Class – XII
Subject- Biology
Syllabus

Month	Name of Book	Chapters & Topics	Teaching Period	Revision Period	Practical Practical
April	Biology BSEH Bhiwani XII	. Ch. 2 Sexual Reproduction in flowering plants.	19	5	8+8=16
May	do	Ch. 3 Human Reproduction Ch. 4 Reproductive Health	19	5	8+8=16
June	Summer vacation 1st june to 30 june				
July	do	Ch. 5 Principles of Inheritance and Variation Ch. 6 Moleculer Basis of Inhertance	20	4	8+8=16
August	do	Ch. 8 Human Health and Disease	19	5	8+8=16
September	do	Ch. 10 Microbes in Human Welfare	19	5	8+8=16
October	do	Ch. 11 Bio Technology: Principles and Processes Ch. 12 Bio Technology And its Application	19	5	8+8=16
November	do	Ch. 13 Organism and population	19	5	8+8=16
December	do	Ch. 15 Bio Diversity and Conservation	15	3	12
January	do		12	4	10
February	do	Revision		18	12
March		Exam			

Class 12th
Subject-Biology
Syllabus

Unit : VI : Reproduction:

Chapter No.-02

Sexual Reproduction in Flowering Plants:

- Flower fascinating organs of Angiosperms.
- Prefertilization:- structure and events-stamen, microsporangium & Pollen grain, Structure of microsporangium, microsporosonsis.
- Pollen grain, Pollen Products. Pistil, megasporangium (ovule). Megasperogenesis, female gametophyte or embryosac.
- Pollinations, kinds of Pollinations, Agents of Pollinations, Adaptations in flowers for pollination, out-breeding devices. Pollen robbers & nectar robber, Pollen pistil interaction, Artificial hybridization. Double fertilization, Post fertilization:- Structure & Events.
- Endosperms, Embryo - dicot & monocot, non albcominous and albuminous seed, coleorhiza, coleoptiles, advantages of seed, seed, dormancy, fruit-true & false.
- Parthenocarpic fruit, Apomixis, polyembryony, Hybrid Varieties.

Chapter No.-03

Human Reproduction:

Male Reproductive system, Female Reproductive system, structure of mammory gland Gametogenesis- spermatogenesis, oogenesis. Role of Harmones in gametogenesis, Structure of sperms & ovum. Menstrual cycle fertilization & implantation, sex of baby, Pregnancy & embryonic development. Placenta, its role, Major features of embryonic development during pregnancy. Parturition & Lactation & Colostrums.

Chapter No.-04

Reproductive Health:

Reproductive Health- Problems & Strategies, RCH its role. Aminocentesis, Population explosion, Birth-control Infant Mortality Rate & Maternal Mortality Rate. Effects of population explosion, Ideal contraceptives, various methods of population control natural & artificial. Medical termination of Pregnancy. Why MTP? STD, various method/measure to control the STD. Infertility & various ART.

Unit :VII : Genetics And Evolution:

Chapter No.-05

Principles of Inheritance and Variation:

Mendel's law of inheritance, contrasting traits studied by Mendel in pea, steps in making a cross in Pea. Inheritance of one gene.

Definitions- gene, allele, genotype, phenotype, homozygous & heterozygous, dominant, recessive. Monohybrid cross, Punett square, test cross, law of dominance, law of segregation, incomplete dominance, explanation of concept of dominance. Codominance, multiple allelism, inheritance of two genes (Dihybrid cross) law of independent Assertment, chromosomal theory of inheritance, comparison between behavior of chromosome & genes. Drosophila melanogaster, linkage and recombination, sex determination: sex chromosome and autosomes, male & female heterogameity, sex determination in human, mutation, pedigree analysis, Mendelian disorders- Haemophilia, sickle cell Anaemia, phenylketonuria, chromosomal disorders- aneuploidy & polyploidy down's syndrome, klinfelter's & turner's syndrome.

Chapter No.-06

Molecular Basis of Inheritance:

The DNA: Structure of polynucleotide chain, central Dogma. Packaging of DNA helix, histone & Non histone, nucleosome, Euchromation & hetero chromatin. The search for genetic material Transforming Principle, Biochemical characterisation of transforming Principle. The Genetic material in DNA. Properties of Genetic material (DNA & RNA). Criteria of genetic material. RNA world, DNA Replication, Semiconservative mode with experimental proof. The Machinery and enzyme, transcription, transcription Unit, Template and coding strand, Transcription unit and gene, exon and introns. Types of RNA and process of transcription. Splicing, capping and tailing. Genetic code, Mutation and genetic code, sickle cell Anaemia, Fram shift mutations. tRNA- the adapter molecule, Translation. Initiator and terminator codon. Role of Ribosome in translation. Regulation of gene expression, lac operon, HGP, Goats salient features of Human Genome, Application and future challenges, DNA fingerprinting, repetitive & satellite DNA.

Unit : VIII : Biology in Human Welfare:

Chapter No.-08

Human Health and Disease:

Health, Disease and types, common disease in Human- Typhoid, pneumonia, common cold, malaria, life cycle of plasmodium, amoebiasis, Ascarasis, Elephantiasis (Filarasis) Ringworms, prevention and control of infections disease, Immunity- innate, acquired. Structure of antibody molecule, Primary & secondary response, different types of Antibody Humoral & cell mediated Immunity. Active & passive Immunity, vaccinations & Immunisation, Allergies, Autoimmunity, Immune system in the body- Lymphoid organs, MALT, AIDS, Replication of Retrovirus, Cancer, Benign & Malignant Tumour, Metastasis Cercinogens. Drugs and alcohol abuse, smoking, adolescence & Drug/alcohol abuse, Addiction & dependence, withdrawal symptoms, effect of Drugs/alcohol abuse, Preventions and control of Drugs.

Chapter No.-10

Microbes in Human Welfare:

Microbes in House hold products, Microbes in Industrial Products, (fermenters), fermented beverages, Antibiotics, chemicals, Enzymes & Other bioactive molecules, Microbes in sewage treatment, BOD, flocs, Activated sludge, biogas, Ganga & Yamuna Action plan. Microbes in production of biogas, Biogas plant, Microbes as Biocontrol Agents, Bt cotton, Baculovirus, Microbes as biofertilizers, organic farming.

Unit : IX : Biotechnology :

Chapter No.-11

Biotechnology- Principles & Processes:

Principles of biotechnology, gene cloning, plasmid, Restriction Enzyme, basic steps in genetically modifying an organism. Tools of Recombinent DNA technology: Restriction Enzymes, Recoginition sequence, Palindromic Nucleotide sequence, gel electrophoresis, cloning vectors, competent host (reconibinent DNA) Processes of DNA technology- isolation of genetic material (DNA), cutting of DNA at specific location, PCR, Insertion of rDNA into host, obtaining the foreign gene Product, Bioreactors, Down stream Processing.

Chapter No.-12

Biotechnology and its Applications:

Three critical research areas of biotechnology, Biotechnology Applications in Agriculture, Green revolution, Genetically modified organisms (GMO), Bt-Cotton, cry gene & Cry protein, Pest Resistant Plants, RNA interference, Biotechnological Applications in Medicines - Genetically Engineered Insulin, Gene therapy, Molecular Diagnosis, Transgenic animals, Ethical Issues, GEAC (Genetic Engineering Approval Committee), Biopiracy.

Unit : X : Ecology:

Chapter No.-13

Organisms & Population :

- Levels of Biological organization, organisms and environment Major biomes of India, Major A biotic factors- Temp, Eury thermal & Stenothermal, Water, light & soil.
- Responses to Abiotic factors, homeostasis, Regulators & confermors migration, suspend, Adaptations in Desert plants & animals, Aestivation & Hibernation.
- Allen's rule, Altitude sickness, Behaviorial responses with variation in environment.
- Population Attributes, Population ecology, Age structure/age pyramid for human population, Population density.
- Population Growth- natality, mortality, immigration, Emigration Growth Models- Exponential, & logistic growth curve.
- Life history variations, Population-interaction-Predation, competition, Gause'principle, competitive release, Parasitism, adaptation in parasites, resource partitioning. Ectoparasite & endoparasite, Brood-parasitism, commensalism, mutualism, one-to-one relationship, sexual deceit.

Chapter No.-15

Biodiversity & Conservation:

- Biodiversity –types, How many species are there on earth & how may in India Representation of global bio-diversity: Proportionate number of species of major taxa of plants, invertebrates & vertebrates, India a mega diversity nation.
- Pattern of Bio-diversity –latitudinal gradients, species area relationship, the importance of species diversity- Rivet Popper hypothesis, loss of bio-diversity, causes of bio-diversity loss, Habitat loss & fragmentation, over exploitation, alien species, invasion, co-extinction. Why should we conserve biodiversity? How do we can serve biodiversity? In situ conservation, ex situ conservation, Earth summit & world summit.