and under dilute form is used as a disinfectant.

32. Who discovered electron?

- A. E. Goldstein
- B. J. J. Thomson
- C. Ernest Rutherford
- D. J. Chadwick

Ans. B

Sol. Electron was discovered by J.J. Thomson. He was an English physicist and a Nobel laureate who is credited with the discovery of first Sub atomic article. He did this discovery with the help of cathode rays.

33. Most liquids that conduct electricity are solutions of acids, bases and _____.

- A. Copper
- B. Aluminium
- C. Salts
- D. Iron

Ans. C

Sol. Liquids that conducts electricity are solutions of acid, bases and salts. They are able to do so because of the presence of ions which then acts as a charge carrier. Moreover, the general term for substances that when dissolved in water conducts electricity is electrolyte.

34. Which base is present in milk of magnesia?

- A. Magnesium hydroxide
- B. Ammonium hydroxide
- C. Sodium hydroxide
- D. Calcium hydroxide

Ans. A

Sol. It's the Magnesium hydroxide which is present in Milk of Magnesia. It is a laxative that is used to treat constipation, by drawing water into the intestines.



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Moreover it is also used as an antacid that works by lowering the amount of acid in the stomach.

35. What is the process of rust forming on iron called?

- A. Rusting B. Crystallisation
C. Shovel D. Spade

Ans. A

Sol. Rusting is the process of forming of rust on iron.

- Rust is basically an iron oxide, a usually red oxide formed by the redox reaction of iron and oxygen in the presence of water or air moisture.
- Rusting is a well known example of corrosion.

36. Which base is present in soap?

- A. Sodium hydroxide
B. Silicon dioxide
C. Calcium hydroxide
D. Ammonium hydroxide

Ans. A

Sol.

- It is Sodium hydroxide which is present in Soap.
- It is also known as Caustic soda and is an inorganic compound. Apart from Soap it is also used in the manufacture of pulp and paper, textiles, drinking water and detergents.

37. Any undesirable change in physical, chemical or biological characteristics of air, land, water or soil is called?

- A. Greenhouse effect
B. Solid wastes
C. Pollution
D. Deforestation

Ans. C

Sol. The word 'pollution' describes any undesirable change in physical, chemical or biological characteristics of air, land, water or soil. Such change is generally that of addition or introduction of substance which has harmful or poisonous effects. For ex- Emission of greenhouse gases are causing the increase in global temperature.

38. Which base is present in lime water?

- A. Sodium hydroxide
B. Magnesium hydroxide
C. Calcium hydroxide
D. Ammonium hydroxide

Ans. C

Sol. Calcium hydroxide base is present in lime water. Limewater is the common name for a diluted solution of calcium hydroxide. Calcium hydroxide, Ca(OH)_2 , is sparsely soluble in water (1.5 g/L at 25 °C[1]). Pure limewater is clear and colorless, with a slight earthy smell and an alkaline bitter taste of calcium hydroxide. The term lime refers to the alkaline mineral, and is unrelated to the acidic fruit.

39. Metals react with sodium hydroxide to produce _____.

- A. oxygen gas B. sodium
C. water D. hydrogen gas

Ans. D

Sol. Reaction of Base with Metals: When alkali (base) reacts with metal, it produces salt and hydrogen gas. Example: Sodium hydroxide gives hydrogen gas and sodium zincate when reacts with zinc metal. Sodium aluminate and hydrogen gas are formed when sodium hydroxide reacts with aluminium metal.

40. Magnesium + Oxygen =?

- A. Mg_2O B. MgO_4
C. O_2Mg D. MgO

Ans. D

Sol.

• **Magnesium oxide (MgO)**, or magnesia, is a white hygroscopic solid mineral that occurs naturally as periclase and is a source of magnesium (see also oxide).

• It has an empirical formula of MgO and consists of a lattice of Mg^{2+} ions and O^{2-} ions held together by ionic bonding.

41. What is the reaction between an acid and a base called?

- A. Desalination B. Crystallization
C. Neutralization D. Sublimation

Ans. C



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Sol.

- In chemistry, neutralization or neutralisation is a chemical reaction in which an acid and a base react quantitatively with each other.
- The pH of the neutralized solution depends on the acid strength of the reactants. Neutralization is used in many applications. $\text{acid} + \text{base(alkali)} \rightarrow \text{salt} + \text{water}$
- For example: $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$

42. Which one of the following is not a Major Abiotic Factors?

- A. Temperature B. Water
C. Light D. Air

Ans. D

Sol.

- An abiotic factor is a non-living component in the environment. This can be either a chemical or physical presence. Abiotic factors fall into three basic categories: **climatic, edaphic and social.**
- Climatic factors include humidity, sunlight and factors involving the climate.
- Edaphic refers to soil conditions, so edaphic abiotic factors include soil and geography of the land.
- Social factors include how the land is being used and water resources in the area. Five common abiotic factors are atmosphere, chemical elements, sunlight/temperature and water but wind & air is not a major Abiotic factor.

43. In an acid base reaction which product is produced along with a salt?

- A. Hydrogen gas B. Oxygen gas
C. Carbon dioxide D. Water

Ans. D

Sol. In chemistry, neutralization or neutralisation is a chemical reaction in which an acid and a base react quantitatively with each other. The pH of the neutralized solution depends on the acid strength of the reactants. Neutralization is used in many applications.

$\text{acid} + \text{base(alkali)} \rightarrow \text{salt} + \text{water}$
For example: $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$

So in an acid base reaction water is produced along with a salt.

44. What is the process of melting also called?

- A. Fusion B. Galvanisation
C. Crystallisation D. Evaporation

Ans. A

Sol.

- **Melting, or fusion,** is a physical process that results in the phase transition of a substance from a solid to a liquid.

- This occurs when the internal energy of the solid increases, typically by the application of heat or pressure, which increases the substance's temperature to the melting point.

- The opposite process, a liquid becoming a solid, is called **solidification.**

45. Who discovered Potassium?

- A. Humphry Davy B. Alan Turing
C. Bill Gates D. Tim Berners-Lee

Ans. A

Sol.

- Potassium was **first isolated by Sir Humphry Davy** in 1807 through the electrolysis of molten caustic potash (KOH).

- Pure potassium is a soft, waxy metal that can be easily cut with a knife. It reacts with oxygen to form potassium superoxide (KO₂) and with water to form potassium hydroxide (KOH), hydrogen gas and heat.

46. What is the name of the acid in grapes?

- A. Lactic acid B. Formic acid
C. Acetic acid D. Tartaric acid

Ans. D

Sol.

- Grapes are one of the rare fruits that contain **tartaric acid.**

- The principal organic acids found in grapes are tartaric, malic, and to a small extent, citric.

- Many other organic acids, including amino acids, are also found in juice and wines, but tartaric and malic acid account for over 90% of the total acids present.



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47. Which fibre is also called as artificial silk?

- A. Nylon B. Rayon
C. Polyester D. Acrylic

Ans. B

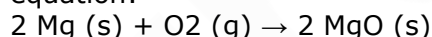
Sol. Rayon is a manufactured fiber made from regenerated cellulose fiber. The many types and grades of rayon can imitate the feel and texture of natural fibers such as silk, wool, cotton, and linen. The types that resemble silk are often called artificial silk. Rayon is made from purified cellulose, primarily from wood pulp, which is chemically converted into a soluble compound. It is then dissolved and forced through a spinneret to produce filaments which are chemically solidified, resulting in fibers of nearly pure cellulose.

48. What is formed when Magnesium is burnt?

- A. Baking Soda
B. Calcium Carbonate
C. Ash
D. Vinegar

Ans. C

Sol. When the magnesium metal burns it reacts with oxygen found in the air to form Magnesium Oxide or Ash. This compound is a material in which atoms of different elements are bonded to one another. Oxygen and magnesium combine in a chemical reaction to form this compound. Here is the balanced equation:



49. Fire extinguishers emit which gas?

- A. Carbon monoxide B. Chlorine
C. Carbon dioxide D. Nitrogen

Ans. C

Sol. Carbon Dioxide (CO₂) is the liquified gas most commonly found in fire extinguishers. CO₂ is especially useful for electrical fires, as it does not conduct electricity. CO₂ is also very effective at putting out oil / grease fires.

50. A change in which no new substances are formed is called _____.

- A. Physical Change B. Chemical Change
C. Rusting D. Galvanisation

Ans. A

Sol. A change in which no new substances are formed is called physical Change.

* **A physical change involves a change in physical properties.**

* Examples of physical properties includes melting, transition to a gas, textural change, shape, size, color, volume and density.

51. The property of metal by which it can be drawn into wires is called _____.

- A. malleability B. viscosity
C. ductility D. tensile strength

Ans. C

Sol.

• **Ductility** is a measure of a material's ability to undergo significant plastic deformation before rupture.

• It is characterized by the material's ability to be stretched into a wire.

52. The process of depositing a layer of zinc on iron is called _____.

- A. Galvanisation B. Crystallisation
C. Rusting D. Baking

Ans. A

Sol. Galvanization or galvanizing is the process of applying a protective zinc coating to steel or iron, to prevent rusting. The most common method is hot-dip galvanizing, in which the parts are submerged in a bath of molten zinc. Galvanizing protects the underlying iron or steel in the following main ways:

• The zinc coating, when intact, prevents corrosive substances from reaching the underlying steel or iron.

• The zinc serves as a sacrificial anode so that even if the coating is scratched, the exposed steel will still be protected by the remaining zinc.

• The zinc protects iron by corroding first. For better results, application of chromates over zinc is also seen as an industrial trend.



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53. _____ is the most ecologically relevant environment factor.

- A. Water
- B. Temperature
- C. Light
- D. Soil

Ans. B

Sol. Temperature is the most ecologically relevant environmental factor. You are aware that the average temperature on land varies seasonally, decreases progressively from the equator towards the poles and from plains to the mountain tops. It ranges from subzero levels in polar areas and high altitudes to >500C in tropical deserts in summer. Plants are also affected by temperature because increase in temperature leads to more transpiration through leaves and stems. Different metabolic processes requiring enzymes are also affected by varying temperature. Therefore we can conclude that temperature is ecologically relevant abiotic factor.

54. A change in which a substance undergoes a change in its physical properties is called _____.

- A. Chemical Properties
- B. Physical Properties
- C. Chemical Change
- D. Physical Change

Ans. D

Sol. A physical change involves a change in physical properties. Examples of physical properties include melting, transition to a gas, change of strength, change of durability, changes to crystal form, textural change, shape, size, color, volume and density. Physical changes occur when objects or substances undergo a change that does not change their chemical composition. This contrasts with the concept of chemical change in which the composition of a substance changes or one or more substances combine or break up to form new substances.

55. _____ is obtained by evaporation of sea.

- A. Sugar
- B. Iron
- C. Salt
- D. Steel

Ans. C

Sol. Salt is obtained by evaporation of sea. Sea water contains a large amount of common salt and the salts of other metals dissolved in it. Near the sea-shore, the sea water is collected in shallow pits and allowed to evaporate in sunshine. In a few days, the water evaporates, leaving behind salt.

56. The passage of an electric current through a conducting liquid causes_____.

- A. Galvanisation
- B. Evaporation
- C. Physical Reaction
- D. Chemical Reaction

Ans. D

Sol.

- Most liquids that conduct electricity are solutions of acids, bases and salts.
- The passage of an electric current through a conducting liquid causes **chemical reactions**.

57. Blue Vitriol is another name for which of the following?

- A. Copper Sulphate
- B. Oxygen
- C. Copper
- D. Magnesium Oxide

Ans. A

Sol. Copper Sulphate is the inorganic compound with the chemical formula $CuSO_{4x}$, where x can range from 0 to 5. It is also known as cupric sulfate or blue vitriol. Blue vitriol is older name of copper sulphate. The most commonly encountered salt, is bright blue.

58. The rubbing surface of a matchbox has powdered glass and a little red _____.

- A. antimony
- B. arsenic
- C. silicon
- D. phosphorus

Ans. D

Sol. When a matchstick rubbed on striking surface, the heat of the friction causes a reaction between the potassium chlorate in the match head and the red phosphorus in the striking surface. By this way, the sparks are formed and the friction caused by the glass powder rubbing together produces enough heat to turn a very small amount of the red phosphorus into white phosphorus, which catches fire in air.



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59. A few organisms can tolerate and thrive in a narrow range of temperatures. Such organisms are called _____.

A. Osmotic B. Eurythermal
C. Stenothermal D. Hydrothermal

Ans. C

Sol. A few organisms can tolerate and thrive in a narrow range of temperatures. Such organisms are called Stenothermal. It is a species or living organism only capable of living or surviving within a narrow temperature range. The example of stenothermal organism is Chionoecetes opilio.

60. Acetic Acid is another name for which of the following?

A. Vinegar
B. Baking Soda
C. Copper Sulphate
D. Magnesium Oxide

Ans. A

Sol. Acetic acid is another name of vinegar. It is a colourless liquid organic compound. Its formula is CH_3COOH . Sometimes, it is called glacial acetic acid. Its preferred IUPAC name is Acetic acid and its systematic IUPAC name is Ethanoic acid.

61. The reaction of Copper Sulphate and Iron produces Iron Sulphate and _____.

A. Vinegar B. Ash
C. Baking Soda D. Copper

Ans. D

Sol. The reaction of Copper Sulphate and Iron produces Iron Sulphate and Copper. $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{Cu(s)} + \text{FeSO}_4(\text{aq})$. There is a brown coating on the iron nail dipped in the copper sulphate solution. Whereas the iron nail placed in the Petri dish shows the grayish colour of iron. The colour of the solution of copper sulphate in which the iron nail was dipped changes to light greenish, whereas the colour of copper sulphate solution in the other test tube does not change.

62. _____ is a collection of data values of same types having a common name.

A. Object B. String
C. Array D. Numbers

Ans. C

Sol. Array is a type of data structure which holds consecutive collection of arrays. We use arrays when we have to deal with large number of items. It acts as a container. Array have two important terms: Element and index. Element: Each item which is stored in array.

Index: location of each element

63. A _____ thread is actually stronger than a steel wire.

A. wool B. cotton
C. jute D. nylon

Ans. D

Sol. Nylon is synthetic polymer which is thermoplastic silky material and can be turned into fibers, films or shapes. Nylon thread is actually stronger than a steel wire.

64. The process of depositing a layer of any desired metal on another material by means of electricity is called _____.

A. Electroplating B. Galvanisation
C. Rusting D. Crystallisation

Ans. A

Sol. Electroplating is the process of depositing a layer of any desired metal on another material by means of electricity. It is process of plating or coating of one metal to another by the use of electricity. It is also called as electrode position. The cathode and anode immersed in electrolyte and the direct current is supplied to anode which helps to oxidize the metal ions and helps to dissolve in solution. The dissolved metal ions are deposited on cathode and metal ions are reduced at the interface between the solution and the cathode.

65. The salt concentration (measured as salinity in parts per thousand), is _____ % in sea.

A. 10-20 B. 30-35
C. 40-50 D. 60-70

Ans. B



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Sol. The salt concentration (measured as salinity in parts per thousand), is 30-35 % in sea. Salinity is the measurement of salt present in the water. Salt with some amount of water is produced when acid and base react. Seawater pH is typically limited to a range between 7.5 and 8.4. The most saline sea in the world is red sea.

66. Crystallisation is an example of?

- A. Physical Change
- B. Chemical Change
- C. Chemical Reaction
- D. Galvanization

Ans. A

Sol. Crystallisation is an example of physical change. Crystallisation is a separation technique or purification method that is used to separate a solid that has dissolved in a liquid and made a solution allowing the solvent to evaporate, leaving the saturated solution.. The size of crystals depends on the rate of cooling. Fast cooling will result in a large number of small crystals. Slow cooling will result in a smaller number of large crystals.

67. Reaction between Vinegar and Baking Soda produces _____.

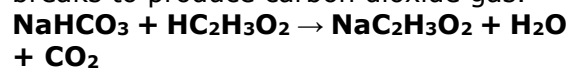
- A. Copper
- B. Carbon Dioxide
- C. Copper Sulphate
- D. Magnesium Oxide

Ans. B

Sol.

- Vinegar and Baking Soda reaction produce carbon dioxide.
- This is double displacement reaction in which acetic acid in vinegar reacts with sodium bicarbonate to form sodium acetate and carbonic acid.

- Carbonic acid is unstable which further breaks to produce carbon dioxide gas.



68. The property of metals by which they can be beaten into thin sheets is called _____.

- A. ductility
- B. malleability
- C. viscosity
- D. tensile strength

Ans. B

Sol.

- The property of metals by which they can be beaten into thin sheets is called malleability.
- Ductility is the property of metals by which they can be drawn into wires.
- Viscosity is a state of being thick, sticky, and semi-fluid in consistency, due to internal friction.

69. A change in which one or more new substances are formed is called _____.

- A. Physical Change
- B. Chemical Change
- C. Rusting
- D. Galvanisation

Ans. B

Sol. A change in which one or more new substances are formed is called chemical change. Chemical change is a process where two or more substances known as reactants react to form another substances known as products. Galvanisation is the process of coating the iron and steel with zinc to prevent the rusting. Rusting is the red colour coating on iron when exposed to air in the presence of moisture due to the formation of iron oxide layer.



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