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Chemistry class 11 chapter 6 notes

Coolgyan revision notes for class 11 chemistry are the best for each CBSE student to understand while preparing for the examinations of the Board of Directors. These notes are well designed according to the curriculum with our experts subject to experienced. Our REVISION NOTES OF CHEMISTRY CLASS 11 For Chapter 6 Thermodynamics covers all the key issues, the methodologies, the facts and figures that will help students remember what was taught in class and will increase their trust. New Year namethermodynamicschapterchapter 6classclass 11subjecticschimistryCoardBoardCbsetExtbookCowmistryCategoryRovision NoteScy Notes For thermodynamics of Chapter 6 Ã ¢ â ¬ Â ¢ of important terms and definitions System: "It refers to the portion of the universe which is under observation. Surroundings: everything else except the universe system is called the surroundings. the universe = a + system surroundings. open system: it's in a system when there is an exchange of energy and matter that take place with the surroundings, so it is called an open system. for example: the presence of reactants in an open beaker is an example of an open system. closed system: it is said that a system is a closed system when there is no exchange of matter Ã ¢ â ¬ ~ But the exchange of energy is possible. for example: the presence of reactants in a closed container in a conductive material. isolated system: Ã in such a system, when no exchange of energy or matter with the surroundings takes place, is called system isolated. For example: the presence of reagents in a termoflaschie, or substance in an isolated closed vessel is an example of an isolated system. homogeneous system: it is said that a system is homogeneous when all the components are in the same phase and is uniform throughout the system. For example: a mixture of two immiscible liquids. heterogeneous system: it is said that a mixture is heterogeneous when it consists of two or more phases and the composition is not uniform. For example: a mixture of solid insoluble in water. Ã Â »The state of the system: the state of a thermodynamic system means its macroscopic or bulk properties that can be described by state variables: pressure (P), volume (V), temperature (T) and amount (N) etc. They are also known as state functions. Isothermal Process: Ã When the operation is performed at a constant temperature, it is said that the process is isothermal. For the isothermal process, DT = 0 where DT is the temperature change. Adiabatic Process: is a process in which no heat transfer between system and surroundings, happens. isobaric Process: Ã When the process is carried out at constant pressure, is said to be isobaric. I.E. DP = 0 isocorico process: a process if carried out at constant volume, as is known in isocorica nature. cyclic process: Ã If a system undergoes a series of changes, and finally returns to its initial state, it is said that both the cyclic process. reversible process: when in a process, a change is brought in such a way that the process can, at any time, be reversed by an infinitesimal change. The change r is called reversible. Ã ¢ Â ¢ ¬ Internal energy It is the sum of all forms of energy that a system may possess. In thermodynamics, it is indicated by AM that may change when the heat or passes out of the system - the work is done on or by the system - the material enters or leaves the system. The internal energy change doing the work, we bring the internal energy change doing the work. Allow the initial system was A and TEMP state. TA = INTERNAL ENERGY UA On Doing ... Some mechanical work The new state has been called B and temperature. TB. It is to be TBA ¢> ¢ ta UBA is the internal energy after the change. Ã "Â" u = UBA ¢ â ¬ "The internal energy change through a system of internal heat energy transfer can be modified by Heat from the surroundings to the system without working. Âž "u = q where q is heat absorbed by the system. It can be measured in terms of temperature difference. Q is + ve ve The heat is transferred from the surrounding environment to the system. q is -Ve when heat is transferred from the environment system. When the state change is done both to do the work and heat transfer. I U = Q + W First law of thermodynamics (energy conservation law). It states that energy cannot be nor created nor destroyed. The energy of an isolated system is constant. I U = Q + w. Ã ¢ â ¢ Work (work volume) Consider a cylinder that contains a wheel of an ideal gas in which a piston is mounted friction. Ã ¢ â ¢ work done in isothermal and reversible expansion of the ideal gas Ã ¢ â ¢ isothermal and free expansion of an ideal gas for isothermal expansion of an ideal gas in the vacuum w = 0 Ã ¢ â ¢ entalpia (h) is defined as Total system heat content. Ã equal to the sum of internal energy and pressure-volume work. Mathematically, H = U + PV Entalia variation: a change of enthalpy is the absorbed or evolved heat from the constant pressure system. Âž h = qp for the exothermic reaction (system loses energy energy), Âž h and qpa both are -we. For endothermic reaction (system absorbs energy from the surrounding environment). The H and QPA both are + VE. Relationship between Ž and u. Ã ¢ â ¢ vast property A vast property is a property whose value depends on the quantity or size of matter present in the system. For example: mass, volume, enthalpy etc. are known as extensive property. Ã ¢ â € ¢ intensive real estate intensive properties do not depend on the size of the matter or the quantity of the substance present in the system. For example: temperature, density, pressure, etc. are called intensive properties. Capacity Ã ¢ ¢ heat The increase in temperature is proportional to the heat transferred. q = coeff. X Âž t q = there where the coefficient C is called thermal capacity. C is directly proportional to the quantity of substance. CMA = C / N is the thermal capacity for 1 amount of substance. Ã ¢ â ¢ Molar Thermal capacity is defined as the quantity of heat needed to raise the temperature of a 1ã, Â ° (Kelvin or Celsius) substance. Ã ¢ â ¢ Specific thermal capacity it is defined as the heat needed to raise the temperature of a unitary mass of a substance from part 1ã, Â ° (Kelvin or Celsius). q = c x m x Âž t where m = mass of the substance Âž t = temperature increase. Ã ¢ â ¢ Relationship between CPA and CVA for an ideal gas capacity at constant heat volume = CV to the constant pressure thermal capacity = constant volume CP QV = CVI T = ÂŽ u constant pressure QPA = CPA IT = Âž H For a wheel of an ideal gas Âž H = Âž u + Âž (pv) = Âž u + Âž (RT) Âž h = Âž u + re t on replacing the values of Âž h and Ã Ž u, the equation is modified as CPA IT = T + CVI RI T or CP-CVA = R Ã ¢ ¢ ÂŽ u Measurement and ÂŽ HÃ ¢ Calorimetry Determination Âž u: Âž ua is measured in a Particular type of calorimeter, called calorimetric bomb. Work with calorimeter. The calorimeter consisting of a robust container called (bomb) able to withstand very high pressure. It is surrounded by a water bath to ensure that no heat is lost for the surrounding environment. Procedure: Ã, a note mass of the fuel substance is burned in the pure dioxy pressure in the steel bomb. Heat developed during the reaction is transferred to the water and its temperature is monitored. Ã ¢ Entalia modifications during the processing phase of fusion enthalpy: fusion enthalpy is the thermal energy or variation of enthalpy when a mass of a solid at its fusion point is converted into a liquid state. Vaporization enthalpy: Ã, it is defined as thermal energy or variation of enthalpy when a mole of a liquid to its boiling changes in the gaseous state. Sublimation enthalpy: Ã, sublimation enthalpy is defined as the variation of thermal energy or variation of enthalpy when a mass of solid transforms directly into gaseous at a temperature below its fusion point. Ã ¢ â ¢ standard training enthalpying enthalpy training is defined as the variation of enthalpy in the formation of 1 mole of a substance from its constituent elements in â €