Physics
I PUC

Chapter–1: Physical World

RETAINED PORTION	DELETED PORTION
1.1 What is physics ? 1.4 Fundamental forces in nature	1.2 Physics-scope and excitement 1.3 Physics, technology and society 1.5 Nature of physical laws (To be discussed as a part of Introduction and integrated with other topics)

Chapter-2 : UNITS AND MEASUREMENTS

RETAINED PORTION	DELETED PORTION
2.1 Introduction 2.2 The international system of units 2.3 Measurement of length 2.4 Measurement of mass 2.5 Measurement of time 2.6 Accuracy, precision of instruments and errors in measurement 2.7 Significant figures 2.8 Dimensions of physical quantities 2.9 Dimensional formulae and dimensional equations 2.10 Dimensional analysis and its applications	Nil

Chapter-3 : Motion in a straight line

RETAINED PORTION	DELETED PORTION
3.1 Introduction 3.2 Position, path length and displacement 3.3 Average velocity and average speed 3.4 Instantaneous velocity and speed 3.5 Acceleration 3.6 Kinematic equations for uniformly accelerated motion 3.7 Relative velocity	Frame of reference: Position-time graph, speed and velocity

Chapter-4 MOTION IN A PLANE

RETAINED PORTION	DELETED PORTION
4.1 Introduction 4.2 Scalars and vectors 4.3 Multiplication of vectors by real numbers 4.4 Addition and subtraction of vectors – graphical method 4.5 Resolution of vectors 4.6 Vector addition – analytical method	Nil

4.7 Motion in a plane 4.8 Motion in a plane with constant acceleration 4.9 Relative velocity in two dimensions 4.10 Projectile motion 4.11 Uniform circular motion	

Chapter-5 Laws of Motion

RETAINED PORTION	DELETED PORTION
5.1 Introduction 5.7 Conservation of momentum 5.8 Equilibrium of a particle 5.9 Common forces in mechanics 5.10 Circular motion 5.11 Solving problems in mechanics	5.2 Intuitive concept of force, 5.3 Inertia, 5.4 Newton's first law of motion; momentum 5.5 Newton's second law of motion; impulse; 5.6 Newton's third law of motion

Chapter 6 Work, Power, Energy

RETAINED PORTION	DELETED PORTION
6.1 Introduction 6.2 Notions of work and kinetic energy : The work energy theorem 6.3 Work 6.4 Kinetic energy 6.5 Work done by a variable force 6.6 The work energy theorem for a variable force 6.7 The concept of potential energy 6.8 The conservation of mechanical energy 6.9 The potential energy of a spring 6.10 Various forms of energy : the law of conservation of energy 6.11 Power 6.12 Collisions	Nil

Chapter-7 System of Particles and Rotational Motion

RETAINED PORTION	DELETED PORTION
7.1 Introduction 7.2 Centre of mass 7.3 Motion of centre of mass 7.4 Linear momentum of a system of particles 7.5 Vector product of two vectors 7.6 Angular velocity and its relation with linear velocity 7.7 Torque and angular momentum 7.8 Equilibrium of a rigid body. 7.9 Moment of inertia 7.11 Kinematics of rotational motion about a fixed axis 7.12 Dynamics of rotational motion about a	7.10 Statement of parallel and perpendicular axes theorems and their applications

fixed axis 7.13 Angular momentum in case of rotations about a fixed axis 7.14 Rolling motion	

Chapter-8 Gravitation

RETAINED PORTION	DELETED PORTION
8.1 Introduction 8.3 Universal law of gravitation 8.4 The gravitational constant 8.6 Acceleration due to gravity below and above the surface of earth 8.7 Gravitational potential energy 8.8 Escape speed 8.9 Earth satellite 8.10 Energy of an orbiting satellite 8.11 Geostationary and polar satellites 8.12 Weightlessness	8.2 Kepler's laws of planetary motion 8.5 Acceleration due to gravity

Chapter-9 Mechanical Properties of Solids

RETAINED PORTION	DELETED PORTION
9.1 Introduction 9.3 Stress and strain 9.4 Hooke's law 9.5 Stress-strain curve 9.6 Elastic moduli 9.6.1 Young's modulus 9.6.2 Determination of young's modulus of the material wire 9.6.4 Bulk modulus 9.7 Applications of elastic behaviour of materials	9.2 Elastic behaviour 9.6.3 Shear modulus of rigidity, 9.6.5 Poisson's ratio; 9.6.6 Elastic energy

Chapter 10 MECHANICAL PROPERTIES FLUID

RETAINED PORTION	DELETED PORTION
10.1 Introduction 10.2 Pressure 10.3 Streamline flow 10.4 Bernoulli's principle 10.5 Viscosity 10.6 Surface tension	Nil

Chapter-11 Thermal properties matter

RETAINED PORTION	DELETED PORTION
11.1 Introduction 11.3 Measurement of temperature	11.2 Heat and temperature 11.9 Heat transfer

11.4 Ideal-gas equation and absolute temperature 11.5 Thermal expansion 11.6 Specific heat capacity 11.7 Calorimetry 11.8 Change of state 11.9.4 Black body radiation 11.9.5 Green house effect 11.10 Newton"s law of coolings	11.9.1 Conduction, 11.9.2 convection 11.9.3 radiation

Chapter-12 Thermodynamics

RETAINED PORTION	DELETED PORTION
12.1 Introduction 12.2 Thermal equilibrium 12.3 Zeroth law of thermodynamics 12.4 Heat, internal energy and work 12.5 First law of thermodynamics 12.6 Specific heat capacity 12.7 Thermodynamic state variables and equation of state 12.8 Thermodynamic processes 12.11 Second law of thermodynamics 12.12 Reversible and irreversible processes 12.13 Carnot engine	12.9 Heat engine 12.10 Refrigerator

Chapter-13 KINETIC THEORY

RETAINED PORTION	DELETED PORTION
13.1 Introduction 13.2 Molecular nature of matter 13.3 Behaviour of gases 13.4 Kinetic theory of an ideal gas 13.5 Law of equipartition of energy 13.6 Specific heat capacity 13.7 Mean free path	Nil

Chapter-14 OSCILLATION

RETAINED PORTION	DELETED PORTION
14.1 Introduction 14.2Periodic and oscillatory motions 14.3 Simple harmonic motion 14.4 Simple harmonic motion and uniform circular motion 14.5 Velocity and acceleration in simple harmonic motion 14.6 Force law for simple harmonic motion 14.7 Energy in simple harmonic motion 14.8 Some systems executing Simple	Nil

Harmonic Motion 14.9 Damped simple harmonic motion 14.10 Forced oscillations and resonance	

Chapter-15 Waves

RETAINED PORTION	DELETED PORTION
15.1 Introduction 15.2 Transverse and longitudinal waves 15.3 Displacement relation in a progressive wave 15.4 The speed of a travelling wave 15.5 The principle of superposition of waves 15.6 Reflection of waves (except fundamental mode and harmonics) 15.7 Beats	Fundamental mode and harmonics. 15.8 Doppler effect.

I PUC Physics Practicals : Retained experiments

(Any eight experiments have to be conducted)

1. Use of Vernier Callipers to
   (i) Measure diameter of small spherical/cylindrical body.
   (ii) Measure the dimensions of given regular body of known mass and hence to determince its density and
   (iii) Measure the internal diameter and depth of a given cylindrical object like beaker /glass/calorimeter and hence to calculate its volume
2. Use of screw gauge to
   (a) Measure diameter of given wire.
   (b) Measure thickness of given sheet and
   (c) Determine volume of an irregular lamina
3. To determine the radius of curvature of given spherical surface by a spherometer
4. Measurement of the weight of given body (a wooden block) using the parallelogram law of vector addition
5. Using a simple pendulum plot L – T and L – T^2 graphs, hence find the effective length of second's pendulum using appropriate graph
6. To study the relation between force of limiting friction and normal reaction and to find the coefficient of friction between surface of a moving block and that of a horizontal surface.
7. To find the force constant and effective mass of a helical spring by plotting T^2-m graph using method of oscillation
8. To determine the surface tension of water by capillary rise method
9. To determine the coefficient of viscosity of a given liquid by measuring the terminal velocity of a spherical body
10. To study the relationship between the temperature of a hot body and time by plotting a cooling curve

I PUC Physics Practicals : Deleted experiments

1. To determine mass of two different objects using a beam balance
2. To find the downward force, along an inclined plane, acting on a roller due to gravity and study its relationship with the angle of inclination by plotting graph between force and $\sin\theta$
3. To determine Young's modulus of the material of a given wire by using Searle's apparatus
4. To study the variation in volume (V) with pressure (P) for a sample of air at constant temperature by plotting graphs between P and V. and between P and 1/V
5. (i) To study the relationship between frequency and length of a given wire under constant tension using a sonometer
   (ii) To study the relation between the length of a given wire and tension for constant frequency using sonometer
6. To determine the velocity of sound in air at room temperature using a resonance tube
7. To determine the specific heat capacity of a given (i) solid and (ii) a liquid by the method of mixtures

CHEMISTRY
I PUC

Unit 1 Some Basic Concepts of Chemistry

RETAINED PORTION	DELETED PORTION
1.1 Importance of Chemistry 1.3 Properties of Matter and their Measurement 1.4 Uncertainty in Measurement 1.7 Atomic and Molecular Masses 1.8 Mole Concept and Molar Masses 1.9 Percentage Composition 1.10 Stoichiometry and Stoichiometric Calculations	1.2 Nature of matter, 1.5 Laws of chemical combination, 1.6 Dalton's atomic theory

Unit 2 Structure of Atom

RETAINED PORTION	DELETED PORTION
2.3 Developments Leading to the Bohr's Model of Atom 2.4 Bohr's Model for Hydrogen Atom 2.5 Towards Quantum Mechanical Model of the Atom 2.6 Quantum Mechanical Model of Atom	2.1 Discovery of Subatomic Particles 2.2 Atomic Models

Unit 3 Classification of Elements and Periodicity in Properties

RETAINED PORTION	DELETED PORTION
3.3 Modern Periodic Law and the present form of the Periodic Table 3.4 Nomenclature of Elements with Atomic Numbers > 100 3.5 Electronic Configurations of Elements and the Periodic Table 3.6 Electronic Configurations and Types of Elements: *s*-, *p*-, *d*-, *f* Blocks 3.7 Periodic Trends in Properties of Elements	Significance of classification, brief history of the development of periodic table.

Unit 4 Chemical Bonding and Molecular Structure

RETAINED PORTION	DELETED PORTION
4.1 Kössel- Lewis Approach to Chemical Bonding 4.2 Ionic or Electrovalent Bond 4.3 Bond Parameters 4.4 The Valence Shell Electron Pair Repulsion (VSEPR) Theory 4.5 Valence Bond Theory 4.6 Hybridisation 4.7 Molecular Orbital Theory 4.8 Bonding in Some Homonuclear Diatomic Molecules 4.9 Hydrogen Bonding	Nil

Unit 5 States of Matter

RETAINED PORTION	DELETED PORTION
5.1 Intermolecular Forces 5.2 Thermal Energy 5.3 Intermolecular Forces vs Thermal Interactions 5.4 The Gaseous State 5.5 The Gas Laws 5.6 Ideal Gas Equation 5.8 Kinetic Molecular Theory of Gases 5.9 Behaviour of Real Gases: Deviation from Ideal Gas Behaviour	liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea), Liquid State- vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations)

Unit 6 Thermodynamics

RETAINED PORTION	DELETED PORTION
6.1 Thermodynamic Terms 6.2 Applications 6.3 Measurement of ΔU and ΔH: Calorimetry 6.4 Enthalpy Change, ΔH of a Reaction Reaction Enthalpy 6.5 Enthalpies for Different Types of Reactions 6.6 Spontaneity	Heat capacity and specific heat capacity, Criteria for equilibrium

Unit 7 Equilibrium

RETAINED PORTION	DELETED PORTION
7.1 Equilibrium in Physical Processes 7.2 Equilibrium in Chemical Processes – Dynamic Equilibrium 7.3 Law of Chemical Equilibrium and Equilibrium Constant 7.4 Homogeneous Equilibria 7.5 Heterogeneous Equilibria 7.6 Applications of Equilibrium Constants 7.7 Relationship between Equilibrium Constant K, Reaction Quotient Q and Gibbs Energy G 7.8 Factors Affecting Equilibria 7.9 Ionic Equilibrium in Solution 7.10 Acids, Bases and Salts 7.11 Ionization of Acids and Bases 7.12 Buffer Solutions 7.13 Solubility Equilibria of Sparingly Soluble Salts	hydrolysis of salts (elementary idea), Henderson Equation

Unit 8 Redox Reactions

RETAINED PORTION	DELETED PORTION
8.1 Classical Idea of Redox Reactions, Oxidation and Reduction Reactions 8.2 Redox Reactions in Terms of Electron Transfer Reactions. 8.3 Oxidation Number	Applications of redox reactions

Unit 9 Hydrogen

RETAINED PORTION	DELETED PORTION
9.1 Position of Hydrogen in the Periodic Table 9.5 Hydrides 9.6 Water 9.8 Heavy Water, D_2O 9.9 Dihydrogen as a Fuel	Preparation, properties and uses of hydrogen, hydrogen peroxide-epreparation, reactionsand structure and use;

Unit 10 The *s* Block Elements

RETAINED PORTION	DELETED PORTION
10.1 Group1 Elements: Alkali Metals 10.2 General Characteristics of the Compounds of the Alkali Metals 10.3 Anomalous Properties of Lithium 10.6 Group 2 Elements : Alkaline Earth Metals 10.7 General Characteristics of Compounds of the Alkaline Earth Metals 10.8 Anomalous Behaviour of Beryllium 10.9 Some Important Compounds of Calcium $Ca(OH)_2$, $CaSO_4$	Preparation and Properties of Some Important Compounds: Sodium Carbonate, Sodium Chloride, Sodium Hydroxide and Sodium Hydrogen carbonate, Biological importance of Sodium and Potassium. Calcium Oxide and Calcium Carbonate and their industrial uses, biological importance of Magnesium and Calcium.

Unit 11 The *p* Block Elements

RETAINED PORTION	DELETED PORTION
11.1 Group 13 Elements: The Boron Family. 11.2 Important Trends and Anomalous Properties of Boron 11.4 Uses of Boron and Aluminium and their Compounds 11.5 Group 14 Elements: The Carbon Family 11.6 Important Trends and Anomalous Behaviour of Carbon 11.7 Allotropes of Carbon	Some important compounds: Borax, Boric acid, Boron Hydrides, Aluminium: Reactions with acids and alkalies, uses. Carbon: uses of some important compounds: oxides. Important compounds of Silicon and a few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses.

Unit 12 Organic Chemistry – Some Basic Principles and Techniques

RETAINED PORTION	DELETED PORTION
12.1 General Introduction	methods of purification, qualitative and

12.2 Tetravalence of Carbon: Shapes of Organic Compounds 12.3 Structural Representations of Organic Compounds 12.4 Classification of Organic Compounds 12.5 Nomenclature of Organic Compounds 12.6 Isomerism 12.7 Fundamental Conceptsin Organic Reaction Mechanism	quantitative analysis

Unit 13 Hydrocarbons

RETAINED PORTION	DELETED PORTION
13.1 Classification 13.2 Alkanes 13.3 Alkenes 13.4 Alkynes 13.5 Aromatic Hydrocarbon 13.6 Carcinogenicity and Toxicity	Free radical mechanism of halogenation, combustion and pyrolysis.

Unit 14 Environmental Chemistry

RETAINED PORTION	DELETED PORTION
Nil	Entire Unit deleted

Practical

The following portion to be retained

1. Introduction:

2.Basic- laboratory techniques

a) Cutting of glass tube and glass rod
b) Bending of a glass tube.
c) Drawing out a Jet
d) Boring a cork
e) Heating solution in a test tube
f) Heating solution in a beaker or a flask
g) Filtration.
h) Measuring volume of liquids.

3. Preparation of 250 ml of 0.1 M Standard solution of oxalic acid.
4. Purification of sample of any one of the following potash alum, $CuSO_4$ or benzoic acid by crystallization.
5. Determination of melting point of a solid organic compound.
6. Determination of boiling point of a liquid organic compound
7. Systematic Qualitative Analysis
   To detect one cation and one anion in the given salt.
8. Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator.

9. Comparing the pH of solutions of strong and weak acids of some concentration.
10. Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing / decreasing the concentration of either of the ions.
11. a. Determination of the concentration of a given sodium hydroxide solution by titrating it against a standard solution of oxalic acid
    b. Preparation of standard solution of sodium carbonate.
    c. Determination of the strength of a given solution of dil.HCl by titrating it against Standard solution of sodium carbonate

The following portion to be deleted

C. Experiments based on pH
   a) Study the pH change in the titration of a strong base using universal indicator.
   b) Study the pH change by common-ion in case of weak acids and weak bases.

D. Chemical Equilibrium
   Study the shift in equilibrium between $[Co(H_2O)_6]^{2+}$ and chloride ions by changing the concentration of either of the ions.

MATHEMATICS
I PUC

1.Sets

RETAINED PORTION	DELETED PORTION
Introduction Sets and their representation Empty set Finite and Infinite sets Equal sets Subsets Power sets Universal sets Venn diagram Operation on set Practical problems on union and intersection of two sets	Difference of sets. Complement of a set. Properties of Complement

2.Relations and Functions

RETAINED PORTION	DELETED PORTION
Introduction Casrtesian products of sets Relations Functions Some functions and their graphs	$R \times R \times R$ Sum, Difference, product and quotients of functions

3. Trigonometric Function

RETAINED PORTION	DELETED PORTION
Introduction Angles trigonometric functions Trigonometric functions of sum and difference of two angles Principal solutions of trigonometric equations.	General Solutions of trigonometric equations of the type: $\sin y = \sin a$, $\cos y = \cos a$ and $\tan y = \tan a$.

4. Principle of Mathematical Induction.

RETAINED PORTION	DELETED PORTION
Introduction Motivation The principle of Mathematical Induction	Nil

5. Complex Numbers and Quadratic Equations

RETAINED PORTION	DELETED PORTION
Introduction Complex number Algebra of complex number	Polar representation of complex numbers. Square root of a complex number

The modulus and conjugate of a complex number Argand plane	

6. Linear Inequalities

RETAINED PORTION	DELETED PORTION
Introduction Inequalities Algebraic solutions of linear inequalities in one variable and their graphical representation Graphical solution of linear inequalities in two variables Solution of system of linear inequalities in two variables.	Nil

7. Permutations and Combination

RETAINED PORTION	DELETED PORTION
Introduction Fundamental principal of counting Permutations Combination	Derivation of formulae for ${}^{n}P_{r}$ and ${}^{n}C_{r}$

8. Binomial theorem

RETAINED PORTION	DELETED PORTION
Nil	Full Chapter is deleted

9. Sequence and Series

RETAINED PORTION	DELETED PORTION
Introduction Sequence Series Arithmetic progression Geometric progression Relationship between AM and GM	Formulae for the following special sums Σk, Σk^2 and Σk^3.

10. Straight Lines

RETAINED PORTION	DELETED PORTION
Introduction Slope of a line i) Conditions for parallelism and perpendicularity of lines in ferms of their slopes ii) Angle between two lines iii) Collinearity of three points	Shifting of origin. Equation of family of lines passing through the point of intersection of two lines

Various forms of equation of the line General equation of a line Distance of a point from a line	

11. Conic sections

RETAINED PORTION	DELETED PORTION
Nil	Full Chapter is deleted

12. Introduction to Three-dimensional Geometry

RETAINED PORTION	DELETED PORTION
Introduction Co ordinate axis and planes in three dimensional space Distance between two points Section formula	Nil

13. Limits and Derivatives

RETAINED PORTION	DELETED PORTION
Introduction Intuitive idea of derivatives Limits Limits of trigonometric functions Derivatives	Nil

14. Mathematical Reasoning

RETAINED PORTION	DELETED PORTION
Nil	Full chapter is deleted

15. Statistics

RETAINED PORTION	DELETED PORTION
Introduction Measures of dispersion Range Mean Deviation Variance and standard deviation	Analysis of frequency distributions with equal means but different variances

16. Probability

RETAINED PORTION	DELETED PORTION
Introduction Random experiments Event	Axiomatic (set theoretic) probability, connections with other theories of earlier classes.

BIOLOGY
I PUC

UNIT 1 DIVERSITY IN THE LIVING WORLD

RETAINED PORTION	DELETED PORTION
1 The Living World 2 Biological Classification 3 Plant Kingdom 4 Animal Kingdom	**Chapter-1: The Living World** Taxonomy and systematics; Tools for study of taxonomy- museums, zoological parks, herbaria, botanical gardens, keys for identification. **Chapter-3: Plant Kingdom** Angiospermae; Angiosperms - classification up to class, characteristic features and examples.

UNIT 2 STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS

RETAINED PORTION	DELETED PORTION
5 Morphology of Flowering Plants 6 Anatomy of Flowering Plants 7 Structural Organisation in Animals	**Chapter-5: Morphology of Flowering Plants** Morphology and modifications: Morphology of different parts of flowering plants: root, stem, leaf, fruit and seed. Description of families: - Fabaceae **Chapter-6: Anatomy of Flowering Plants** Anatomy and functions of different tissues and tissue systems in dicots and monocots. Secondary growth **Chapter-7: Structural Organisation in Animals** Morphology, Anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach), (a brief account only).

UNIT 3 CELL : STRUCTURE AND FUNCTIONS

RETAINED PORTION	DELETED PORTION
8. Cell : The Unit of Life 9. Bio molecules 10. Cell Cycle and Cell Division	Nil

UNIT 4 PLANT PHYSIOLOGY

RETAINED PORTION	DELETED PORTION
11 Transport in Plants 12 Mineral Nutrition 13 Photosynthesis in Higher Plants 14 Respiration in Plants 15 Plant Growth and Development	**Chapter-11: Transport in Plants** Movement of water, gases and nutrients; cell to cell transport, diffusion, facilitated diffusion, active transport; plant-water relations, imbibition, water potential, osmosis, plasmolysis; long distance transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; transpiration, opening and closing of stomata; Uptake and translocation of mineral nutrients -Transport of food, phloem transport, mass flow hypothesis. **Chapter-12: Mineral Nutrition** Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity; elementary idea of hydroponics as a method to study mineral nutrition; nitrogen metabolism, nitrogen cycle, biological nitrogen fixation. **Chapter-15: Plant - Growth and Development** Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; Seed dormancy; vernalisation; photoperiodism

UNIT 5 HUMAN PHYSIOLOGY

RETAINED PORTION	DELETED PORTION
16 Digestion and Absorption 17 Breathing and Exchange of Gases 18 Body Fluids and Circulation 19 Excretory Products and their Elimination 20 Locomotion and Movement	**Chapter-16: Digestion and Absorption** Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; calorific values of proteins, carbohydrates and fats; egestion; nutritional

21 Neural Control and Coordination 22 Chemical Coordination and Integration	and digestive disorders - PEM, indigestion, constipation, vomiting, jaundice, diarrhoea. **Chapter-20: Locomotion and Movement** Types of movement - ciliary, flagellar, muscular; Skeletal system and its functions; joints; disorders of muscular and skeletal systems - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout. **Chapter-21: Neural Control and Coordination** Reflex action; sensory perception; sense organs; elementary structure and functions of eye and ear

Practical

The following portion to be retained

Exercise-1 To study parts of a compound microscope
Exercise-2 To identify and study the morphology of representative types of bacteria, fungi and different plant groups
Exercise-3 To study some selected animals on the basis of their external features
Exercise-4 Preparation of temporary slides of animal tissues and their study
Exercise-5 Study of mitosis
Exercise-6 Preparation of herbarium sheets of flowering plants
Exercise-7 Study of external morphology of animals through models
Exercise-8 Study of imbibition in raisins or seeds
Exercise-9 To study the distribution of stomata on the upper surface and the lower surfaces of leaves
Exercise-10 Separation of plant pigments (Chloroplast pigments) by paper chromatography
Exercise-11 To study the rate of respiration in flower buds/ germinating seeds
Exercise-12 Observation and comment on the setup
Exercise-13 To study the enzymatic action of salivary amylase on starch
Exercise-14 To study the effect of temperature on the activity of salivary amylase
Exercise-15 To study the effect of pH on the action of salivary amylase
Exercise-16 To test the presence of sugar in the given sample of urine
Exercise-17 To detect the presence of albumin in the given sample of urine

DELETED PORTIONS CLASS XI: PRACTICAL

A: List of Experiments

1. Description of Family Fabaceae; Types of root (Tap and adventitious); types of stem (herbaceous and woody); leaf(arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary)
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves of onion bulb).
5. Comparative study of the rates of transpiration in the upper and lower surface of leaves.
6. Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.

7. Test for presence of urea in urine. 8. Test for presence of bile salts in urine.
B. Study/Observation of the following (spotting) 1. Tissues and diversity in shape and size of plant cells (palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem and phloem) throughtemporary and permanent slides. 2. Different modifications in roots, stems and leaves. 3. Different types of inflorescence (cymose and racemose). 4. Human skeleton and different types of joints with the help of virtual images/models only