

## NEET Syllabus 2025 Classwise for Biology

### Class 11

#### Unit 1 – Diversity of Living Organisms Change

What is living? ; Biodiversity; Need for classification;; Taxonomy & Systematics; Concept of species and taxonomical hierarchy; Binomial nomenclature;

Five kingdom classifications: salient features and classification of Monera; Protista and Fungi into major groups: Lichens Viruses and Viroids.

.salient features and classification of plants into major groups-Algae, Bryophytes, Pteridophytes, Gymnosperms (three to five salient and distinguishing features and at least two examples of each category);

Salient features and classification of animals non chordate up to phyla level and chordate up to classes level (three to five salient features and at least two examples)'

#### Unit 2 – Structural Organization in Plants & Animals Change

Morphology and modifications; Tissues; Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence- cymose and racemose, flower' fruit and seed 1To be dealt along with the relevant practical of the Practical Syllabus) Family (malvaceae, Cruciferae, leguminosae, compositae, gramineae)'

Animal tissues; Morphology, anatomy, and functions of different systems (digestive, circulatory, respiratory, nervous, and reproductive) of an insect (Frog)' (Brief account only)

#### Unit 3 – Cell Structure and Function No Change

cell theory and cell as the basic unit of life; Structure of prokaryotic and eukaryotic cell; Plant cell and animal cell; Cell envelope' cell membrane, cell wall; Cell organelle structure and function; Endomembrane system-endoplasmic reticulum' Golgi bodies' lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; Cytoskeleton' cilia flag''lla centrioles (ultrastructure and function); Nucleus-nuclear membrane' chromatin, nucleolus.

chemical constituents of living cells: Biomolecules-structure and function of proteins, carbohydrates. lipids, nucleic acids; Enzymes-types, properties' enzyme action' classification and nomenclature of enzymes

B Cell division: Cell cycle, mitosis, meiosis, and their significance

#### Unit 4 – Plant Physiology

Photosynthesis: Photosynthesis as a means of Autotrophic nutrition; Site of photosynthesis takes place; pigments involved in Photosynthesis (Elementary-.idea); Photochemical and biosynthetic phases of photosynthesis; Cyclic and non-cyclic and photophosphorylation; chemiosmotic hypothesis; photorespiration c3 and c4 pathways; Factors affecting photosynthesis.

Respiration: Exchange gases; cellular respiration-glycolysis. fermentation (anaerobic), TCA cycle and electron transport system (aerobic); Energy relations- Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient.

Plant growth and development: Seed germination; phases of plant growth and plant growth rate; Conditions of growth; Differentiation, differentiation, and redifferentiation; Sequence of developmental process in a plant cell; Growth regulators auxin, gibberellin, cy. cytokinin, ethylene, ABA;

#### Unit 5 – Human Physiology

Breathing and Respiration: 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 volumes; Disorders related to respiration-Asthma Emphysema, Occupational respiratory disorders.

‘ 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, coronary artery disease, Angina pectoris, Heart failure.

Excretory products and their elimination: Modes of 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; Uraemia, Renal failure, Renal calculi, Nephritis; Dialysis and artificial kidney.

Locomotion and Movement: Types of movement- ciliary, flagellar, muscular; Skeletal muscle- contractile proteins and muscle contraction; Skeletal system and its functions (To be dealt with in the relevant practical of practical syllabus); Joints; Disorders of muscular and skeletal system-Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, Osteoporosis, Gout.

Neural control and coordination: Neuron and nerves; Nervous system in human central nervous system, peripheral nervous system, and visceral nervous system; Generation and conduction of nerve impulses;

chemical coordination and regulation: 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 (common disorders e.g. Dwarfism, Acromegaly, Cretinism, goiter, exophthalmic goiter, diabetes, Addison’s disease).

(Important: Diseases and disorders mentioned above to be dealt with in brief.)

#### Class 12

#### Unit 6 – Reproduction

Sexual reproduction in flowering plants: Flower structure; Development of male and female gametophytes; Pollination-types, agencies, and examples; Outbreeding devices; Pollen-Pistil interaction; Double fertilization; Post fertilization events- Development of endosperm and embryo, Development of seed and formation of fruit; Special modes apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation.

Human Reproduction: Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis-spermatogenesis & oogenesis; Menstrual cycle; Fertilisation, embryo

development up to blastocyst formation, implantation: Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea).

Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control-Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies – IVF, ZIFT, GIFT (Elementary idea for general awareness).

#### Unit 7 – Genetics & Evolution

Heredity and variation: Mendelian inheritance; Deviations from Mendelism-Incomplete dominance, Co-dominance, Multiple alleles, and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination-In humans' birds, honey bee; Linkage and crossing over; Sex-linked inheritance-Haemophilia colour blindness; Mendelian disorders in humans-Thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Molecular basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation- Lac Operon; Genome and human genome project; DNA finger printing, protein biosynthesis.

Evolution: Origin of life; Biological evolution and evidence for biological evolution from Paleontology, comparative anatomy, embryology, and molecular evidence); 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.

#### Unit 8 – Biology and Human Welfare

Health and Disease; Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis. Typhoid, Pneumonia, common cold, amoebiasis, ring worm, dengue, chikungunya); Basic concepts of immunology-vaccines; Cancer, HIV and AIDS; Adolescence, drug, and alcohol abuse. Tobacco abuse

Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation, and as biocontrol agents and biofertilizers.

#### Unit 9 – Biotechnology and its Applications

Principles and process of Biotechnology: Genetic engineering (recombinant DNA technology).

Application of Biotechnology in Health and Agriculture: Human insulin and vaccine production, gene therapy Genetically modified organisms-Bt crops: Transgenic Animals Biosafety issues-Biopiracy and patents.

#### Unit 10 – Ecology and Environment

organisms and environment Population interactions-mutualism, competition, predation, parasitism Population attributes-growth, birth rate and death rate, age distribution.

Ecosystem: Patterns, components; productivity and decomposition: Energy flow: Pyramids of number, biomass, energy

Biodiversity and its conservation: concept of Biodiversity; patterns of Biodiversity: Importance of Biodiversity; Loss of Biodiversity Biodiversity conservation; Hotspots, endangered organisms. extinction; Red Data Book. biosphere reserves, National parks, and sanctuaries, Sacred Groves.