

# JAC Board Class 11 Chemistry Reduced Syllabus 2020-21 PDF

## विषय : रसायन विज्ञान

Unit	Whether the chapter is selected or not	Selected topics	Deleted topics
	YES	General introduction, Laws of chemical combination, atomic and molecular masses, mole concept and molar mass, stoichiometric calculations, limiting reagent.	Historical approach to particulate nature of matter, states of matter, classification of matter, properties of matter, scientific notation, significant figures, Dalton's atomic theory, concepts of atoms molecules and ions.
<b>STRUCTURE OF ATOM</b>	YES	Bohr's atomic model, dual nature of matter and light, de Broglie's relation, Heisenberg's uncertainty principle, Quantum numbers, concept of orbitals, shapes of s, p and d orbitals, rules for filling electrons in orbitals: Aufbau principle, Pauli's exclusion principle, Hund's rule, electronic configuration of atoms and ions.	Discovery of electron, proton and neutron, atomic number, isotopes and isobars, Thomson atomic model and its limitation, Rutherford atomic model and its limitations, quantum mechanical model of atom.
<b>CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES</b>	YES	Modern periodic law, periodic trends in properties of elements - atomic radii, ionic radii, ionization enthalpy, electron gain enthalpy, electronegativity and valency.	significance of classification, brief history of the development of periodic table, Mendeleev's periodic table, Newland's law of octaves, Dobereiner's triads.

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<b>CHEMICAL BONDING AND MOLECULAR STRUCTURE</b>	YES	General introduction, Lewis structure, ionic bond, covalent bond, octet rule, limitations of octet rule, resonance structure, dipole moment, VSEPR theory, valence bond theory, orbital overlap concept, types of overlapping and nature of covalent bond, hybridisation and its types, MOT, Types of molecular orbitals and energy level diagrams, hydrogen bonding.	Bond parameters: bond length, bond enthalpy, bond angle, bond order
<b>STATES OF MATTER</b>	YES	Three states of matter, gaseous state, Gas laws: Boyle's law, Charles's law, Avogadro's law, Ideal behaviour, empirical derivation of Ideal gas equation, behaviour of real gases: deviation from ideal behaviour, vander Waals equation.	Intermolecular forces, dipole-dipole forces, dipole-induced dipole forces, London forces, thermal energy, Gay Lussac's law, kinetic energy and molecular speeds, kinetic molecular theory of gases, liquifaction of gases, liquid state: vapour pressure, surface tension and viscosity.
<b>THERMODYNAMICS</b>	YES	Thermodynamic terms: concept of system, types of system, surroundings, work, heat, energy, extensive and intensive properties, state functions, first law of thermodynamics and its applications, internal energy and enthalpy, enthalpy change of a reaction, $\Delta U$ and $\Delta H$ , Hess's law of constant heat summation, Introduction of entropy and Gibbs free energy. Second law of thermodynamics. Spontaneous and non spontaneous processes.	Heat capacity and specific heat capacity, calorimetry, enthalpies of combustion, atomisation, bond enthalpy, lattice enthalpy, enthalpy of solution, enthalpy of dilution.

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<b>EQUILIBRIUM</b>	YES	Concept of equilibrium, law of chemical equilibrium and equilibrium constant, homogeneous equilibria and equilibrium constant for gaseous systems, heterogeneous equilibria, factors affecting equilibrium, Le chatelier's principle, concept of pH.	Relationship between equilibrium constant, reaction quotient and Gibbs energy, ionic equilibrium in solution, salt hydrolysis, solubility product, buffer solutions, common ion effect
<b>REDOX REACTIONS</b>	YES	Redox reactions, oxidation number, balancing a redox reaction by oxidation number method and half reaction method.	Types of redox reactions, redox reactions as the basis for titrations, redox reactions and electrode processes.
<b>HYDROGEN</b>	NO		ENTIRE CHAPTER
<b>s-BLOCK ELEMENTS</b>	YES	General introduction, electronic configuration, occurrence, and characteristic properties of the first element of each group, diagonal relationship, trends in variation of properties (ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses	Preparation and properties of some important compounds: Sodium carbonate, Sodium chloride, Sodium hydroxide, Sodium hydrogen carbonate, biological importance of sodium and potassium, Calcium oxide, Calcium carbonate, industrial uses of lime and lime stone, biological importance of Mg and Ca
<b>SOME p-BLOCK ELEMENTS</b>	NO		ENTIRE CHAPTER
<b>ORGANIC CHEMISTRY : SOME BASIC PRINCIPLES AND TECHNIQUES</b>	YES	General introduction, classification and structural representation of organic compounds, IUPAC nomenclature of organic compounds, Isomerism (structural only), homolytic and heterolytic fission, free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions, electronic displacements in a covalent bond: inductive effect,	Methods of purification of organic compounds, qualitative analysis of organic compounds, quantitative analysis of organic compounds

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		electromeric effect, resonance, hyperconjugation	
<b>HYDROCARBONS</b>	YES	<p><b>ALKANES:</b> Isomerism preparation from alkyl halides(Wurtz reaction),from unsaturated hydrocarbons,from carboxylic acid(soda-lime decarboxylation),physical properties,chemical reactions:halogenation,oxidation,aromatization.</p> <p><b>ALKENES:</b>geometrical Isomerism,preparation from alkyl halides(saytzeff's rule),from alcohol,physical properties,chemical properties:addition of hydrogen and halogen acids(markovnikov's and anti markonikov's addition)</p> <p><b>ALKYNES:</b> preparation by dehydrohalogenation of vicinal dihalides,by the action of calcium carbide on water,physical properties,chemical properties:electrophilic addition of halogens ,halogen acids and water.</p> <p><b>AROMATIC COMPOUNDS:</b> Structure of BENZENE,Aromaticity(Huckel's rule),preparation by reduction of phenol and alkynes,physical properties,chemical properties: electrophilic substitution reactions excluding mechanisms.</p>	<p><b>ALKANES:</b>Preparation from Kolbe's electrolytic method, chemical properties:isomerisation ,reaction with steam,pyrolysis,conformations, <b>ALKENES:</b> structural isomerism,preparation from alkynes,chemical properties:oxidation,ozonolysis,polymerisation.</p> <p><b>ALKYNES:</b>Isomerism,chemical properties : acidic character of alkynes,polymerisation.</p> <p><b>AROMATIC COMPOUNDS :</b> mechanism of electrophilic substitution,addition reactions and combustion,directive influence of a functional group in mono substituted benzene,carcinogenicity and toxicity</p>
<b>Environmental chemistry</b>	NO		ENTIRE CHAPTER