SANT NANDLAL SMRITI VIDYA MANDIR, GHATSILA

YEARLY SYLLABUS OF BIOLOGY

SESSION – 2025-26

STD-XI

MONT H	WORKI NG DAYS	WEEK S	NUMBER OF PERIODS	TOPIC TO BE TAUGHT	ACTIVITIES	LEARNING OUTCOMES (THE STUDENT WILL BE ABLE TO)	VALUES IMPARTED
APRIL	21	1st week	6 PERIODS	The Living World – Biodiversity, need for classification: three domains of life, taxonomy and systematics, concept of species, and taxonomical hierarchy, binomial nomenclature	1. Study and describe locally available common flowering plants, from family Solanaceae(poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) including dissection and display of floral whorls, anther and ovary to show number of chambers(floral formulae and floral diagrams), type of root(tap and adventitious); type of stem(herbaceous and woody); leaf(arrangement, shape, venation, simple and compound).	1. Explain the characteristics of living organisms. 2. Discuss biodiversity and rules of nomenclature 3. Explain classification of living organisms	1.Scientific temper
		2nd week	6 PERIODS	Biological Classification – Five kingdom classification; salient features and classification of monera, protista and fungi into major groups; lichens, viruses and viroids	2. Preparation and study of T. S. of dicot root.	1.Explain the criteria for classification 2.Categorize hierarchy in taxonomical classification 3. Enlist the features of five kingdom system of classification 4. Discuss virus and lichens	1.Scientific temper
		3rd week	6 PERIODS	Plant Kingdom – Classification of plants into major groups; salient and distinguishing features and a	3.Preparation and study of T. S. monocot root.	1.Classify plant kingdom 2.Explain bryophyte and pteridophyta and	1.Appreciation of diversities

				few examples of algae, bryophyta,		their life cycle	
		4th week	6 PERIODS	Plant kingdom completed – Pteridophyta, gymnospermae (topics excluded – angiosperms, plant life cycle and alternation of generations)	4. Preparation and study of T. S. dicot stem.	3.Recall lifecycle of gymnosperm and angiosperm	1.Appreciation of diversities
MAY	09	1st week	6 PERIODS	Animal kingdom- classificatio n – Salient features and classification of animals, non-chordates up to phyla level.	5. Preparation and study of T. S.monocot stem.	1.Discuss animal diversity 2.Recognize the need for animal classification.	1.Rational thinking
		2nd week	6 PERIODS	chordates up to class level (salient features and at a few examples of each category). (No live animals or specimen should be displayed)	6. Study of osmosis by potato osmometer	*3.* Recall the characteristics feature and examples of each phylum *4.* List out the general characters of animals of each phylum	1.Rational thinking
JUNE	11	3rd week	6 PERIODS	Morphology of Flowering Plants – Morphology of different parts of flowering plants: root, stem, leaf,	7. Study of plasmolysis in epidermal peels(e.g., rhoeo/ lily leaves or flashy scale leaves of onion bulb).	*1.* Classify types of roots and stems and describe their modifications *2.* Classify leaves ,inflorescence and flowers based on their arrangement .	1. Appreciation of nature

		4th week	6 PERIODS	Morphology of Flowering Plants continued – *inflorescence, flower, fruit, and seed. Description of family Solanaceae.*	8. Study of distribution of stomata on the upper and lower surfaces of leaves.	*3.* To discuss the modifications of flowers and leaves *4.* To give an outline classification of fruits and explain them with examples. *5.* To explain parts of a seed. 6.To list out the characteristics features and economic importance of Fabaceae ,Solanaceae and Liliaceae.	*2.* Free enquiry *3.* Love for nature
JULY	26	1st week	6 PERIODS	Anatomy of Flowering Plants – *Anatomy and functions of tissue systems in dicots,*	9.Comparative study of rates of transpiration in the upper and lower surfaces of leaves	1. To explain ,discuss and recall meristematic tissues and permanent tissues and their types	1.Curiosity
		2nd week	6 PERIODS	Anatomy of Flowering Plants continued – *Anatomy and functions of tissue systems in monocots*	10.Test of the presence of sugar and starch in suitable plant and animal materials	2. To explain and compare the anatomical structure and differences between a dicot and monocot stem , root and leaves.	2. Acquisition of knowledge
		3rd week	6 PERIODS	Structural Organization in Animals – *Morphology, anatomy and functions of digestive, circulatory and respiratory system of frog*	11. Test of the presence of protein and fat in suitable plant and animal materials.	1.To explain the morphology, body systems and economic importance of earthworm ,cockroach and frog	1. Keeping an open mind
		4th week	6 PERIODS	Structural Organization in Animals +class test – *Morphology, anatomy and functions of nervous and reproductive system of frog*	12. Separation of plant pigments through paper chromatography.	2.To compare aestivation and hibernation	1.Scientific temper
August	24	1st week	6 PERIODS	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*	13. Study of the rate of respiration in flower buds/ leaf tissue and germinating seeds	*1.* To discuss, recall and draw the structure of cell *2.* To describe, tabulate and draw the cell organelles, their structure, their functions and their discoverers.	1.Coordination

				reticulum, golgi bodies, lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus.			
		2nd week	6 PERIODS	Biomolecules – *Chemical constituents of living cells: biomolecules, structure, and functions of proteins.*	14. Test of presence of urea in urine.	*1.* To explain the structure ,function and types of carbohydrates, proteins, fats and nucleic acids *2.*To describe properties of enzymes and hormones	2. Acquisition of knowledge 3.Appreciation for the building blocks
		3rd week	6 PERIODS	Biomolecules – *carbohydrates, lipids, and 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)*	15. Test of presence of sugar in urine	*1.* To describe cell cycle and cell division along with various stages of mitosis and meiosis *2.* To differentiate between mitosis and meiosis and explain their significance	1.Creativity 2.Planning 3.Coordination
		4th week	6 PERIODS	Revision + 1st pre term test	----------	1.Revision of learning outcomes of 1st pre term portion	

Septemb er	21	1st week	6 PERIODS	CELL CYCLE AND CELL DIVISION- Cell cycle, mitosis,	16. Test of presence of albumin in urine.	1. To explain the various mechanisms of transport of solutes and water through conducting tissues.	*1.* Rationality *2.* Curiosity
		2nd week	6 PERIOD S	meiosis and their significance.	17. Test of presence of bile salts in urine.	1.To discuss micro and macro mineral nutrients ,their role and their deficiency symptoms in plants	*1.* Acquisition of knowledge *2.* Curiosity
		3rd week	----------	Half yearly exam	----------	REVISION OF HALF YEARLY EXAM PORTION DONE	
		4th week	----------	Half yearly exam	----------	1.To discuss the mechanism of absorption of elements and nitrogen metabolism in relation to plants.	*1.* Acquisition of knowledge *2.* Curiosity
October	18	1st week	6 PERIODS	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;*	18. Parts of a compound microscope	*1.* To draw and describe the labeled ultrastructure of chloroplast. *2.* To explain the mechanism of light and dark reactions and to discuss the steps involved in C3 , C4 and CAM cycle	*1.* Scientific temper *2.* Acquisition of knowledge
		2nd week	6 PERIODS	Photosynthe sis in Higher Plants continued – *Cyclic and non-cyclic photophosphorylation ; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis*	19. Specimens/ Slides/ Models and identification with reasons- Bacteria, Oscillatoria, Spirogyra, Rhizophus, Mushrooms,	*3.* To recognize the role of photosynthetic pigments in photosynthesis and to list the factors that affect photosynthesis. *4.*To list the differences between C3 , C4 and CAM plants	*1.* Scientific temper *2.* Acquisition of knowledge

November	23	1st week	6 PERIODS	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; respirator quotient*	Study of specimens of - Yeast, Liverwort, Moss, Fern, Pine, one monocotyledonous plant, one dicotyledonous plant and one Lichen.	*1.* To describe respiration and its types *2.* To describe the mechanism of glycolysis , citric acid cycle ,electron transport chain and different types of anaerobic respiration.	*1.* Rationality *2.* Curiosity
		2nd week	6 PERIODS	Plant - Growth and Development – *Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation;*	20. Virtual specimens/ slides/ models and identifying features of- amoeba, hydra, liver fluke, ascaris, leech,	*1.* To describe the conditions of seed germination and characters if growth and development. *2.* To explain the various types of phytohormones and their mode of action *3.* To explain senescence and photoperiodism	1.Control 2.Coordination 3.Planning

		3rd week	6 PERIODS	*sequence of developmental processes in a plant cell; plant growth regulators – auxin, gibberellin, cytokinin, ethylene, ABA*	21. Study of specimen of - earthworm, prawn, silkworm, honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit	*1.* To explain the mechanism of digestion , absorption and assimilation in various organs of digestive system *2.* To describe the neural and hormonal control of digestive system and metabolism of major food stuff's	1.Utility 2.Scientific temper
		4th week	6 PERIODS	2nd pre term test test	----------	REVISION OF SECOND PRE-TERM TEST PORTION	
DECE MBER	19	1st week	6 PERIODS	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.*	22. Mitosis in onion root tip cells and animal cells(grasshopper) from permanent slides.	1.To describe the structure of respiratory system and mechanism of respiration in man ..2.To describe the gaseous exchange and transport in different animals and common respiratory disorders	*1.* Scientific temper *2.* Acquisition of knowledge
		2nd week	6 PERIODS	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,*	23. Different types of inflorescence (cymose and racemose).	*1.* To list the types of components of blood and their functions and different types of blood groups. *2.* To describe the structure of human heart, arteries and veins	*1.* Rationality *2.* Curiosity

		3rd week	6 PERIODS	Body Fluids and Circulation continued – *coronary artery disease, angina pectoris, heart failure.*	24. Human skeleton and different types of joints with the help of virtual images/ models only.	*3.* To explain the lymphatic system and its functions. *4.* To describe the diseases due to disorders of the circulatory system.	*1.* Rationality *2.* Curiosity
JANU ARY	22	1st week	6 PERIODS	Excretory Products and Their Elimination – *Modes or 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.*	Revision of practical portion	*1.* To describe the process of excretion in different species. *2.* To describe the internal structure of excretory system in man and process of urine formation *3.* To explain the process of haemodialysis and kidney transplant and common excretory disorders.	1.Hygiene 2.Waste disposal

		2nd week	6 PERIODS	Locomotion and Movement – *Types of movement – ciliary, flagellar, muscular; skeletal muscle, contractile proteins and muscle contraction; skeletal system and its functions;*	Revision of practical portion	*1.* To explain the types of movements. *2.* To describe the structure and function of skeletal system in man	*1.* Scientific temper *2.* Acquisition of knowledge
		3rd week	6 PERIODS	Locomotion and Movement continued – *joints; disorders of muscular and skeletal systems – myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.*	Revision of practical portion	3.To discuss the types of muscles and functions of the muscular system in man	*1.* Scientific temper *2.* Acquisition of knowledge
		4th week	6 PERIODS	Neural Control and Coordination – *Neuron and nerves; nervous system in humans – central nervous system;*	Revision of practical portion	*1.* To explain the neuron as a structural and functional unit of the nervous system *2.* To Illustrate the conduction of nerve impulse with a diagram.	1.Control 2.Coordination 3.Planning
FEBRUARY	22	1st week	6 PERIODS	Neural Control and Coordination continued – *peripheral nervous system and visceral nervous system; generation and conduction of nerve impulses.*	Revision of practical portion	*3.* To describe nervous system in humans. *4.* To describe neural coordination and physiology of reflex action.	1.Control 2.Coordination 3.Planning
		2nd week	6 PERIODS	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 al the human physiological systems to be taught in brief.*	ANNUAL PRACTICAL EXAM	*1.* To explain the concept of hormones *2.* To explain the location of various endocrine glands present in human body *3.* To describe the secretions of various endocrine glands	1.Control 2.Coordination 3.Planning
		3rd week		Revision + Annual exam		REVISION OF ANNUAL EXAM PORTION DONE	

Subject Teacher

Principal