Haryana Board

Syllabus

2024-25

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BOARD OF SCHOOL EDUCATION HARYANA

Syllabus and Chapter wise division of Marks (2024-25)

Class-XI Subject- Biology Code: 865

General Instructions:

1. There will be an Annual Examination based on the entire syllabus.
2. The annual examination (Theory) will be of 70 Marks whereas Practical examination will be of 30 marks (Internal). Therefore, Total annual evaluation (70+30) will be of 100 marks.
3. For Practical examination the criteria are as follows:

Total Time: 3 Hours

Evaluation Scheme	**Marks**
Marks allocated for Internal Assessment 1. Student Assessment Test Weightage of marks (06 marks of SAT, 02 marks of half yearly test, 02 marks for attendance and classroom participation) 2. Practical file/ Record 3. Project Record	**15** 10 03 02
Marks allocated for Annual Examination	**15**
Experiments (two)	09 (4.5 marks for each experiment)
Activity (One from Syllabus)	03
Viva Voce	03
Total marks	**30**

Course Structure (2024-25)

Class-XI **Subject- Biology** **Code: 865**

Sr. No		Chapters	Total Marks
I	Diversity of Living Organisms	Living World	15
		Biological Classification	
		Plant Kingdom	
		Animal Kingdom	
II	Structural Organization in Plants and Animals	Morphology of Flowering plants	10
		Anatomy of Flowering plants	
		Structural Organization in Animals	
III	Cell: Structure and Function	Cell: The Unit of Life	15
		Biomolecules	
		Cell Cycle and Cell Division	
IV	Plant Physiology	Photosynthesis in Plants	12
		Respiration in Plants	
		Plant Growth and Development	
V	Human Physiology	Breathing and Exchange of Gases	18
		Body Fluid and its Circulation	
		Excretory Products and their Elimination	
		Locomotion and Movement	
		Neural Control and Coordination	
		Chemical Control and Integration	
		Total	70
		Practical	30
		Grand Total	**100**

Unit I: Diversity in the living World:

Chapter 1: The Living World

Diversity in the living world, **Taxonomic Categories**- Species, Genus, Family, Order, Class, Phylum, Kingdom.

Chapter 2: Biological Classification

Kingdom Monera: Archaebacteria, Eubacteria, **Kingdom Protista:** Chrysophytes,Dinoflagellates, Euglenoids, Slime-Moulds, Protozoans, **Kingdom Fungi**: Phycomycetes, Ascomycetes, Basidiomycetes, Deuteromycetes. **Kingdom Plantae**, **Kingdom Animalia**, **Viruses, Viroid, Prions, Lichens**.

Chapter 3: Plant Kingdom

Algae: Chlorophyceae, Phaeophyceae, Rhodophyceae; **Bryophytes**: liverworts, mosses, **Pteridophytes, Gymnosperms**, **Angiosperms.**

Chapter 4: Animal Kingdom

Basis of classification-levels of organization, symmetry, diploblastic and triploblastic organization, coelom, segmentation, notochord, **Classification of animals:** Phylum-Porifera, Coelenterates, (cnidaria), Ctenophora, Platyhelminthes, Aschelminths, Annelida, Arthropoda, Mollusca, Echinodermata, Hemi-Chordata, Phylum Chordata- Subphyla: Urochordata, Cephalo-Chordata, Vertebrata-class-Cyclostomata, Chondrichthyes, Osteichthyes, Amphibia, Reptilia, Aves, Mammalia.

Unit II Structural Organisation in Plants and Animals

Chapter 5: Morphology of Flowering Plants

The root- regions of root; **The leaf**- venation, types of leaves phyllotaxy; **The Inflorescence**; **The flower**, Parts of flower: calyx, corolla, androecium, gynoecium, **The Fruit**; **The seed**- structure of a dicotyledonous seed, structure of monocotyledonous seed. **Semi-technical description of a typical flowering plant**, **Solanaceae**.

Chapter 6: Anatomy of flowering plants:

The tissue system- Epidermal tissue system, the ground tissue system, The vascular tissue system; **Anatomy of dicotyledonous and monocotyledonous plants** – Dicotyledonous root, Monocotyledonous root, Dicotyledonous stem, Monocotyledonous stem and Dorsiventral (Dicotyledonous) leaf, Isobilateral (Monocotyledonous) leaf.

Chapter 7: Structural Organisation in Animals:

Organ and organ systems, **Frogs**- morphology, anatomy.

Unit III: Cell: Structure and Functions

Chapter 8: Cell the Unit of Life

What is a cell? **cell theory**, **an overview of cell**, **prokaryotic cells**, cell envelope and its modifications, ribosome and inclusion bodies; **Eukaryotic cells**, cell membrane, cell wall, endomembrane system: endoplasmic reticulum (ER), Golgi apparatus, lysosomes, Vacuoles; Mitochondria, Plastids, Ribosomes, cytoskeleton, cilia and flagella, centrosome and centrioles, Nucleus, microbodies.

Chapter 9: Biomolecules

How to analyze chemical composition? **Primary and secondary metabolites**, **biomacromolecules**, **proteins**, **polysaccharides**, **nucleic acid**, **Structure of Proteins**, **Enzymes**- chemical reactions, how do enzymes bring about such high rate of chemical conversions? Nature of enzyme action, factors affecting enzymes activity- temperature and pH, concentration of substrate, Classification and nomenclature of Enzymes, co-factors.

Chapter 10: Cell Cycle and Cell division

Cell cycle, phases of cell cycle, **M phase**-Prophase, metaphase, anaphase, telophase, cytokinesis, **Significance of mitosis**; **Meiosis**- meiosis I, meiosis II, **Significance of meiosis**.

Unit IV: Plant Physiology

Chapter 11: Photosynthesis in Higher Plants:

What do we know? **Early experiments**, **Where does photosynthesis take place**? **How many types of pigments are involved in photosynthesis**? **What is light reaction**? **The electron transport**- splitting of water, cyclic and noncyclic photophosphorylation, chemiosmotic hypothesis, **Where are the ATP and NADPH used**?- the primary acceptor of CO_2, The Calvin cycle, **The C_4 pathway**, **Photorespiration**, **Factors affecting Photosynthesis**- Light, carbon dioxide concentration. temperature, water.

Chapter 12: Respiration in Plants:

Do plants breath? **Glycolysis**, **Fermentation**, **Aerobic Respiration**, Tricarboxylic acid cycle, electron transport system and oxidative phosphorylation, **The respiratory balance sheet**, **Amphibolic pathway**, **Respiratory quotient**.

Chapter 13: Plant Growth and Development:

Growth- Plant growth generally is indeterminate, growth is measurable, phases of growth, growth rates, conditions for growth, **Differentiation, dedifferentiation and redifferentiation**. **Development**, **Plant growth regulators**- Characteristics, discovery of plant growth regulators, physiological effects of plant growth regulators- auxins, gibberellins, cytokinin, ethylene, abscisic acid.

Unit V: Human Physiology

Chapter 14: Breathing and Exchange of Gases

Respiratory organs- Human respiratory system, **Mechanism of Breathing**- Respiratory volumes and capacities- tidal volume, IRV, ERV, RV, IC, EC, FRC, VC, TLC, **Exchange of Gases**, **Transport of gases**- transport of oxygen, transport of carbon-dioxide, **Regulation of respiration, Disorders of Respiratory system**.

Chapter 15: Body fluids and Circulation

Blood- Plasma, Formed elements, Blood groups- ABO grouping, Rh grouping; Coagulation of blood, **Lymph (Tissue fluid), Circulatory pathways**- Human circulatory system, Cardiac cycle, Electrocardiograph (ECG), **Double circulation**, **Regulation of cardiac activity, Disorders of circulatory system**.

Chapter 16: Excretory Products and their Elimination

Human Excretory system, **Urine formation, Function of tubules, Mechanism of concentration of the filtrate, Regulation of Kidney function, Micturition, Role of other organs in excretion. Disorders of excretory system**.

Chapter 17: Locomotion and Movement

Types of movement, **Muscle**, structure of contractile proteins, mechanism of muscle contraction; **Skeletal system**, **Joints**, **Disorders of muscular and skeletal system**.

Chapter 18: Neural control and coordination

Neural system, **Human Neural system**, **Neuron as structural and functional unit of neural system**, generation and conduction of nerve impulse, transmission of impulses, **Central Neural System**-Forebrain, midbrain, hindbrain.

Chapter 19: Chemical coordination and Integration:

Endocrine glands and hormones, Human endocrine system, the hypothalamus, the pituitary gland, the Pineal gland, thyroid gland, parathyroid gland, thymus, adrenal gland, Pancreas, Testis Ovary, **Hormones of heart, kidney and gastrointestinal tract, Mechanism of hormone action**.

Practicals:

1. Study parts of a compound microscope.
2. Identify and study the morphology of representative types of bacteria, fungi and different plant groups.
3. Study some selected animals on the basis of their external features.
4. Study and identify different types of inflorescences.
5. Study and describe flowering plants of family Solanaceae.
6. Study anatomy of stem and root of monocots and dicots.
7. Study the distribution of stomata on the upper and lower surfaces of leaves.
8. Detect the presence of carbohydrates, proteins and fats in different plants and animal materials.
9. Study the effect of temperature and pH on the activity of salivary amylase.
10. Study of mitosis.
11. Separation of plant pigments (chloroplast pigments) by paper chromatography.
12. Study the rate of respiration in flower buds/ germinating seeds.
13. Detect the presence of urea, sugar, albumin, bile salts in the given sample of urine.
14. Study the human skeleton.
15. Study different types of joints in human skeleton.

Month wise Syllabus Teaching Plan (2024-25)

Class-XI **Subject- Biology** **Code: 865**

Month	Chapter No.	Teaching Periods	Revision Periods	Periods (Practical)
April	Chapter-1: The Living World Chapter-2: Biological classification Practical: Study parts of a compound microscope.	03 10	01 02	 04
May	Chapter-3: Plant kingdom Practical: Identify and study the morphology of representative types of bacteria, fungi and different plant groups. Chapter-4: Animal Kingdom Practical: Study some selected animals on the basis of their external features.	07 10	04 02	 06 06
June	**Summer Vacation:** Project work, Biology terminology exercise and diagram notebook will be prepared by learners.			

July	Chapter-5: Morphology of Flowering Plants Practical: Study and identify different types of inflorescences. Practical: Study and describe flowering plants of family Solanaceae Chapter-6: Anatomy of Flowering Plants Practical: Study anatomy of stem and root of monocots and dicots. Practical: Study the distribution of stomata on the upper and lower surfaces of leaves.	07 08	02 01	 02 02 04 02
August	Chapter-7: Structural Organisation in animals Chapter-8: Cell: The Unit of Life Chapter 9: Biomolecules Practical: Detect the presence of carbohydrates, proteins and fats in different plants and animal materials.	03 09 12	01 02 02	 06

	Practical: Study the effect of temperature and pH on the activity of salivary amylase.			04
September	Chapter-10: Cell Cycle and Cell Division Practical: Study of mitosis. Revision for half yearly examination Half Yearly Examination	06	02 10	06
October	Chapter-11: Photosynthesis in Higher Plants Practical: Separation of plant pigments (chloroplast pigments) by paper chromatography. Chapter-12: Respiration in Plants Practical: Study the rate of respiration in flower buds/ germinating seeds. Chapter-13: Plant Growth and Development	08 08 06	02 02 02	04 04

November	Chapter-14: Breathing and exchange of Gases Chapter-15: Body Fluids and Circulation	06 08	02 02	
December	Chapter-16: Excretory Products and their Elimination Practical: Detect the presence of urea, sugar, albumin, bile salts in the given sample of urine Chapter-17: Locomotion and Movement Practical: Study the human skeleton. Practical: Study different types of joints in human skeleton. Chapter-18: Neural Control and Coordination	08 08 06	02 02 02	06 02 02
January	Chapter-19: Chemical Coordination and Integration	08	02	
February	Revision		20	
March	Annual Examination			

Note:

- **Subject teachers are advised to direct the students to prepare notebook of the Terminology/ Definitional Words used in the chapters for enhancement of vocabulary or clarity of concepts.**
- **The NCERT textbooks present information in boxes across the book. These help students to get conceptual clarity. However, the information in these boxes would not be assessed in the year end examination.**

Prescribed Books:

1. Biology Class-XI, BSEH Publications © NCERT
2. Laboratory Manual: Biology, Class XI, NCERT Publications
3. Exemplar Problems, Class XI, NCERT Publications

QUESTION PAPER DESIGN (2024-25)

Class: 11 Subject: Biology Subject Code: 865

Time: 3 Hours

Type of Questions	Marks	Number of Questions	Description	Total Marks
Objective Type Questions	1	18	09 Multiple Choice Questions 03 Fill in the blanks 03 One-word answers 03 Assertion Reason type Questions	18
Very Short Answer Type Questions	2	7	Internal Choice will be given in any 3 questions	14
Short Answer Type Questions	3	5	Internal Choice will be given in any 2 questions	15
Case Study Based Questions	4	2	Internal Choice will be given only in one part of both questions	8
Long Answer Type Questions	5	3	Internal Choice will be given in all questions	15
TOTAL		**35**		**70**

Haryana Board Study Material

- Syllabus
- Model Papers
- Previous Year Question Papers
- Books
- Notes