

**Syllabus**  
**Session 2020-21**  
**Class XII Biology**

<b>Unit</b>	<b>Title</b>	<b>Marks</b>
<b>VI</b>	<b>Reproduction</b>	<b>14</b>
<b>VII</b>	<b>Genetics and Evolution</b>	<b>18</b>
<b>VIII</b>	<b>Biology and Human Welfare</b>	<b>14</b>
<b>IX</b>	<b>Biotechnology and its Applications</b>	<b>12</b>
<b>X</b>	<b>Ecology and Environment</b>	<b>12</b>
<b>TOTAL</b>		<b>70</b>

**Unit-VI**

**Reproduction**

**Chapter-2: 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 dispersal and fruit formation

**Chapter-3: Human Reproduction**

Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis - spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

#### **Chapter-4: Reproductive Health**

Need for reproductive health and 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 and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - in human being, birds and 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.

#### **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.

### Unit-VIII

#### Biology and Human Welfare

##### Chapter-8: Human Health and Diseases

Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; 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 and 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 Application

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 and patents.

### Unit-X

#### Ecology and Environment

##### Chapter-13: Organisms and Populations

Organisms and environment: Habitat and niche, population and ecological adaptations; population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate and death rate, age distribution.

**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 and Ramsar sites.

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