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Class 11th – Biology

1. The Living World

- What is 'living'?
- Diversity in the living world
- Taxonomic categories
  - species
  - Genus
  - Family
  - Order
  - Class
  - Phylum
  - Kingdom
- Taxonomical aids
  - Herbarium
  - Botanical Gardens
  - Museum
  - Zoological Parks
  - Key

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, VIROIDS, PRIONS AND LICHENS

3. Plant Kingdom

- Algae
    - Chlorophyceae
    - Phaeophyceae
    - Rhodophyceae
- Bryophytes
    - Liverworts
    - Mosses
- Pteridophytes
- Gymnosperms
- Angiosperms
- Plant Life Cycles and Alternation of Generations

4. Animal Kingdom

- BASIS OF CLASSIFICATION
    - Levels of Organisation
    - Symmetry

    - Diploblastic and Triploblastic Organisation
    - Coelom
    - Segmentation
    - Notochord
- CLASSIFICATION OF ANIMALS
    - Phylum – Porifera
    - Phylum – Coelenterata (Cnidaria)
    - Phylum – Ctenophora
    - Phylum – Platyhelminthes
    - Phylum – Aschelminthes
    - Phylum – Annelida
    - Phylum – Arthropoda
    - Phylum – Mollusca
    - Phylum – Echinodermata
    - Phylum – Hemichordata
    - Phylum – Chordata

5. Morphology of Flowering Plants

- The Root
    - Regions of the Root
    - Modifications of Root
- The Stem
    - Modifications of Stem
- The Leaf
    - Venation
    - Types of Leaves
    - Phyllotaxy
    - Modifications of Leaves
- The Inflorescence

- The Flower
  - Parts of a Flower
- The Fruit
- The Seed
  - Structure of a Dicotyledonous Seed
  - Structure of Monocotyledonous Seed
- Semi-technical
- Description of a Typical Flowering Plant
  - Fabaceae
  - Solanaceae
  - Liliaceae
- Description of Some Important Families

6. Anatomy of Flowering Plants

- The Tissues
  - Meristematic Tissues
  - Permanent Tissues
- 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
  - Dorsiventral (Dicotyledonous) Leaf
  - Isobilateral (Monocotyledonous) Leaf

- Secondary Growth
  - Vascular Cambium
  - Cork Cambium
  - Secondary Growth in Roots

7. Structural Organisation in Animals

- Animal Tissues
- Organ and Organ System
- Earthworm
- Cockroach
- Frogs

8. Cell: The Unit of Life

- What is a Cell?
- Cell Theory
- An Overview of Cell
- Prokaryotic Cells
  - Cell Envelope and its Modifications
  - Ribosomes and Inclusion Bodies
- Eukaryotic Cells
  - Cell Membrane
  - Cell Wall
  - Endomembrane System
  - Mitochondria
  - Plastids
  - Ribosomes
  - Cytoskeleton
  - Cilia and Flagella
  - Centrosome and Centrioles

- Nucleus
- Microbodies

9. Biomolecules

- How to Analyse Chemical Composition?
- Primary and Secondary Metabolites
- Biomacromolecules
- Proteins
- Polysaccharides
- Nucleic Acids
- Structure of Proteins
- Nature of Bond Linking Monomers in a Polymer
- Dynamic State of Body Constituents - Concept of Metabolism
- Metabolic Basis for Living
- The Living State
- Enzymes

10. Cell Cycle and Cell Division

- Cell Cycle
- M Phase
- Significance of Mitosis
- Meiosis
- Significance of Meiosis

11. Transport in Plants

- Means of Transport
- Plant-Water Relations
- Long Distance Transport of Water

- Transpiration
- Uptake and Transport of Mineral Nutrients
- Phloem Transport: Flow from Source to Sin

12. Mineral Nutrition

- Methods to Study the Mineral Requirements of Plants
- Essential Mineral Elements
- Mechanism of Absorption of Elements
- Translocation of Solutes
- Soil as Reservoir of Essential Elements
- Metabolism of Nitrogen

13. Photosynthesis in Higher Plants

- What do we Know?
- Early Experiments
- Where does Photosynthesis take place?
- How many Pigments are involved in Photosynthesis?
- What is Light Reaction?
- The Electron Transport
- Where are the ATP and NADPH Used?
- The C4 Pathway
- Photorespiration
- Factors affecting Photosynthesis

14. Respiration in Plants

- Do Plants Breathe?
- Glycolysis
- Fermentation

- Aerobic Respiration
- The Respiratory Balance Sheet
- Amphibolic Pathway
- Respiratory Quotient

15. Plant Growth and Development

- Growth
- Differentiation, Dedifferentiation and Redifferentiation
- Development
- Plant Growth Regulators
- Photoperiodism
- Vernalisation

16. Digestion and Absorption

- Digestive System
- Digestion of Food
- Absorption of Digested Products
- Disorders of Digestive System

17. Breathing and Exchange of Gases

- Respiratory Organs
- Mechanism of Breathing
- Exchange of Gases
- Transport of Gases
- Regulation of Respiration
- Disorders of Respiratory System

18. Body Fluids and Circulation

- Blood
- Lymph (Tissue Fluid)
- Circulatory Pathways
- Double Circulation
- Regulation of Cardiac Activity
- Disorders of Circulatory System

19. Excretory Products and their Elimination

- Human Excretory System
- Urine Formation
- Function of the Tubules
- Mechanism of Concentration of the Filtrate
- Regulation of Kidney Function
- Micturition
- Role of other Organs in Excretion
- Disorders of the Excretory System

20. Locomotion and Movement

- Types of Movement
- Muscle
- Skeletal System
- Joints
- Disorders of Muscular and Skeletal System

21. Neural Control and Coordination

- Neural System
- Human Neural System
- Neuron as Structural and Functional Unit of Neural System

- Central Neural System
- Reflex Action and Reflex Arc
- Sensory Reception and Processing

22. Chemical Coordination and Integration

- Endocrine Glands and Hormones
- Human Endocrine System
- Hormones of Heart, Kidney and Gastrointestinal Tract
- Mechanism of Hormone Action