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NEET UG

SYLLABUS 2026–27

BIOLOGY

As prescribed by the National Medical Commission (NMC)

10 Units • 90 Questions • 360 Marks (Botany & Zoology)

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BIOLOGY

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UNIT 01 DIVERSITY IN LIVING WORLD

- What is living? Biodiversity; need for classification; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature.
- Five kingdom classification; 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-chordates up to phyla level and chordates up to classes level (three to five salient features and at least two examples).

UNIT 02 STRUCTURAL ORGANISATION IN ANIMALS AND PLANTS

- **Morphology and modifications;** tissues; anatomy and functions of different parts of flowering plants: root, stem, leaf, inflorescence – cymose and racemose, flower, fruit and seed (to be dealt with along with the relevant practical of the Practical Syllabus). Family (Malvaceae, Cruciferae, Leguminosae, Compositae, Graminae).
- **Animal tissues;** morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (Frog). (Brief account only)

UNIT 03 CELL STRUCTURE AND FUNCTION

- **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 organelles – structure and function; endomembrane system – endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, 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.
- **Cell division:** Cell cycle, mitosis, meiosis and their significance.

UNIT 04 PLANT PHYSIOLOGY

- **Photosynthesis:** Photosynthesis as a means of autotrophic nutrition; site of photosynthesis; pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C_3 and C_4 pathways; factors affecting photosynthesis.
- **Respiration:** Exchange of 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, dedifferentiation and redifferentiation; sequence of developmental process in a plant cell; growth regulators – auxin, gibberellin, cytokinin, ethylene, ABA.

UNIT 05 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 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 humans – central nervous system, peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse.
- **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, goitre, exophthalmic goitre, diabetes, Addison's disease). *(Diseases and disorders mentioned above to be dealt in brief.)*

UNIT 06 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 and 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 07 GENETICS AND 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 fingerprinting, protein biosynthesis.
- **Evolution:** Origin of life; biological evolution and evidences for biological evolution (from palaeontology, 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 08 BIOLOGY AND HUMAN WELFARE

- **Health and disease:** Pathogens; parasites causing human diseases (malaria, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ringworm, 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 09 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.

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