Biology
(Code No. 044)

DELETED PORTIONS CLASS XI

- **Under Unit 1: Diversity of Living Organisms**
  - **Chapter-1: The Living World**
    - taxonomy and systematics;
    - tools for study of taxonomy- museums, zoological parks, herbaria, botanical gardens, keys for identification.
  - **Chapter-3: Plant Kingdom**
    - Angiospermae; Angiosperms - classification up to class, characteristic features and examples.

- **Under Unit-II Structural Organization in Animals and Plants**
  - **Chapter-5: Morphology of Flowering Plants**
    - Morphology and modifications: Morphology of different parts of flowering plants: root, stem, leaf, fruit and seed.
    - Description of families: - Fabaceae
  - **Chapter-6: Anatomy of Flowering Plants**
    - Anatomy and functions of different tissues and tissue systems in dicots and monocots. Secondary growth.
  - **Chapter-7: Structural Organisation in Animals**
    - Morphology, Anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach), (a brief account only).

- **Under Unit-IV Plant Physiology**
  - **Chapter-11: Transport in Plants**
    - Movement of water, gases and nutrients; cell to cell transport, diffusion, facilitated diffusion, active transport; plant-water relations, imbibition, water potential, osmosis, plasmolysis; long distance transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; transpiration, opening and closing of stomata; Uptake and translocation of mineral nutrients - Transport of food, phloem transport, mass flow hypothesis.
  - **Chapter-12: Mineral Nutrition**
    - Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity; elementary idea of hydroponics as a method to study mineral nutrition; nitrogen metabolism, nitrogen cycle, biological nitrogen

fixation.

- **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;
  - Seed dormancy; vernalisation; photoperiodism

- **Under Unit-V Human Physiology**
  - **Chapter-16: Digestion and Absorption**
    - Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; calorific values of proteins, carbohydrates and fats; egestion; nutritional and digestive disorders - PEM, indigestion, constipation, vomiting, jaundice, diarrhoea.
  - **Chapter-20: Locomotion and Movement**
    - Types of movement - ciliary, flagellar, muscular;
    - Skeletal system and its functions; joints; disorders of muscular and skeletal systems - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

Class –XI

- **Chapter-21: Neural Control and Coordination**
  - reflex action; sensory perception; sense organs; elementary structure and functions of eye and ear

DELETED PORTIONS CLASS XI: PRACTICAL

A: List of Experiments

1. Description of Family Fabaceae; Types of root (Tap and adventitious); types of stem (herbaceous and woody); leaf(arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary)
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves of onion bulb).
5. Comparative study of the rates of transpiration in the upper and lower surface of leaves.
6. Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.
7. Test for presence of urea in urine.

8. Test for presence of bile salts in urine.

B. Study/Observation of the following (spotting)

1. Tissues and diversity in shape and size of plant cells (palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem and phloem) throughtemporary and permanent slides.
2. Different modifications in roots, stems and leaves.
3. Different types of inflorescence (cymose and racemose).
4. Human skeleton and different types of joints with the help of virtual images/models only.

DETAILED PORTION CLASS XII

- **Under Unit Unit-VI Reproduction**
    - **Chapter-1: Reproduction in Organism**
        - Reproduction, a characteristic feature of all organisms for continuation of species; modes of reproduction - asexual and sexual reproduction; asexual reproduction - binary fission, sporulation, budding, gemmule formation, fragmentation; vegetative propagation in plants.

- **Under Unit-VII Genetics and Evolution**
    - **Chapter-7: Evolution**
        - Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy – Weinberg's principle; adaptive radiation; human evolution.

- **Under Unit-VIII Biology and Human Welfare**
    - **Chapter 9: Strategies for Enhancement in Food Production**
        - Animal husbandry, Plant breeding, tissue culture, single cell protein.

- **Under Unit-X Ecology and Environment**
    - **Chapter-14: Ecosystem**
        - Ecosystems: Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological services - carbon fixation, pollination, seed dispersal, oxygen release (in brief).
    - **Chapter 16: Environmental Issues**
        - Air pollution and its control; water pollution and its control; agrochemicals and their effects; solid waste management; radioactive waste management; greenhouse effect and climate change impact and mitigation; ozone layer depletion; deforestation; exemplifying case study as success story addressing environmental issue(s).

DELETED PORTIONS CLASS XII: PRACTICAL

A: List of Experiments

1. Study the presence of suspended particulate matter in air at two widely different sites.
2. Study the plant population density by quadrat method.
3. Study the plant population frequency by quadrat method.

B. Study/Observer of the following (spotting)

1. Pollen germination on stigma through a permanent slide or scanning electron micrograph.
2. Mendelian inheritance using seeds of different colour/sizes of any plant.
3. Controlled pollination - emasculation, tagging and bagging.