CBSE CLASS 12 BIOLOGY SYLLABUS 2024-25

Unit	Title	Marks
VI	Reproduction	16
VII	Genetics and Evolution	20
VIII	Biology and Human Welfare	12
IX	Biotechnology and its Applications	12
X	Ecology and Environment	10
	TOTAL	**70**

Unit-VI Reproduction

Chapter 2: Sexual Reproduction in Flowering Plants

- Structure of Flower
- Development of male gametophyte
- Development of female gametophyte
- Types of pollination
- Agencies of pollination and examples
- Out breeding 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 dispersal and fruit formation.

Chapter 3: Human Reproduction

- Male reproductive system
- Female reproductive system

- Microscopic anatomy of the ovary and testis gametogenesis
- Oogenesis and spermatogenesis
- Menstrual cycle
- Fertilization
- Embryo development until blastocyst formation, implantation
- Pregnancy, and the formation of the placenta ***(elementary idea)***
- Parturition ***(elementary idea)***
- Lactation ***(elementary idea)***

Chapter 4: Reproductive Health

- Necessity for reproductive health
- Prevention of Sexually Transmitted Diseases (STDs)
- 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-VII Genetics and Evolution

Chapter 5: Principles of Inheritance and Variation

- Heredity and variation
- Mendelian inheritance
- Deviations from Mendelism
- Incomplete dominance
- Co-dominance
- Multiple alleles
- Inheritance of blood groups
- Pleiotropy
- Elementary idea of polygenic inheritance
- Chromosome theory of inheritance
- Chromosomes and genes
- Sex determination - in humans, birds, and honey bees
- Linkage and crossing over
- Sex-linked inheritance - hemophilia, color blindness
- Mendelian disorders in humans - Thalassemia
- Chromosomal disorders in humans
- Down's syndrome, Turner's, and Klinefelter's syndromes

Chapter 6: 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
- Human and rice genome projects
- DNA fingerprinting.

Chapter-7: Evolution

- Origin of life
- Biological evolution and evidence for biological evolution
    - Paleontology
    - Comparative anatomy
    - Embryology
    - 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-VIII: Biology and Human Welfare

Chapter 8: Human Health and Diseases

- Pathogens
- Parasites causing human diseases and their control
    - Malaria
    - Dengue
    - Chikungunya
    - Filariasis
    - Ascariasis

    - Typhoid
    - Pneumonia
    - Common cold
    - Amoebiasis
    - Ringworm
- Basic concepts of immunology
- Vaccines
- Cancer
- HIV and AIDS
- Adolescence - drug and alcohol abuse.

Chapter 10: Microbes in Human Welfare

- Microbes in food processing
    - Industrial production
    - Sewage treatment
    - Energy generation
- Microbes as bio-control agents and bio-fertilizers
- Antibiotics production and judicious use

Unit-IX Biotechnology and its Applications

Chapter-11: Biotechnology - Principles and Processes

- Genetic Engineering (Recombinant DNA Technology).

Chapter 12: Biotechnology and its Applications

- Application of biotechnology in health and agriculture
- Human insulin and vaccine production
- Stem cell technology
- Gene therapy
- Genetically modified organisms
- Bt crops
- Transgenic animals
- Biosafety issues
- Biopiracy
- Patents

Unit-X Ecology and Environment

Chapter 13: Organisms and Populations

- Population interactions
    - Mutualism
    - Competition
    - Predation
    - Parasitism
- Population attributes
    - Growth
    - Birth rate
    - Death rate
    - Age distribution.

(Topics excluded: Organism and its Environment, Major Abiotic Factors, Adaptations and Responses to Abiotic Factors)

Chapter-14: Ecosystem

- Ecosystems
- Patterns
- Components
- Productivity and decomposition
- Energy flow
- Pyramids of number, biomass, energy

(Topics excluded: Ecological Succession and Nutrient Cycles)

Chapter 15: Biodiversity and Its Conservation

- Biodiversity-Concept, patterns, importance
- Loss of biodiversity
- Biodiversity conservation
- Hotspots
- Endangered organisms
- Extinction
- Red Data Book
- Sacred Groves
- Biosphere reserves
- National parks
- Wildlife sanctuaries
- Ramsar sites