Atomic structure notes pdf class 11

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The first section outlines some key tools and criteria that need to be taken into account when designing organizational structures. The second section describes some of the archetypal forms of organizational structure and their strengths and weaknesses. Finally, some emerging trends in the structure of organizations are discussed in the last section of this note, supplemented by a summary of the timeline on the evolution of organizational structure in theory and practice. Related topics: Newsletter Promo Summary and excerpts from recent books, special offers, and more from the Harvard Business Press Review. 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Request free assistance: All fields required by the atom are the main unit of matter, which consists of a dense central nucleus surrounded by a cloud of negatively charged electrons. its from Wikipedia you can just Google it atoms are the main units of matter and the defining structure of the elements. The term atom comes from the Greek word indivisible, because it was once thought that atoms are the smallest things in the universe and cannot be separated. We now know that atoms are made up of three particles: protons, neutrons, and electrons, which are made up of even smaller particles such as quarks. The atoms were created after the Big Bang 13.7 billion years ago. As the hot, dense new universe cools, the conditions become suitable for the formation of quarks and electrons. The quarks combined to form protons and neutrons, and these particles merged into nuclei. All this happened within the first few minutes of the universe's existence, according to CERN. It took 380,000 years for the universe to cool down enough to slow down the electrons so that the nuclei could capture them to form the first atoms. The earliest atoms were primarily hydrogen and helium, which are still the most common elements in the universe, according to the Jefferson Lab. Gravity eventually caused clouds of gas to merge and form stars, and heavy atoms were (and still are) created in the stars and sent across the universe when the star exploded (supernova). Atomic particlesProtons and neutrons are heavier than electrons and are found in the nucleus in the center of the atom. Electrons light and exist in a cloud orbiting the nucleus. The electronic cloud has a radius of 10,000 times Protons and neutrons have roughly the same mass, according to the Los Alamos National Laboratory. However, one proton is about 1,835 times more massive than an electron. Atoms always have an equal number of protons and electrons, and the number of protons and neutrons is usually the same as well. Adding a proton to an atom makes a new element, while the addition of a neutron makes an isotope, or heavier version, of this atom. NucleusThe nucleus was discovered in 1911 by Ernest Rutherford, a physicist from New York. In 1920, Rutherford proposed the name of a proton for positively charged particles of the atom. He also noted that there was a neutral particle in the nucleus, which James Chadwick, a British physicist and Rutherford student, was able to confirm in 1932.Virtually the entire mass of the atom is in its nucleus, according to the chemistry of LibreTexts. Protons and neutrons that make up the nucleus are roughly the same mass (proton is slightly smaller) and have the same angular pulse, or spin. The nucleus was held together by a strong force, one of the four main forces in nature. This force between protons and neutrons overcomes repulsive electrical force that would otherwise push the protons apart, according to the rules of electricity. Some atomic nuclei are unstable because the binding force varies for different atoms depending on the size of the nucleus. These atoms then break down into other elements such as carbon-14 breaks down into nitrogen-14. Here's a simple drawing of the structure of the atom. (Image credit: Shutterstock) ProtonsProtons are positively charged particles found in atomic nuclei. Rutherford discovered them in cathode tube experiments conducted between 1911 and 1919. Protons are about 99.86% more massive than neutrons. The number of protons in an atom is unique to each element. For example, carbon atoms have six protons, hydrogen atoms have one, and oxygen atoms have eight. The number of protons in an atom is called the atomic number of this element. The number of protons also determines the chemical behavior of the element. The elements are located in the periodic table of elements in order to increase the atomic number. Three quarks make up each proton - two up quarks (each with two-thirds of a positive charge) and one down quark (with one-third negative charge) - and they are held together by other subatomic particles called gluons, which are massive. Electrons are tiny compared to protons and neutrons, more than 1,800 times smaller than a proton or neutron. Electrons are about 0.054% larger than neutrons, according to jeffersonian Joseph John (JJ) Thomson, a British physicist who discovered the electron in 1897, according to the Institute for The History of Science. Originally known as corpuscles, electrons have a negative charge and electrically attracts positively charged protons. Electrons surround the atomic nucleus in paths called orbits, an idea that was put forward by Erwin Schroedinger, an Austrian physicist, in the 1920s. Today, this model is known as a quantum model or model of an electronic cloud. The internal orbits surrounding the atom are spherical, but the outer orbits are much more complex. The configuration of an electron refers to the arrangement of electrons in a typical atom. Using electron configuration and physics principles, chemists can predict the properties of an atom such as stability, boiling point and conductivity, according to the Los Alamos National Laboratory.Neutron existence was predicted by Rutherford in 1920 and discovered by Chadwick in 1932, according to the American Physical Society. Neutrons were found during experiments when atoms were shot on a thin sheet of beryllium. Subatomic particles without charge have been released - a neutron. Neutrons are uncharged particles found in all atomic nuclei (except hydrogen). The mass of the neutron is slightly larger than the mass of a proton. Like protons, neutrons are also made of quarks - one up quark (with a positive charge of 2/3) and two down quarks (each with a negative charge of one third). The history of the atom Io the theory of the atom dates back at least in 440 BC to Democrit, a Greek scientist and philosopher. According to Andrew G. Van Melsen, author of From Atomos to Atom: The History of the Conceptual Atom (Duquesne University Press, 1952), Democritus likely built his theory of atoms on the work of past philosophers. The demarctic explanation of the atom begins with a stone. The stone, cut in half, gives two halves of the same stone. If the stone is permanently cut, at some point there will be a piece of stone small enough that it can no longer be cut. The term atom comes from the Greek word indivisible, which Democritus has come to the conclusion must be the point at which the being (any form of matter) cannot be separated anymore. His explanation included the idea that atoms exist separately from each other, that there are an infinite number of atoms, that atoms are able to move, that they can unite to create matter, but do not merge to become a new atom, and that they cannot be separated, according to the universe today. However, since most philosophers at the time - especially the very influential Aristotle - believed that all matter was created from the earth, air, fire and water, democrit's atomic theory was put aside. John Dalton, a British chemist, built on democrit ideas in 1803 when he advanced his own atomic theory, according to purdue University's chemical department. Dalton's theory included several ideas from Democritus, such as atoms indivisible and indestructible, and that different atoms are formed together to It's all the same. Dalton's additions to the theory included the following ideas: that all atoms of a particular element are identical, that the atoms of one element will have different weights and properties than the atoms of another element, that atoms cannot be created or destroyed, and that matter is formed by atoms uniting in simple whole numbers. Thomson, a British physicist who discovered the electron in 1897, has proven that atoms can be separated, according to the Chemical Heritage Foundation. He was able to determine the existence of electrons by studying the properties of electrical discharge in cathode beam tubes. According to Thomson's 1897 document, the beams were deflected inside the tube, which proved that there was something in the vacuum tube that was negatively charged. In 1899, Thomson published a description of his version of the atom, commonly known as the plum pudding model. An excerpt from this work is available on the Chem Team website. Thomson's model of the atom included a large number of electrons suspended in something that produced a positive charge, giving the atom a total neutral charge. His model resembled plum pudding, a popular British dessert that had raisins suspended in a round cake like a ball. The next scientist to further modify and promote the atomic model was Rutherford, who studied under Thomson, according to the Purdue University Chemistry Department. In 1911, Rutherford published his version of the atom, which included a positively charged nucleus orbiting electrons. This model originated when Rutherford and his assistants released alpha particles on thin sheets of gold. The alpha particle consists of two protons and two neutrons, all held together by the same strong nuclear force that binds the nucleus, according to Jefferson's lab. Scientists noticed that a small percentage of alpha particles were scattered at very large angles to the original direction of motion, while most passed straight through barely disturbed. Rutherford was able to approximate the size of the nucleus of the gold atom by discovering that it was at least 10,000 times smaller than the size of the entire atom, with most of the atom empty. The Rutherford atom model is still the main model used today. Several other scientists have promoted the atomic model, including Nils Bohr (built on the Rutherford model to incorporate the properties of electrons based on the hydrogen spectrum), Erwin Schroedinger (developed a quantum model of the atom), Werner Heisenberg (stated that no one can know how the position and speed of the electron simultaneously), and Murray Gell-Mann and George Tsweig (independently developed theories that the protons were). Additional resources: This article was updated september 10, 2019 by Live Science author Tracy Pedersen. 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