

UNIT 1

Atomic Structure and Properties

SPQ 5	1.1 Moles and Molar Mass
SPQ 5	1.2 Mass Spectroscopy of Elements
SPQ 2	1.3 Elemental Composition of Pure Substances
SPQ 5	1.4 Composition of Mixtures
SAP 1	1.5 Atomic Structure and Electron Configuration
SAP 4	1.6 Photoelectron Spectroscopy
SAP 4	1.7 Periodic Trends
SAP 4	1.8 Valence Electrons and Ionic Compounds

UNIT 2

Molecular and Ionic Compound Structure and Properties

SAP 6	2.1 Types of Chemical Bonds
SAP 3	2.2 Intramolecular Force and Potential Energy
SAP 4	2.3 Structure of Ionic Solids
SAP 4	2.4 Structure of Metals and Alloys
SAP 3	2.5 Lewis Diagrams
SAP 6	2.6 Resonance and Formal Charge
SAP 6	2.7 VSEPR and Bond Hybridization

UNIT 3

Intermolecular Forces and Properties

SAP 4	3.1 Intermolecular Forces
SAP 4	3.2 Properties of Solids
SAP 3	3.3 Solids, Liquids, and Gases
SAP 5	3.4 Ideal Gas Law
SAP 4	3.5 Kinetic Molecular Theory
SAP 6	3.6 Deviation from Ideal Gas Law
SPQ 5	3.7 Solutions and Mixtures
SPQ 3	3.8 Representations of Solutions
SPQ 2	3.9 Separation of Solutions and Mixtures Chromatography
SPQ 4	3.10 Solubility
SAP 4	3.11 Spectroscopy and the Electromagnetic Spectrum
SAP 5	3.12 Photoelectric Effect
SAP 2	3.13 Beer-Lambert Law

UNIT 4

Chemical Reactions

TRA 2	4.1 Introduction for Reactions
TRA 5	4.2 Net Ionic Equations
TRA 3	4.3 Representations of Reactions
TRA 6	4.4 Physical and Chemical Changes
SPQ 5	4.5 Stoichiometry
SPQ 3	4.6 Introduction to Titration
TRA 1	4.7 Types of Chemical Reactions
TRA 1	4.8 Introduction to Acid-Base Reactions
TRA 5	4.9 Oxidation-Reduction (Redox) Reactions

UNIT 5

Kinetics

TRA 6	5.1 Reaction Rates
TRA 5	5.2 Introduction to Rate Law
TRA 5	5.3 Concentration Changes Over Time
TRA 5	5.4 Elementary Reactions
TRA 6	5.5 Collision Model
TRA 3	5.6 Reaction Energy Profile
TRA 1	5.7 Introduction to Reaction Mechanisms
TRA 5	5.8 Reaction Mechanism and Rate Law
TRA 5	5.9 Steady-State Approximation
TRA 3	5.10 Multistep Reaction Energy Profile
ENE 6	5.11 Catalysis

UNIT 6

Thermodynamics

ENE 6	6.1 Endothermic and Exothermic Processes
ENE 3	6.2 Energy Diagrams
ENE 6	6.3 Heat Transfer and Thermal Equilibrium
ENE 2	6.4 Heat Capacity and Calorimetry
ENE 1	6.5 Energy of Phase Changes
ENE 4	6.6 Introduction to Enthalpy of Reaction
ENE 5	6.7 Bond Enthalpies
ENE 5	6.8 Enthalpy of Formation
ENE 5	6.9 Hess's Law

UNIT 7

Equilibrium

TRA 6	7.1 Introduction to Equilibrium
TRA 4	7.2 Direction of Reversible Reactions
TRA 3	7.3 Reaction Quotient and Equilibrium Constant
TRA 5	7.4 Calculating the Equilibrium Constant
TRA 6	7.5 Magnitude of the Equilibrium Constant
TRA 5	7.6 Properties of the Equilibrium Constant
TRA 3	7.7 Calculating Equilibrium Concentrations
TRA 3	7.8 Representations of Equilibrium
TRA 6	7.9 Introduction to Le Châtelier's Principle
TRA 5	7.10 Reaction Quotient and Le Châtelier's Principle
SPQ 5	7.11 Introduction to Solubility Equilibria
SPQ 2	7.12 Common-Ion Effect
SPQ 2	7.13 pH and Solubility
SPQ 4	7.14 Free Energy of Dissolution