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The word organic refers to the compounds which contain carbon atoms in it. So the branch of chemistry that deals with the study of compounds, which does not consist of carbon-hydrogen atoms in it, is called ‘Inorganic Chemistry.’ In simple words, it is opposite to that of Organic Chemistry. The substances which do not have carbon-hydrogen bonding are metals, salts, chemical substances, etc. On this planet, there are known to exist about 100,000 Inorganic compounds. Inorganic chemistry studies the behaviour of these compounds along with their properties, their physical and chemical characteristics too. The elements of the periodic table except for carbon and hydrogen, come in the lists of Inorganic compounds. Many of the elements are technologically important: titanium, iron, nickel and copper, for example, are used structurally and electrically. Second, the transition metals form several useful alloys, with each other and with other metallic elements. Recommended Videos on Inorganic chemistry Meaning of Chemistry Chemistry is the study of the substances of which matter is composed. Chemistry is heavily experimental because you can only study reductions if you totally mix substances together. Luckily, you don’t need to risk your health and safety to understand chemistry better because brave scientists already did. There are over a hundred elements that make up the matter of our world and universe. They combine to make thousands and thousands of compounds. A chemical compound is made up of atoms of different elements joined together by a chemical bond. The bonds are so strong that the compound acts as if it were a single substance. The joined atoms form molecules and the molecules connect together to make the compound. A chemical formula is a notation used by scientists to show the number and type of atoms present in a molecule using atomic symbols and numeric subscriptions. A chemical formula is a simple representation, in writing, of a three-dimensional molecule that exists. A chemical formula describes a substance, down to the exact atoms that make it up. There are three basic types of chemical formula, the empirical formula, the molecular formula and the structural formula. Chapters under Inorganic Chemistry (a) Organometallic Chemistry Organometallic Chemistry, an interdisciplinary science in Inorganic Chemistry, has grown at a phenomenal pace during the last three to four decades. On the academic plane, efforts to elucidate the nature of bonds in the ever increasing list of exciting organometallic compounds have led to a clearer understanding of the nature and variety of chemical bonds. Organometallic compounds are primarily used as homogeneous catalysis agents in industries. The topics covered in this book offer the readers new insights in the field of organometallic chemistry. Organometallic chemistry is an organometallic compound study. Because many compounds without these bonds are chemically identical, an alternative may be compounds containing metallic bonds of a mostly covalent nature. Organometallic chemistry blends elements of inorganic chemistry with organic chemistry. (b) Transition Elements A transition element may be defined as one which possesses partially filled d-orbitals in its penultimate shell. This conceptual definition is useful as it enables us to recognize a transition element merely by looking at its electronic configuration. This definition excludes zinc, cadmium and mercury from the transition elements as they do not have a partially filled d-orbital. However, they are also considered transition elements, because their properties are an extension of the properties of transition elements in inorganic chemistry. In fact, the zinc group serves as a bridge between the transition elements and the representative elements. The most notable characteristics shared by the 24 elements concerned are that they are all metals and that most of them are hard, solid and lustrous, have high melting and boiling points and are good conductors of heat and electricity. The range in these properties is considerable; hence, the statements are comparable to the general properties of all the other elements. (c) Coordination Chemistry Coordination compounds found their applications long before the establishment of inorganic chemistry. A systematic investigation of structure and bonding in coordination chemistry began with the inquisitiveness of Tassaert which was extended by distinguished chemists like Wilhelm Blomstrand, Jorgensen and Alfred Werner until the end of the nineteenth century. In the events, Werner’s coordination theory became the base of modern coordination chemistry. (d) P-Block Elements The elements placed in group 13 to group 18 of the periodic table constitute the p-block. The properties of inorganic chemistry p block elements like that of other block elements are greatly influenced by their atomic size, ionization enthalpy, electron gain enthalpy and electronegativity. The absence of d–orbitals in the second period and presence of d- or f-orbitals in heavier elements has a significant effect on the properties of the elements and therefore, heavier p-block elements differ from their lighter congeners. Classification of Inorganic Compounds The Inorganic compounds are classified as: Acids: Acids are those compounds that dissolve in water and generate hydrogen ions or H+ Ions. Examples of acids include Hydrochloric acid, citric acid, sulphuric acid, vinegar, etc. One example of the acidic reaction is shown below-Hydrochloric acid + water → H+ + Cl Bases: A base is a type of substance or a compound that produces hydroxyl ions when kept in water. The bases like potassium hydroxide, calcium hydroxide, ammonia, sodium hydroxide produce OH- ions when dissolved in water. Potassium Hydroxide + H2O → K+ + OH– Salts: As you might be familiar with the word ‘Salt’. The substances obtained as a result of the reaction between an acid and a base are called Salts. The table salt of sodium hydroxide is one of the typical examples of salts. Oxides: The compounds which consist of one oxygen atom called Oxides. Types of Reactions and Examples of Inorganic compounds There are about four types of chemical reactions in Inorganic chemistry namely combination, decomposition, single displacement and double displacement reactions. Combination Reactions: As it is in the name ‘Combination’, here two or more substances combine to form a product which is called a Combination reaction. For example: Barium + F2 → BaF2 Decomposition Reaction: It is a type of reaction where a single element splits up or decomposes into two products. For example: FeS → Fe + S Single Displacement Reactions: A reaction where a single atom of one element replaces another atom of one more element. For example: Zn (s) + CuSO4 (aq) → Cu (s) + ZnSO4 (aq) Double Displacement Reactions: This type of reaction is also called ‘metathesis reactions’. Here two elements of two different compounds displace each other to form two new compounds. For example:CaCl2 (aq) + 2AgNO3 (aq) → Ca(NO3)2 (aq) + 2 AgCl (s) Applications of Inorganic Chemistry Inorganic chemistry finds its high number of applications in various fields such as Biology, chemical, engineering, etc It is applied in the field of medicine and also in healthcare facilities. The most common application is the use of common salt or the compound Sodium hydroxide in our daily lives. Baking soda is used in the preparation of cakes and other foodstuffs. Many inorganic compounds are utilized in ceramic industries. In the electrical field, it is applied to the electric circuits as silicon in computers, etc. Organic chemistry is defined as the study of carbon-containing compounds, inorganic chemistry is the study of the remaining (i.e., not carbon-containing) subset of compounds. “Inorganic” chemistry historically meant the chemistry of “non-living” things; and these were non-carbon based molecules and ions. Catalysts, coatings, fuels, surfactants, fibres, superconductors, and drugs are researched and developed using inorganic chemistry. In inorganic chemistry important chemical reactions include double displacement reactions, acid-base reactions, and redox reactions. Inorganic chemistry is the study of the inorganic or organometallic compound synthesis, structure, and behaviour. Inorganic chemistry is used in almost every sector of the chemical industry, including catalysis, materials science, paints and pigments, surfactants, coatings, medicines, fuels, and plastics. Inorganic chemistry is the study of the production of chemical compounds that do not require a carbon-hydrogen bond, reactions, and properties. Inorganic compounds can be classified as oxides, acids, bases, salts and. Inorganic chemistry — the analysis of the synthesis, reactions, structures and properties of the compounds of the elements — comprises the chemistry of non-organic compounds and overlaps with organic chemistry in the field of organometallic chemistry, in which metals are bonded to carbon-containing ligands and molecules The following section looks at the four classes of life-critical inorganic compounds: water, salts, acids, and bases. Chemistry is an age-old science that human knowledge has grown significantly over the last 3,000 years. But it’s only in the last few centuries that scientists have made some of their greatest advances in the study of chemicals. In fact, it wasn’t until the 17th century that scientists recognized that there were two types of chemistry: organic and inorganic. Physical properties can be observed or measured without altering the composition of the matter. Physical properties are used for the observation and description of matter. Physical properties include: shape, texture, colour, smell, melting point, boiling point, density, solubility, polarity, and many others. Chemistry is a study of matter and the changes it undergoes, taking into account both macroscopic and microscopic details. The matter is anything that has mass and takes up space. Physical chemistry, organic chemistry, inorganic chemistry, analytical chemistry and biochemistry are the five main disciplines of chemistry. Store and/or access information on a device. Use limited data to select advertising. Create profiles for personalised advertising. Use profiles to select personalised advertising. Create profiles to personalise content. Use profiles to select personalised content. Measure advertising performance. Measure content performance. Understand audiences through statistics or combinations of data from different sources. Develop and improve services. Use limited data to select content. General chemistry is the study of matter, energy, and the interactions between the two. The main chemistry topics include acids and bases, atomic structure, the periodic table, chemical bonds, and chemical reactions. Anchalee Phanmaha / Getty Images Acids, bases, and pH are concepts that apply to aqueous solutions (solutions in water). pH refers to the hydrogen ion concentration, or the ability of a species to donate/accept protons or electrons. Acids and bases reflect the relative availability of hydrogen ions or proton/electron donors or acceptors. Acid-base reactions are extremely important in living cells and industrial processes. Hero Images / Getty Images Atoms are composed of protons, neutrons, and electrons. Protons and neutrons form the nucleus of each atom, with electrons moving around this core. The study of atomic structure involves understanding the composition of atoms, isotopes, and ions. Dragan Smiljkovic / Getty Images Electrochemistry is a chemistry topic that's primarily concerned with oxidation-reduction reactions or redox reactions. These reactions produce ions and may be harnessed to produce electrodes and batteries. Electrochemistry is used to predict whether a reaction will occur and in which direction electrons will flow. Chemistry is a science that relies on experimentation, which often involves taking measurements and performing calculations based on those measurements. It is important to be familiar with the units of measurement and the various ways of converting between different units. Thermochemistry is the general chemistry topic that relates to thermodynamics. It is sometimes called physical chemistry. Thermochemistry involves the concepts of entropy, enthalpy, Gibbs free energy, standard state conditions, and energy diagrams. It also includes the study of temperature, calorimetry, endothermic reactions, and exothermic reactions. SDI Productions / Getty Images Atoms and molecules join together through ionic and covalent bonding. Related chemistry topics include electronegativity, oxidation numbers, and Lewis electron dot structure. STEVE HORRELL / SPL / Getty Images The periodic table is a systematic way of organizing the chemical elements. The elements exhibit periodic properties that can be used to predict their characteristics, including the likelihood that they will form compounds and participate in chemical reactions. Witthaya Prasongsin / Getty Images It is important to learn how to balance chemical equations and how different factors affect the rate and yield of chemical reactions. An important part of general chemistry is learning about different types of solutions and mixtures and how to calculate concentrations. This category includes topics such as colloids, suspensions, and dilutions. This Class 11 Chemistry Index page contains all the topics that fall under each chapter of the class 11 chemistry syllabus as per the NCERT textbook. Students may follow the links on the subtopics to access free study material on the associated concepts (prepared by chemistry subject experts for CBSE students). Furthermore, an overview of all the chapters and topics in the CBSE class 11 chemistry textbooks can also prove useful while crafting a preparation strategy for the CBSE board examination and other competitive examinations. Class 11 Chemistry Chapters 1. Some Basic Concepts Of Chemistry 2. Structure Of Atom 3. Classification of Elements and Periodicity 4. Chemical Bonding And Molecular Structure 5. States Of Matter 6. Thermodynamics 7. Equilibrium 8. Redox Reactions 9. Hydrogen 10. The s -Block Elements Preparation and Properties of Some Important Compounds: 11. The p -Block Elements Some important compounds: Important compounds of Silicon and a few uses Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses 12. Organic Chemistry- Some Basic Principles And Techniques 13. Hydrocarbons Classification of Hydrocarbons Aliphatic Hydrocarbons: Alkanes – Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes – Nomenclature, Structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov’s addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes – Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of – hydrogen, halogens, hydrogen halides and water. Aromatic Hydrocarbons: 14. Environmental Chemistry Environmental pollution – air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming – pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environmental pollution. The complete list of chapters and subtopics of the Class 11 NCERT textbook has been provided above. This page can help provide context and structure for learning the fundamental principles covered under the Class 11 CBSE chemistry syllabus, thereby empowering the students to develop from simple to relatively complex concepts in a systematic manner. The list of chapters and subtopics given above has been prepared in accordance with the current CBSE syllabus for class 11 chemistry. The content provided in the respective sub-topics has been designed by our expert chemistry professors for the benefit of all students. Click the links listed under each chapter to read more about all Class 11 topics in depth. Chemistry is the science that tries to understand the properties of substances and the changes that substances undergo. Class 11 Chemistry concepts deal with the understanding of basic constituents of matter, atoms and molecules. Students must study these principles in detail in order to improve their expertise in the subject and to establish a strong foundation. Stay tuned to BYJU ‘S to master a range of fascinating topics in Physics, Chemistry, Biology and mathematics with the aid of entertaining and engaging video lessons. Put your understanding of this concept to test by answering a few MCQs. Click ‘Start Quiz’ to begin! Select the correct answer and click on the “Finish” buttonCheck your score and answers at the end of the quiz Visit BYJU’S for all Chemistry related queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 are Unattempted View Quiz Answers and Analysis “The weighted average of the masses of an element’s isotopes in comparison to the mass of a carbon-12 atom is known as relative atomic mass (RAM or Ar).” The ratio of the average mass of atoms of a chemical element in a given sample to the atomic mass constant is defined as relative atomic mass (Ar) or atomic weight. The atomic mass constant (symbol: mu) is one-twelfth of the mass of a carbon-12 atom. Since the ratio’s two quantities are masses, the resulting value is dimensionless; thus, the value is said to be relative. Table of Contents Calculating Relative Atomic Mass In order to perform accurate chemical calculations, relative atomic mass must be used rather than an individual mass number. As a result, relative atomic mass takes into account all of the naturally occurring stable isotopes of an element. The average mass is the relative atomic mass, which can be easily calculated from the percentage composition (% abundance). An element’s relative atomic mass, Ar, is calculated as follows: The mass numbers of its isotopes The abundance of these isotopes The formula that can be used to calculate the relative atomic mass: \(\begin{array}{l}A_{r} = \frac{sum\ of\ isotope\ mass\ times\ total\ isotope\ abundance}{100}\end{array} \) Question. Based on the \(\begin{array}{l}_{17}^{35}\textrm{Cl}\ and\ _{17}^{37}\textrm{Cl}\end{array} \) isotopes, Calculate the relative atomic mass of chlorine. Solution – Chlorine is made up of two isotopes, 75 % chlorine – 35 and 25 %chlorine – 37. The average mass is calculated as- \(\begin{array}{l}A_{r} = \frac{sum\ of\ isotope\ mass\ times\ total\ isotope\ abundance}{100}\end{array} \) \(\begin{array}{l}A_{r} = \frac{\left (75\times 35 \right)+\left (25\times 37 \right)}{100}= 35.5\end{array} \) As a result, the relative atomic mass of chlorine is 35.5, also known as RAM or Ar(Cl) = 35.5. Question. Based on the \(\begin{array}{l}_{35}^{79}\textrm{Br}\ and\ _{35}^{81}\textrm{Br}\end{array} \), calculate the relative atomic mass of bromine. Solution. Bromine is made up of two isotopes, 50 % 79Br and 50 % 81Br. The average mass / relative atomic mass is calculated as- \(\begin{array}{l}A_{r} = \frac{sum\ of\ isotope\ mass\ times\ total\ isotope\ abundance}{100}\end{array} \) \(\begin{array}{l}A_{r} = \frac{\left (50\times 79 \right)+\left (50\times 81 \right)}{100}= 80\end{array} \) As a result, the relative atomic mass of bromine is 80. Relative Molecular Mass The relative molecular mass is the weighted average of a molecule’s mass relative to one-twelfth of the mass of a carbon-12 atom (Mr or RMM). To calculate the relative mass of a molecule, simply add the relative masses of its constituent elements. This is simple if the relative atomic masses of the elements involved are known. For example – For H2SO4, elements are hydrogen (H), sulphur (S with relative mass =32), and oxygen (O). H2SO4 relative molecular mass = [(number of H atoms relative mass of H) + (number of S atoms relative mass of S) + (number of O atoms relative mass of O)] ÷ 100 = [(2 × 1) + (1 × 32) + (4 × 16)] ÷ 100 = (2 + 32 + 64) ÷ 100 = 98 Relative atomic mass is unitless because it is simply the relationship between the mass of any atom and the mass of the C – 12 atom. As a result, this is merely a method of comparing and relating the atomic mass; it lacks a unit. The main difference between relative atomic mass and atomic mass is that relative atomic mass is the ratio of an element’s average atomic mass to one-twelfth of the mass of carbon-12, whereas atomic mass is the total mass of nucleons present in an atom’s nucleus. The atomic weight in relation to 1/12 the mass of one carbon atom is referred to as relative atomic mass. Because it is a comparison of atomic weight with 1/12 the mass of a carbon atom, it is referred to as relative atomic mass. A relative atomic mass (also known as atomic weight; symbol: Ar) indicates how many times an average atom of an element in a given sample is heavier than one-twelfth of an atom of carbon-12. The formula that can be used to calculate the relative atomic mass: Portra Images / Getty Images Chemistry is a logical science that you can teach yourself if you learn some key concepts. You can study these concepts in any order, but it's best to start with the basics since many concepts build on each other. For example, you'll want to begin learning about units, conversion, and how atoms and molecules interact. Then you can progress to studying more complex chemistry concepts. Below are some chemistry basics that you'll want to master before you dive more into the science. While it's completely possible to learn chemistry online, supplementing your textbook study with lab experience is always more fruitful—so find yourself a good chemistry kit and get started! It's possible to learn the basic concepts of chemistry online.Chemistry concepts should be studied in a logical order because concepts build upon each other. Jumping into the middle of the science can lead to confusion.While it's fine to learn chemistry principles online, be aware that the lab component is an important part of the science. It's a good idea to supplement textbook learning with experiments using a chemistry kit. Introduction to Chemistry: Learn about what chemistry is, what chemists do, and why you would want to study this science. Units & Measurements: Get a handle on the metric system and the common units used in chemistry. The Scientific Method: Scientists, including chemists, are systematic about the way they study the world. Find out how to use the scientific method to collect data and design experiments. The Elements: Elements are basic building blocks of matter. Learn what an element is and get facts for them. The Periodic Table: The periodic table is a way elements can be organized based on their similar properties. Find out what that table is, how it was designed, and how you can use it to make your study of chemistry much easier. Atoms and Ions: Atoms are single units of an element. Ions can be made up of one or more types of elements and carry an electrical charge. Learn about the parts of an atom and how to identify the different types of ions. Molecules, Compounds, & Moles: Atoms can be joined together to make molecules and compounds. A mole is a useful way of measuring an amount of atoms or larger components of matter. Define these terms and learn how to perform calculations to express quantities. Chemical Formulas: Atoms and ions don't bond together randomly. Find out how to predict how many of one type of atom or ion will combine with others. Learn to name compounds. Chemical Reactions & Equations: Just as atoms and ions combine in very specific ways, molecules and compounds react with each other in definite quantities. Learn how to tell whether or not a reaction can occur and what the products of a reaction will be. Write balanced chemical equations to describe reactions. Chemical Bonds: The atoms in a molecule or compound are attracted and repelled with respect to each other in ways that determine the types of bonds they can form. Thermochemistry: Chemistry is the study of both matter and energy. Once you learn to balance the atoms and charge in a chemical reaction, you can examine the energy of the reaction as well. Electronic Structure: Electrons are found in regions around the nucleus of an atom. Learning about the structure of the electron shell or electron cloud is important for understanding how atoms and ions will form bonds. Molecular Structure: Once you understand the types of bonds that can be formed between components in a substance, you can begin to predict and understand how molecules are formed and the shapes they take. Valence shell electron pair repulsion (VSEPR) theory helps chemists understand molecular structure. Liquids & Gases: Liquids and gases are phases of matter with properties distinctly different from the solid form. Collectively, liquids and gases are termed fluids. The study of fluids and how they interact is important for understanding the properties of matter and predicting the ways in which that matter can react. Rates of Reaction: Several factors affect how quickly and completely a reaction proceeds. Learn about these factors and how to calculate the speed at which a reaction can occur. Acids & Bases: There are several ways to define acids and bases. One way is to look at hydrogen ion concentration. No matter which method you choose, these categories of chemicals participate in some very important reactions. Learn about acids, bases, and pH. Oxidation & Reduction: Oxidation and reduction reactions go hand in hand, which is why they are also called redox reactions. Acids and bases may be thought of as reactions involving hydrogen or protons, while redox reactions tend to be concerned with electron gain and loss. Nuclear Reactions: Most chemical reactions involve exchanges of electrons or atoms. Nuclear reactions are concerned with what happens inside the nucleus of an atom. This includes radioactive decay, fission, and fusion. Chemistry is the study of matter and energy, focusing on substances and their reactions.Chemists can work in labs, do fieldwork, or develop theories and models on computers.Many fields, including medicine and engineering, use chemistry to understand the world better. Chemistry is the study of matter and energy and the interactions between them. This is also the definition for physics, by the way. Chemistry and physics are specializations of physical science. Chemistry tends to focus on the properties of substances and the interactions between different types of matter, particularly reactions that involve electrons. Physics tends to focus more on the nuclear part of the atom, as well as the subatomic realm. Really, they are two sides of the same coin. The formal definition of chemistry is probably what you want to use if you're asked this question on a test. You may also need to practice basic chemistry concepts with a quiz. Because understanding chemistry helps you to understand the world around you. Cooking is chemistry. Everything you can touch or taste or smell is a chemical. When you study chemistry, you come to understand a bit about how things work. Chemistry isn't secret knowledge, useless to anyone but a scientist. It's the explanation for everyday things, like why laundry detergent works better in hot water or how baking soda works or why not all pain relievers work equally well on a headache. If you know some chemistry, you can make educated choices about everyday products that you use. You could use chemistry in most fields, but it's commonly seen in the sciences and in medicine. Chemists, physicists, biologists, and engineers study chemistry. Doctors, nurses, dentists, pharmacists, physical therapists, and veterinarians all take chemistry courses. Science teachers study chemistry. Fire fighters and people who make fireworks learn about chemistry. So do truck drivers, plumbers, artists, hairdressers, chefs... the list is extensive. Whatever they want. Some chemists work in a lab, in a research environment, asking questions and testing hypotheses with experiments. Other chemists may work on a computer developing theories or models or predicting reactions. Some chemists do field work. Others contribute advice on chemistry for projects. Some chemists write. Some chemists teach. The career options are extensive. There are several sources for help. A good starting point is the Science Fair Index on this website. Another excellent resource is your local library. Also, do a search for a topic that interests you using a search engine, such as Google. Start with the Chemistry 101 Topic Index or list of Questions Chemistry Students Ask. Check out your local library. Ask people about the chemistry involved in their jobs. Man has been exposed to changing surroundings ever since he came into existence. He has been quite interested in learning about his surroundings and studying and explaining the things that are happening around him. He has conducted experiments and observations to gather information as a result of his interest. Through the decades, it has also been in charge of many people’s research endeavours around the globe. Systematizing and organising the knowledge acquired in this way was absolutely necessary for the good of humanity. Science is the name given to this knowledge. So, systematised knowledge that humans have acquired through observations and experimentation may be referred to as science. Due to its vast expansion and variety of subjects, science has been further divided into many branches. One of the most significant fields of science is chemistry. Chemistry can be summed up as the area of science that studies matter, including its properties, composition, and the changes that occur to it as a result of various activities. Several branches of chemistry have been created based on the specialised disciplines of research. Table of Content IntroductionBranches of ChemistryExamples in Daily LifeFree Study MaterialCBSE Chemistry ResourcesFAQs What is Chemistry? Chemistry is a subdiscipline of science that deals with the study of matter and the substances that constitute it. It also deals with the properties of these substances and the reactions undergone by them to form new substances. Chemistry primarily focuses on atoms, ions, and molecules which, in turn, make up elements and compounds. These chemical species tend to interact with each other through chemical bonds. It is important to note that the interactions between matter and energy are also studied in the field of chemistry. The study of elements and compounds’ properties, compositions, and structures, as well as how they can change and the energy that is released or absorbed during such changes, is the subject matter of the science known as chemistry. Learn more on Interactive Periodic Table ‘Science’ can be defined as the systematic study of the natural universe, its structure, and everything it encompasses. Due to the immensity of the natural universe, science has been divided into several disciplines that deal with certain aspects of the universe. The three primary subcategories of science under which these disciplines can be grouped are: The Formal Sciences: Involves the study of the language disciplines that concern formal systems. Examples of scientific disciplines that fall under this category include logic and mathematics. Can be thought of as the “language of science”. The Natural Sciences: Involves the study of natural phenomena through experiments and observations. Chemistry, physics, and biology fall under this category of science. The Social Sciences: Involves the study of human societies and the relationships between the humans that dwell in these societies. Examples of scientific disciplines that fall under this category include psychology, sociology, and economics. When the relationships between the major branches of science are considered, chemistry is found to lie close to the centre (as illustrated below). Thus, chemistry can be viewed as a central science whose roots bore into several other subdisciplines of science. Branches of Chemistry The five primary branches of chemistry are physical chemistry, organic chemistry, inorganic chemistry, analytical chemistry, and biochemistry. Follow the buttons provided below to learn more about each individual branch. Organic Chemistry Inorganic Chemistry Physical Chemistry Biochemistry Analytical Chemistry Chemistry Reactions Apart from these primary branches, there exist several specialized fields of chemistry that deal with cross-disciplinary matters. Some such examples include medicinal chemistry, neurochemistry, materials chemistry, nuclear chemistry, environmental chemistry, polymer chemistry, and thermochemistry. Examples of Chemistry in Our Daily Lives Chemical reactions are constantly taking place around us. The human body facilitates thousands of chemical reactions every day. From the digestion of food to the movement of muscles – all bodily actions involve chemical reactions. A few other examples of chemistry in the day-to-day lives of humans are listed below. The process of photosynthesis that enables plants to convert water, sunlight, and carbon dioxide into glucose and oxygen is a chemical reaction. This process is the foundation upon which the entire food chain is built. Soaps and detergents used for hygiene work use a chemical process known as emulsification. Furthermore, they are produced using a chemical process known as saponification. Even the sunscreen used by humans to protect themselves from the harmful UV-A and UV-B radiation of the sun is based on chemistry. These lotions and creams consist of a combination of inorganic and organic compounds that either filter or block the incoming ultraviolet radiation. Follow the link to learn more about the importance of chemistry in everyday life. Free Chemistry Study Material The BYJU’S chemistry section hosts over 1500 chemistry articles for students to use as free study resources. Links to each of these articles have been sorted under their parent concepts and can be found in the collapsible tables provided below. Chemistry Resources for CBSE Students The periodic table of chemical elements, often called the periodic table, organizes all discovered chemical elements in rows (called periods) and columns (called groups) according to increasing atomic number. In 1869, Russian chemist Dmitri Mendeleev created the framework that became the modern periodic table, leaving gaps for elements that were yet to be discovered. “Sulphuric acid” is called the king of acids and “Nitric acid” is called the Queen of acids. Boyle’s Law tells us that the volume of gas increases as the pressure decreases. Charles’ Law tells us that the volume of gas increases as the temperature increases. And Avogadro’s Law tell us that the volume of gas increases as the amount of gas increases. “Sulphuric acid” is called the king of acids and “Nitric acid” is called the Queen of acids. There are changes all around us like sugar dissolves in water, the lake freezes in winter etc. Some changes are what scientists call chemical changes and some are not. A chemical change takes place when new substances are made that are different from the substances that we started with. Yes Cooking eggs, for instance, is an example of a chemical change; the egg white and egg yolk change from liquid to solid. The heat makes the proteins in the egg hardens. Aqua Regia is the King’s Water, this is because it is strong enough to dissolve gold – the king of metals. It is prepared by mixing three parts of hydrochloric acid with one part nitric acid but in olden days it is prepared to mix and distill salts. For example, we can mix two parts niter with one part Sal. Ammoniac and distill at a high temperature to form Aqua Regia. “Sulphuric acid” is called the king of acids and “Nitric acid” is called the Queen of acids. Chemistry is the science that studies atoms and molecules along with their properties. All matter is composed of atoms and molecules. There are 5 main branches of chemistry are Organic chemistry Inorganic chemistry Physical chemistry Biochemistry Analytical chemistry Organic chemistry is simply the study of carbon compounds. Organic chemistry is important because it is life studies and all life-related chemical reactions. Organic chemistry initially involves the study of compounds that could be obtained from living organisms. Approximately 7 million different organic compounds are known present while there are only 1.5 million known inorganic compounds. This large number of organic compounds arise from the unique property of carbon. Blue vitriol is also known as blue copperas. The word blue vitriol has a strict and definite meaning. It means sulphate of copper with the chemical formula CuSO4.5H2O. The chemical name for blue vitriol is Copper (II) Sulphate Pentahydrate. This salt occurs in the form of rhomboidal prisms of a deep blue colour, having an exceedingly harsh and styptic taste. Similarly, “Green Vitriol” refers to Ferrous Sulphate. Put your understanding of this concept to test by answering a few MCQs. Click ‘Start Quiz’ to begin! Select the correct answer and click on the “Finish” buttonCheck your score and answers at the end of the quiz Visit BYJU’S for all Chemistry related queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 are Unattempted View Quiz Answers and Analysis Titration is used in analytical chemistry to determine acids, bases, reductants, oxidants and other species. Titrations can usually occur in reactions such as redox reactions and acid-base reactions. During the process, two important stages known as endpoint and equivalence point are reached. A point of equivalence in a titration refers to a point at which the added titrant is chemically equivalent to the sample analyte. On the other side, endpoint is a point where the solution changes colour. The main difference between equivalence and endpoint is that the equivalence point is a point where the chemical reaction comes to an end, while the endpoint is the point where the colour change occurs in a system. Endpoint vs Equivalence Point Endpoint Equivalence Point Point where the indicator changes colour. The point at which the titrant is chemically equivalent to the analyte in the sample. Comes after the equivalence point. Comes before the endpoint. Weak acids can have only one endpoint. Weak acids can have multiple equivalence points. Although the endpoint is normally regarded as the equivalence point, they are not the same. But since there is only a slight difference between an equivalent point and an endpoint, it can be considered the same for laboratory purposes. The main difference between an equivalence point and an endpoint is that the former marks the end of the reaction, whereas the latter is a point where the indicator changes colour. The endpoint is the point where the colour change occurs in a system. It depicts the completion of titration. A point of equivalence in a titration refers to a point at which the added titrant is chemically equivalent to the sample analyte. The main difference between equivalence and endpoint is that the equivalence point is a point where the chemical reaction comes to an end, while the endpoint is the point where the colour change occurs in a system. Titration is an analytical method primarily used in determining the concentration of an unknown sample. Phenolphthalein is a commonly used indicator in acid-base titration. Also Read:- Put your understanding of this concept to test by answering a few MCQs. Click ‘Start Quiz’ to begin! Select the correct answer and click on the “Finish” buttonCheck your score and answers at the end of the quiz Visit BYJU’S for all Chemistry related queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 are Unattempted View Quiz Answers and Analysis The periodic table of elements is widely used in the field of Chemistry to look up chemical elements as they are arranged in a manner that displays periodic trends in the chemical properties of the elements. However, the Periodic table generally displays only the symbol of the element and not its entire name. Most of the symbols are similar to the name of the element but some symbols of elements have Latin roots. An example for this is silver which is denoted by Ag from its Latin name “Argentum”. Another such example would be the symbol ‘Fe’ which is used to denote Iron and can be traced to the Latin word for iron, “Ferrum”. It could prove difficult for a beginner in chemistry to learn the names of all the elements in the periodic table because these symbols do not always correspond to the English names of the elements. Practise more on Interactive Periodic Table A list of 118 elements and their symbols and atomic numbers is provided below: 118 Elements and Their Symbols and Atomic Numbers Recommended Videos Periodic Table in 60 seconds The list of 118 Elements and their symbols and atomic numbers will prove useful to beginners in chemistry. To learn more about how elements are classified in the periodic table, visit BYJU’S. Related Topics Also, check ⇒ Chemistry Concept Questions and Answers The atomic number of an atom is equivalent to the total number of electrons present in a neutral atom or the total number of protons present in the nucleus of an atom.An element is a substance that can not be decomposed into simpler substances by ordinary chemical processes. It is the fundamental unit of the matter.There is a total of 118 elements present in the modern periodic table.A chemical symbol is a notation of one or two letters denoting a chemical element. Example: The symbol of chlorine is Cl.The first letter is always capitalised for writing the chemical symbol of an element, while the second letter is small.Chemical symbols play a crucial role in easing the writing. It is universal, i.e. identical throughout the world.The chemical symbol of sodium metal is Na.Helium is the smallest atom with a radius of 31 pm, while the caesium is the largest atom with a radius of 298 pm.Yes, there is an isotope of the hydrogen atom, protium, which has no neutron.The chemical symbol of gold metal is Au. Put your understanding of this concept to test by answering a few MCQs. Click ‘Start Quiz’ to begin! Select the correct answer and click on the “Finish” buttonCheck your score and answers at the end of the quiz Visit BYJU’S for all Chemistry related queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 are Unattempted View Quiz Answers and Analysis