

**KENDRIYA VIDYALAYA SANGATHAN, KOLKATA REGION****SPLIT - UP OF SYLLABUS [2019-20]  
CLASS – XII: BIOLOGY****THEORY**

<b>UNIT</b>	<b>TITLE</b>	<b>MARKS</b>	<b>NO. OF PERIODS</b>
VI	Reproduction	14	30
VII	Genetics and Evolution	18	40
VIII	Biology and human welfare	14	30
IX	Biotechnology and application	10	30
X	Ecology and environment	14	30
	<b>TOTAL</b>	<b>70</b>	<b>160</b>

**PRACTICAL**

<b>Sl. No.</b>	<b>Evaluation Scheme</b>		<b>Marks</b>
1.	<b>One Major Experiment</b>		<b>5 Marks</b>
2.	<b>One Minor Experiment</b>		<b>4 marks</b>
3.	<b>Slide Preparation</b>		<b>5 marks</b>
4.	<b>Spotting</b>		<b>7 marks</b>
5.	<b>Practical Record + Viva Voce</b>	<b>Credit to the students work over the academic session may be given.</b>	<b>4 marks</b>
6.	<b>Project Record + Viva Voce</b>		<b>5 marks</b>
	<b>Total</b>		<b>30 marks</b>

**SYLLABUS FOR MONTHLY TESTS / PRE BOARDS – 2019-20**  
**CLASS –XII : SUB – BIOLOGY**

<b>TEST / EXAM SCHEDULE(Tentative)</b>	<b>CHAPTERS</b>	<b>TOTAL MARKS</b>
Monthly test 1	Syllabus completed upto 9th May 2019	70
Monthly test 2	Syllabus completed upto July 2019	70
Monthly test 3	Syllabus completed upto August 2019	70
Monthly test 4	Syllabus completed upto September 2019	70
Pre Board I	Entire syllabus	70
Pre Board II	Entire syllabus	70

Sl.No	Working Days & Month	Chapter No.	Detailed Split Up Syllabus	Period for Teaching
1.	April & May (22+8)	Reproduction (Unit-VI) Chapter - 1,2,3,4	<p><b>Chapter-1:</b> Reproduction in Organisms Reproduction, a characteristic feature of all organisms for continuation of species; modes of reproduction - asexual and sexual reproduction; asexual reproduction - binary fission, sporulation, budding, gemmule formation, fragmentation; vegetative propagation in plants.</p> <p><b>Chapter-2:</b> 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.</p> <p><b>Chapter-3:</b> 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).</p> <p><b>Chapter-4:</b> 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).</p> <p><b>Practical-</b>  <b>A.1&amp; B.2 Study of pollen germination on a slide and stigma.</b>  <b>A.9 Isolation of DNA from available plant material</b>  <b>B.3 Study and identify stages of gametic development i.e T.S. of Testis and T.S. of ovary from permanent slides.</b>  <b>B.1 Study of flowers adapted to pollination by different agencies</b>  <b>B5. Study of T.S. of Blastula through permanent slide</b></p>	<p>30(28+02 practical periods)</p> <p><b>UNIT VI:</b>  <b>13 spiral 1</b>  <b>13 spiral 2</b>  <b>04 revisit of all the chapters)</b></p>

2.	June & July (10+26)	Genetics and Evolution – (Unit-VII) Chapter – 5, 6, 7	<p><b>Chapter-5: Principles of Inheritance and Variation</b> 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 and honey bee; linkage and crossing over; sex linked inheritance – hemophilia, colour blindness; Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.</p> <p><b>Chapter-6: Molecular Basis of Inheritance</b> 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 and rice genome projects; DNA fingerprinting.</p> <p><b>Chapter-7: Evolution</b> Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); 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.</p> <p><b>B4. Study of meiosis from prepared slides</b> <b>B.6. Mendelian inheritance using seeds of different colours / sizes.</b> <b>B7. Study of pedigree from prepared charts</b></p>	<p>40(32+8 practical periods)</p> <p><b>UNIT VII:</b> <b>18 spiral 1</b> <b>18spiral 2</b> <b>04 revisit of all the chapters</b></p>
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Sl.No	Working Days & Month	Chapter No.	Detailed Split Up Syllabus	Period for Teaching
3.	August (23)	Biology and Human welfare (Unit-VIII) Chapter – 8, 9, 10	<p><b>Chapter-8:</b> Human Health and Diseases Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, 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.</p> <p><b>Chapter-9:</b> Strategies for Enhancement in Food Production <b>Improvement in food production:</b> Plant breeding, tissue culture, single cell protein, Bio fortification, Apiculture and Animal husbandry.</p> <p><b>Chapter-10:</b> Microbes in Human Welfare In household food processing, industrial production, sewage treatment, energy generation and microbes as biocontrol agents and bio fertilizers. Antibiotics; production and judicious use</p> <p><b>Practical-</b> <b>B8. Exercise on controlled pollination- emasculation, tagging etc. B9. To identify common disease causing organisms. A8. Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch</b></p>	<p>30(20+10 practical periods)</p> <p><b>UNIT VIII:</b> 13 spiral 1 13 spiral 2 04 revisit of all the chapters</p>
4.	September (23)	Biotechnology (Unit-IX) Chapter- 11, 12	<p><b>Chapter-11:</b> Biotechnology - Principles and processes Genetic Engineering (Recombinant DNA Technology).</p> <p><b>Chapter-12:</b> 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, bio piracy and patent.</p> <p><b>Practical-B10 &amp;11. Study and comment on Xerophytic and aquatic plants and animals A3. Study of pH , clarity and presence of any living organism in water sample A7. Prepare a temporary mount of onion root tip to study mitosis.</b></p>	<p>30(20+10 practical periods)</p> <p><b>UNIT IX:</b> 13 spiral 1 13 spiral 2 04 revisit of all the chapters)</p>

Sl.No	Working Days & Month	Chapter No.	Detailed Split Up Syllabus	Period for Teaching
5.	October & November (16+06)	Ecology (Unit-X) Chapter-13-16	<p><b>Chapter-13:</b> 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.</p> <p><b>Chapter-14:</b> Ecosystem Ecosystems: Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological services - carbon fixation, pollination, seed dispersal, oxygen release (in brief).</p> <p><b>Chapter-15:</b> 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, sanctuaries and Ramsar sites.</p> <p><b>Chapter-16:</b> Environmental Issues Air pollution and its control; water pollution and its control; agrochemicals and their effects; solid waste management; radioactive waste management; greenhouse effect and climate change; ozone layer depletion; deforestation; any one case study as success story addressing environmental issues.</p> <p><b>Practicals-</b> <b>A2. Collect and study soil, texture, moisture etc. Study pH and water holding capacity of different soil samples</b> <b>A4. Study presence of suspended particulate matter in air</b> <b>A5&amp;6. Population density and population frequency by quadrat method.</b></p>	<p>30(22+8 practical periods)</p> <p><b>UNIT X:</b> <b>13 spiral 1</b> <b>13 spiral 2</b> <b>04 revisit of all the chapters)</b></p>

**Note:**

1. The syllabus for class XII to be completed by 10-11-2019
2. Theory topics to be correlated with practical topics.
3. Each of the unit to be taught by spiral teaching method
  - a) Spiral 1 : Basic concepts of all the chapters of the given unit.
  - b) Spiral 2 : Left over content of all the chapters of the given unit
  - c) Revisit : Recapitulation of all the chapters of the given unit.