

Himachal Pradesh Board of School Education, Dharamshala

BIOLOGY

Class 10+1 (2022-23)

(Theory)

Course Structure

Time: 03 Hours

Max Marks:60

UNIT	TITLE	MARKS
I	DIVERSITY IN THE LIVING WORLD	13
II	STRUCTURAL ORGANIZATION IN PLANTS & ANIMALS	08
III	CELL: STRUCTURE AND FUNCTIONS	12
IV	PLANT PHYSIOLOGY	10
V	HUMAN PHYSIOLOGY	17
	TOTAL	60

Unit-I : Diversity in the Living World

Chapter-1 : The Living world

What is living? Diversity in the living world Taxonomic categories, Taxonomical Aids, Binomial Nomenclature

Chapter-2 : Biological Classification

Need of Classification, Two Kingdom & Five kingdom classification systems, salient features and classification of kingdom Monera, Protista , Fungi, Plant & Animalia Viruses, Viroids & Lichens.

Chapter-3 : Plant Kingdom

Artificial and Natural systems of Classification, Classification of Plants into major groups, salient and distinguishing features and a few examples of Algae , Bryophytes, Pteridophytes, Gymnosperms and Angiosperms. Plant life cycles and alternation of generations (topics Excluded).

Chapter-4 : Animal Kingdom

Basis of Classification, salient features and classification of animals – non chordates Upto phyla level and chordates upto class level. (salient features and few examples of each category)

UNIT II : Structural Organization in Plants & Animals.

Chapter 5 : Morphology of Flowering Plants

Morphology of Different parts of Flowering plants- Roots, Stem, Leaf, Inflorescence, Flowers, Fruit & Seed. Description of family Fabaceae and Solanaceae.

Chapter 6 : Anatomy of Flowering Plants

The tissues & tissue systems, Anatomy of Dicotyledonous and Monocotyledon plants, Secondary Growth (introduction only)

Chapter 7 : Structural Organization in Animals

Animal Tissues- Their types & functions Morphology, anatomy and functions of different system of Earthworm, Cockroach & Frog.

UNIT III : Cell Structure & Functions

Chapter 8 : Cell: The Unit of Life

Cell as the basic unit of life, Cell Theory, structure of Prokaryotic & Eukaryotic cell, Plant & Animal cell, Cell Membrane, Cell wall, cell organelles- structure & function, endo membrane system , endoplasmic reticulum, golgi body, lysosomes, vacuoles , mitochondria, ribosome, plastids, cytoskeleton, cilia & flagella, centrioles and nucleus (ultrastructure & functions), Micro bodies.

Chapter 9 : Biomolecules

Chemical constituents of living cells ,primary and secondary metabolites , biomolecules, structure and functions of carbohydrates , proteins, lipids and nucleic acids, nature of bonds linking a monomer in a polymer , concept of metabolism , metabolic basis for living, the living state, Enzymes, Enzyme- nature , mode of action factors affecting enzyme activity, their classification & nomenclature .

Chapter 10 : Cell cycle & cell division

Cell cycle & its phases, mitosis meiosis division with elaborate diagrams and their significance.

UNIT IV : Plant Physiology

Chapter 11 : Transport in Plants

Means of transport, Plant water Relations, Long Distance Transport of water Transpiration, Uptake and Transport of Mineral Nutrients, Phloem transport. Mass Flow hypothesis (excluded)

Chapter 12 : Mineral Nutrition

Macro and Micronutrients & their role in plant growth & development, Process of Biological Nitrogen fixation. Nitrogen Cycle (excluded).

Chapter 13 : Photosynthesis in Higher Plants

Importance of Photosynthesis- its site, pigments involved in the process, Light, Reaction. The Electron Transport Chain, Cyclic & Non cyclic Photophosphorylation, Chemiosmotic Hypothesis , The Calvin Cycle , ETS Pathway , Photorespiration, Factors affecting photosynthesis .

Chapter 14 : Respiration in Plants

Cellular Respiration- Glycolysis, fermentation (anaerobic) TCA cycle, ETS & Oxidative Phosphorylation (Aerobic), Respiratory Balance Sheet, Amphibolic Pathway, Respiratory Quotient .

Chapter 15 : Plant Growth & Development

Growth, Phases of Growth, Growth Rates, Differentiation, Dedifferentiation & Redifferentiation processes in a plant cell. Various Plant Growth Regulators – [auxins, gibberellins, cytokinines , ethylene

& ABA –Their physiological effects & agricultural uses, Photoperiodism – (SDP ,LDP & DNP) and their examples.

UNIT V : Human Physiology

Chapter 16 : Digestion and Absorption

Digestive System – Alimentary Canal & Digestive gland, Process of Digestion of carbohydrates proteins, fats & nucleic acids

Absorption of Digested Food.

Disorders of Digestive system.

Chapter 17 : Breathing and Exchange of Gases

Respiratory Organs, Mechanism of Breathing,

Exchange & Transport of Respiratory Gases, Regulation of Respiration, Respiratory Volumes, Disorders of Respiratory System.

Chapter 18 : Body fluids & Circulation

Blood- its composition & functions, Blood Groups, Coagulation of Blood, Lymph and its functions, Human Circulatory System, Structure of Human Heart , Cardiac cycle, EGC, Double circulation, Regulation of cardiac activity, Disorders of circulatory system .

Chapter 19 : Excretory Products and their Elimination

Modes of Excretion - Ureo/Urigo / Ammonotelism, Human Excretory System – Structure & function. Process of Urine formation, Function of Tubules, Counter Current Mechanism (Mechanism of concentration of the filtrate).

Regulation of Kidney Functions, Micturition, Role of other organs in excretion, Disorders of Excretory system.

Chapter 20 : Locomotion & Movement

Types of movements – ciliary, flagellar & muscular.

Muscles – Structure of Skeletal Muscles, Structure of Contractile Proteins , Mechanism of Muscle Contraction, Skeletal System & its functions. Joints – Their types & example, Disorders of Muscular & Skeletal Systems

Chapter 21 : Neural control & coordination

Neural system, Human Neural System. CNS & PNS

Neuron - Structural & functional unit of neural system.

Generation & Conduction of Nerve Impulse.

CNS- Its components & their functions,

Structure of Eye & Ear.

Chapter 22 : Chemical Coordination and Integration

Endocrine glands and Hormones, Human Endocrine System – Hypothalamus Pituitary, Pineal, Thyroid, Parathyroid, Thymus, Adrenal, Pancreas, Gonads (Testis & Ovary)

Hormones of Heart, Kidney & GIT, Mechanism of Hormone Action, Disorders related to hypo & hyper activity of various hormones.

SUBJECT BIOLOGY
Theory session 2022-23
Class 10+1 (Regular)

Time: 3 hours

Blue Print

Maximum Marks : 60

Sr. No.	Name of Unit	1 Mark Question(MCQ)	2 Mark Questions	3 Mark Questions	4 Mark Questions	Total Marks
1	Diversity in the Living World	04	03 (Internal Choice in any one Questions)	01	-	13
2	Structural Organization in Plants & Animals	01	02 (Internal Choice)	01	-	08
3	Cell Structure and Functions	01	02	01 (Internal Choice)	01	12
4	Plant Physiology	02	02 (Internal Choice)	-	01 (Internal Choice)	10
5	Human Physiology	04	01	01	02 (Internal Choice)	17
	Break up of total 30 Questions	12	10	04	04	
	Total Marks	1x12=12	2x10=20	3x4=12	4x4=16	60

Blue Print of MCQ

Sr. No.	Name of Unit	No. of Questions
1	Concept Based/Direct	4
2	Assertion and Reason	2
3	Understanding based and Knowledge based	4
4	Diagram Based Questions	2
	Total	12

Each MCQ carries 1 mark only

No internal choice in the MCQ section

Prescribed Books

Biology

Published by HPBOSE Dharamshala