

KVPY STREAM SX CLASS 12 SYLLABUS

*** Refer page 7 for the Important Topics**



PHYSICS:

Must Know Topics	
1	ELECTROSTATICS
	Chapter 1: Electric Charges and Fields
	1.1: Electric Field and Potential (HC Verma)
	1.2: Gauss's Law (HC Verma)
	Chapter 2: Electrostatic Potential and Capacitance
	1.3: Capacitors (HC Verma)
2	CURRENT ELECTRICITY
	Chapter 3: Current Electricity
	2.1: Electric Current in Conductors (HC Verma)
	2.2: Thermal and Chemical Effects of Electric Current (HC Verma)
3	MAGNETIC EFFECTS OF CURRENT AND MAGNETISM
	Chapter 4: Moving Charges and Magnetism
	3.1: Magnetic Field (HC Verma)
	3.2: Magnetic Field due to a Current (HC Verma)
	Chapter 5: Magnetism and Matter
	3.3: Permanent Magnets (HC Verma)
	3.4: Magnetic Properties of Matter (HC Verma)
4	ELECTROMAGNETIC INDUCTION AND ALTERNATIVE CURRENT
	Chapter 6: Electromagnetic Induction
	4.1: Electromagnetic Induction (HC Verma)
	Chapter 7: Alternating Current
	4.2: Alternating Current (HC Verma)
5	ELECTROMAGNETIC WAVES
	Chapter 8: Electromagnetic Waves
	5.1: Electromagnetic Waves (HC Verma)
	5.2: Light Waves (HC Verma)
6	OPTICS
	Chapter 9: Ray Optics and Optical Instruments
	6.1: Geometrical Optics (HC Verma)
	6.2: Optical Instruments
	Chapter 10: Wave Optics

	6.3: Dispersion and Spectra (HC Verma)
	6.4: Speed of Light (HC Verma)
	6.5: Photometry (HC Verma)
7	DUAL NATURE OF MATTER AND RADIATION
	Chapter 11: Dual Nature of Radiation and Matter
	7.1: Photoelectric Effect and Wave-Particle Duality (HC Verma)
	7.2: Bohr's Model and Physics of the Atom
8	7.3: X-Rays
	ATOMS AND NUCLEI
	Chapter 12: Atoms
	Chapter 13: Nuclei
9	8.1: The Nucleus (HC Verma)
	ELECTRONIC DEVICES
	Chapter 14: Semiconductor Electronics Materials Devices and Simple Circuits
10	9.1: Semiconductor and semiconductor Devices (HC Verma)
	COMMUNICATION SYSTEMS
11	Chapter 15 : Communication Systems
11	Electric Current through Gases
	Revision Topics (Based on Class 11 Syllabus - Important)
12	Kinematics
	12.1: Rectilinear motion
	12.2: Projectile motion
	12.3: Relative motion
13	Laws of Motion
	13.1: Newton's law of motion
	13.2: Friction
	13.3: Circular motion
14	Work, power and energy
15	Motion of system of particles and Rigid Body
	15.1: Centre of mass
	15.2: Rigid body dynamics
16	Properties of Bulk Matter
	16.1: Calorimetry and thermal expansion
	16.2: Heat transfer
	16.3: Fluid mechanics
17	Physical World and Measurements
	17.1: Measurement error & experiment

	17.2: Unit & Dimension
18	Oscillations and Waves
	18.1: Simple harmonic motion
	18.2: Sound wave
19	Behaviour of Perfect gas and Kinetic Theory
	19.1: Kinetic theory of gases and thermodynamics

CHEMISTRY:

Must Know Topics	
	PHYSICAL CHEMISTRY
1	Chapter 1: The Solid State
2	Chapter 2: Solutions
3	Chapter 3: Electrochemistry
4	Chapter 4: Chemical Kinetics
5	Chapter 5: Surface Chemistry / Adsorption and Catalysis
	5.1: Colloidal State
6	Radioactivity and Nuclear Transformation
	IN-ORGANIC CHEMISTRY
7	Chapter 6: General Principles and Processes of Isolation of Elements / Metallurgy/ General Principles of Extraction of Metals
8	Chapter 7: The p Block Elements
	7.1: Elements of Group VA or 15 (Elements of Nitrogen and Phosphorus Family, ns^2np^3)
	7.2: Elements of Group VIA or 16 (The oxygen Family, ns^2np^4)
	7.3: Elements of Group VIIA or 17 (The Halogen Family, ns^2np^5)
	7.4: Elements of 18 or Zero Group (inert Gases or Noble Gases, ns^2np^6)
9	Chapter 8: The d and f Block Elements
10	Chapter 9: Coordination Compounds
	ORGANIC CHEMISTRY
11	Chapter 10: Haloalkanes and Haloarenes
12	Chapter 11: Alcohols Phenols and Ethers
13	Chapter 12: Aldehydes Ketones and Carboxylic Acids
14	Chapter 13: Amines (Organic Compounds Containing Nitrogen)
15	Chapter 14: Biomolecules
16	Chapter 15: Polymers
17	Chapter 16: Chemistry in Everyday Life
	Revision Topics (Based on Class 11 Syllabus - Important)
	Physical Chemistry

18	Basic concepts of chemistry
19	Structure of Atom
20	States of matter (Gases and Liquids)
21	Thermodynamics
22	Ionic equilibrium
23	Chemical equilibrium
24	Chemical Kinetics
25	Redox Reaction (Chemical Reactions and Equations-Class 10)
	In-Organic Chemistry
	Acids and Bases (OP Tendon) (Acids Bases and Salt - Class 10)
26	Classification of Elements and Periodicity in Properties (Periodic Classification of Elements-Class 10)
27	Chemical bonding and Molecular Structure (Carbon and its Compounds - Class 10)
28	s-block (Metals) (Metals and Non-Metals - Class 10)
29	p-block 13,14 (Non-Metals) (Metals and Non-Metals - Class 10)
	Organic Chemistry
30	Basics of organic chemistry (Carbon and its Compounds - Class 10)
31	Hydrocarbon (Alkane, Alkene & Alkyne),
32	Environmental Chemistry (Class XI / X)
	Practicles
33	Qualitative analysis
34	Purification of chemistry

MATHEMATICS:

	Must Know Topics
1	RELATIONS AND FUNCTIONS
	Chapter 1: Relations and Functions / Logarithm
	Chapter 2: Inverse Trigonometric Functions
2	ALGEBRA
	Chapter 3: Matrices
	Chapter 4: Determinants
3	CALCULUS
	Chapter 5: Continuity and Differentiability
	Chapter 6: Application of Derivatives
	Chapter 7: Integrals
	Chapter 8: Application of Integrals
	Chapter 9: Differential Equations

	VECTORS AND 3-D GEOMETRY
4	Chapter 10: Vector Algebra
	Chapter 11: Three-Dimensional Geometry
5	Chapter 12: Linear Programming
6	Chapter 13: Probability
	Revision Topics
7	Real Number
8	Polynomials
9	Geometry
10	Introduction to Trigonometry
11	Statistics
12	Quadratic Equations
13	Probability
14	Surface Areas & Volumes
15	Coordinate Geometry
16	Mathematical Reasoning
17	Statistics and Probability
18	Trigonometric Functions
19	Relation and Functions
20	Calculus
21	Linear Programming
22	Vectors and 3-D Geometry

BIOLOGY:

	Must Know Topics
	REPRODUCTION
1	Chapter 1: Reproduction in Organisms
	Chapter 2: Sexual Reproduction in Flowering Plants
	Chapter 3: Human Reproduction
	Chapter 4: Reproductive Health
	GENETICS AND EVOLUTION
2	Chapter 5: Principles of Inheritance and Variation
	5.1: Mendelian Basis of Inheritance
	5.2: Chromosomal Basis of Inheritance
	5.3: Human Genetics
	Chapter 6: Molecular Basis of Inheritance
	6.1: Gene, Its Expression and Regulation
	Chapter 7: Evolution

	7.1: Origin of Life
	7.2: Evidences of Evolution
	7.3: Theories of Evolution
	7.4: Mechanism of Evolution
	7.5: Evolution of Human
3	BIOLOGY IN HUMAN WELFARE
	Chapter 8: Human Health and Disease
	8.1: Basic Concept of Immunology
	8.2: Adolescence and Drug /Alcohol Abuse
	Chapter 9: Strategies for Enhancement in Food Production
	9.1: Animal Husbandry
	9.2: Plant Breeding and Tissue Culture
	Chapter 10 Microbes in Human Welfare
4	BIOTECHNOLOGY
	Chapter 11: Biotechnology: Principles and Processes
	Chapter 12: Biotechnology and its Applications
5	ECOLOGY
	Chapter 13: Organisms and Populations
	Chapter 14: Ecosystem
	Chapter 15: Biodiversity and Conservation
	Chapter 16: Environmental Issues
	Revision Topics
6	Life Processes / Human Physiology
7	Control and Coordination in Animals and Plants,
8	Plant Physiology
9	Diversity of Living Organisms
10	Cell: Structure and Function
11	Cell Cycle and Cell Division
12	Biomolecules

IMPORTANT TOPICS OF KVPY

Physics	Electrostatics
	Heat and Thermodynamics
	Current and Electricity
	Electromagnetic Induction
	Alternate Current (AC)
	Kinematics
Chemistry	Chemical Kinetics
	Electrochemistry
	Aromatic Compounds
	d and f Block elements
Mathematics	Coordinate Geometry
	Quadratic Equation
	Calculus
	Vectors
	3-D Geometry
	Trigonometric Functions
Biology	Diversity in Living Organism
	Genetics and Evolution
	Control and Coordination in Plants