

SYLLABUS DISTRIBUTION [2022-23]**CLASS: XI****SUBJECT: BIOLOGY [044]****DETAILED DISTRIBUTION OF THE SYLLABUS:**

S.N O.	UNIT	NAME OF THE UNIT	CH. NO.	CHAPTER	PRACTICALS	TENATIVE MONTHS
1.	III	STRUCTURE AND FUNCTION	8	Cell-The Unit of Life	Parts of a compound microscope.	AUGUST & SEPTEMBER
			9	Biomolecules	Specimens/slides/models and identification with reasons	
			10	Cell Cycle and Cell Division		
2.	V	HUMAN PHYSIOLOGY	17	Breathing and Exchange of Gases	Virtual specimens/slides/models and identifying features	OCTOBER & NOVEMBER
			18	Body Fluids and Circulation	Study and describe locally available common flowering plants	
			19	Excretory Products and their Elimination	Study of osmosis by potato osmometer	
			20	Locomotion and Movement	Comparative study of the rates of transpiration	
			21	Neural Control and Coordination	Study of distribution of stomata on the upper and lower surfaces of leaves.	
			22	Chemical Coordination and Integration	Mitosis in onion root tip cells and animals cells	
3.	II	STRUCTURAL ORGANIZATION IN ANIMALS AND PLANT	5	Morphology of Flowering Plants	Study of plasmolysis in epidermal peels	DECEMBER AND JANUARY
			6	Anatomy of Flowering Plants	Preparation and study of T.S. of dicot and monocot roots and stems (primary).	
			7	Structural Organisation in Animals	Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.	
4.	I	DIVERSITY OF LIVING ORGANISMS	1	The Living World	Separation of plant pigments through paper chromatography.	JANUARY
			2	Biological Classification	Study of the rate of respiration in	

					flower buds/leaf tissue and germinating seeds.	
			3	Plant Kingdom	Different types of inflorescence	
			4	Animal Kingdom	Human skeleton and different types of joints with the help of virtual images/models only	
5.	IV	PLANT PHYSIOLOGY	13	Photosynthesis in Higher Plants	Test for presence of urea in urine	FEBRUARY
			14	Respiration in Plants	Test for presence of sugar in urine	
			15	Plant - Growth and Development	Test for presence of albumin in urine	
					Test for presence of bile salts in urine	
WRITTEN TEST[12.09.2022 ONWARDS] CHAPTERS 8 AND 9						
HALF YEARLY EXAMINATION CHAPTERS 8, 9, 10, 17, 18, 19, 20 AND 21						
ANNUAL EXAMINATION [ALL THE CHAPTERS EXCEPT THE DELETED ONES WILL COME AS A SYLLABUS]						

THEORY

Time: 03 Hours

Max. Marks: 70

UNIT	NAME OF THE UNIT	MARKS
I	DIVERSITY IN LIVING ORGANISM	15
II	STRUCTURAL ORGANIZATION IN PLANTS AND ANIMALS	10
III	CELL: STRUCTURE AND FUNCTION	15
IV	PLANT PHYSIOLOGY	12
V	HUMAN PHYSIOLOGY	18
	TOTAL	70

PRACTICALS

Time allowed: 3 Hours

Max. Marks: 30

EVALUATION SCHEME	MARKS
One Major Experiment Part A (Experiment No- 1,3,7,8)	5
One Minor Experiment Part A (Experiment No- 6,9,10,11,12,13)	4
Slide Preparation Part A (Experiment No- 2,4,5)	5
Spotting Part B	7
Practical Record + Viva Voce	
Credit to the students' work over the academic session may be given	4
Investigatory Project and its Project and its Record + Viva Voce	5
Credit to the students' work over the academic session may be given	
TOTAL	30

DETAILED TOPICS OF THE CHAPTERS:

Chapter-1: The Living World

Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature

Chapter-2: Biological Classification

Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups; Lichens, Viruses and Viroids.

Chapter-3: Plant Kingdom

Classification of plants into major groups; Salient and distinguishing features and a few examples of Algae, Bryophyta, Pteridophyta, Gymnospermae (Topics excluded – Angiosperms, Plant Life Cycle and Alternation of Generations)

Chapter-4: Animal Kingdom

Salient features and classification of animals, non-chordates up to phyla level and chordates up to class level (salient features and a few examples of each category). (No live animals or specimen should be displayed.)

Unit-II Structural Organization in Animals and Plant

Chapter-5: Morphology of Flowering Plants

Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of family Solanaceae

Chapter-6: Anatomy of Flowering Plants

Anatomy and functions of tissue systems in dicots and monocots.

Chapter-7: Structural Organisation in Animals

Morphology, Anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of frog.

Unit-III Cell: Structure and Function

Chapter-8: Cell-The Unit of Life

Cell theory and cell as the basic unit of life, structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, golgi bodies, lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus.

Chapter-9: Biomolecules

Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzyme - types, properties, enzyme action. (Topics excluded: Nature of Bond Linking Monomers in a Polymer, Dynamic State of Body Constituents – Concept of Metabolism, Metabolic Basis of Living, The Living State)

Chapter-10: Cell Cycle and Cell Division

Cell cycle, mitosis, meiosis and their significance

Unit-IV Plant Physiology

Chapter-13: Photosynthesis in Higher Plants

Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C₃ and C₄ pathways; factors affecting photosynthesis.

Chapter-14: Respiration in Plants

Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient.

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; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA;

Unit-V Human Physiology

Chapter-17: Breathing and Exchange of Gases

Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.

Chapter-18: Body Fluids and Circulation

Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.

Chapter-19: Excretory Products and their Elimination

Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system – structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.

Chapter-20: Locomotion and Movement

Types of movement - ciliary, flagellar, muscular; skeletal muscle, contractile proteins and muscle contraction; 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

Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse

Chapter-22: Chemical Coordination and Integration

Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goitre, diabetes, Addison's disease. Note: Diseases related to all the human physiological systems to be taught in brief.

