KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Dr. Preeti Sharma
Class – B.Sc. Biotechnology, Sem- V
Subject– Immunology
Paper–B23-BTY-501

July,2025 **4thWeek** **24, 25, 26 July**	Introduction and overview of Immunology, Cells and organs of the Immune system
27 July,2025	**Sunday**
31 July	**Shaheed Udham Singh Martyrdom Day**
August,2025 1stWeek **1, 2 Aug**	Primary and secondary responses Innate immunity: anatomic, physiological, phagocytic and inflammatory barriers
3 Aug, 2025	**Sunday**
2ndWeek **7 , 8 Aug**	Adaptive Immunity: Humoral and cell-mediated. Inter-relationship between innate and acquired immunity
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rdWeek **14 Aug**	Concept of antigenicity and immunogenicity
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4thWeek **21, 22, 23 Aug**	Antigens, epitopes, haptens and adjuvants Basic structure of antibodies
24Aug,2025	**Sunday**
5thWeek **28, 29, 30 Aug**	Antibody classes and their biological activity, Antigenic determinants on Immunoglobulins, Immunoglobulin super family.
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November,2025)

Name of the Teacher– Dr. Preeti Sharma
Class – B.Sc. Biotechnology, Sem- V
Subject– Immunology
Paper–B23-BTY-501

September,2025 **1st Week** **4, 5, 6 Sept**	Antigen-antibody interactions immunoprecipitation, agglutination
7 Sept , 2025	**Sunday**
2ndWeek **11, 12, 13 Sept**	B-cell receptor-structure and function, T-cell receptor
14 Sept , 2025	**Sunday**
3rdWeek **18, 19, 20 Sept**	Introduction of self-tolerance and MHC-restriction Structure and Role of Major Histocompatibility Complex
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4thWeek **25, 26, 27 Sept**	Antigen processing and presentation, Complement system and its activation pathways Cytokines and their role
28 Sept,2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November,2025)

Name of the Teacher– Dr. Preeti Sharma
Class – B.Sc. Biotechnology, Sem- V
Subject– Immunology
Paper–B23-BTY-501

October,2025 **1st Week** **3, 4 Oct**	Hypersensitivity reactions-their types and mechanism
2 Oct, 2025 **5 Oct, 2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **9, 10, 11 Oct**	.Autoimmune disorders Passive and active immunization
7 Oct, 2025 **12 Oct, 2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **16, 17, 18 Oct**	Hybridoma Technology: production of monoclonal antibodies
19 Oct – 26 Oct	**Vacations (Diwali)**
5th Week **30, 31 Oct**	Revision

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November,2025)

Name of the Teacher– Dr. Preeti Sharma
Class – B.Sc. Biotechnology, Sem- V
Subject– Immunology
Paper–B23-BTY-501

November,2025 **1st Week** **1 Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2ndWeek **3 Nov-8 Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rdWeek **13, 14, 15 Nov**	Vaccines: live attenuated, killed, subunit, conjugate and DNA vaccines.
16 Nov,2025	**Sunday**
4thWeek **20, 21, 22 Nov**	Revision + Class Test
23 Nov,2025	**Sunday**
5thWeek **24 November, 2025 Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Dr. Preeti Sharma
Class – M.Sc. Biotechnology, Sem- III
Subject– Immunology
Paper–M24-BTY-305

July,2025 **4th Week** **23, 24, 26 July**	Introduction and overview of Immunology, Cells of the Immune system.
27July,2025	**Sunday**
5th Week **28, 30 July**	Innate and cellular immunity.
31 July	**Shaheed Udham Singh Martyrdom Day**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Dr. Preeti Sharma
Class – M.Sc. Biotechnology, Sem- III
Subject– Immunology
Paper–M24-BTY-305

August,2025 **1st Week** **2 Aug**	Physical and chemical barriers, cellular defenses, inflammation
3 Aug, 2025	**Sunday**
2nd Week **4, 6, 7 Aug**	Receptors involved in innate immune system, cells and organs involved in adaptive immune response
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rd Week **11, 13, 14 Aug**	Fate of antigen after penetration ,interrelationship between innate and acquired immunity
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4th Week **18, 20, 21, 23 Aug**	Requirements of Immunogenicity, Primary and secondary responses. Major classes of antigens
24Aug,2025	**Sunday**
5th Week **25, 27, 28, 30 Aug**	Basic structure of antibodies, Antibody classes and biological activity, Antigenic determinants on Immunoglobulins, Immunoglobulin super family.
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November,2025)

Name of the Teacher– Dr. Preeti Sharma
Class – M.Sc. Biotechnology, Sem- III
Subject– Immunology
Paper–M24-BTY-305

September,2025 **1st Week** **1, 3, 4, 6 Sept**	Organization and expression of immunoglobulin genes. Antigen-antibody interactions immunoprecipitation, agglutination,
7 Sept , 2025	**Sunday**
2ndWeek **8, 10, 11, 13 Sept**	ELISA, Immunofluorescence, Flow cytometry Complement system and its activation, structure and role of Major histo-compatibility complex
14 Sept , 2025	**Sunday**
3rdWeek **15, 17, 18, 20 Sept**	T-cell receptor-structure, complex and accessory membrane molecules Thymic selection of T-cells, T-Cell activation and differentiation,
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4thWeek **24, 25, 27 Sept**	B-cell maturation, activation and proliferation, humoral response Cytokines- properties and receptors
28Sept,2025	**Sunday**
5thWeek **29 Sept**	Hypersensitivity reactions- their types and mechanism,

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November,2025)

Name of the Teacher– Dr. Preeti Sharma
Class – M.Sc. Biotechnology, Sem- III
Subject– Immunology
Paper–M24-BTY-305

October,2025 **1st Week** **1, 4 Oct**	Cancer and the immune system, Cancer immunotherapy
2 Oct, 2025 **5 Oct, 2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2ndWeek **6, 8, 9, 11 Oct**	.Hybridoma Technology: commercial production of antibodies using monoclonal antibodies
7 Oct, 2025 **12 Oct, 2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rdWeek **13, 15, 16, 18 Oct**	Vaccines: live attenuated, killed, subunit, conjugate and DNA vaccines. Production of recombinant antibodies and edible vaccines
19 Oct – 26 Oct	**Vacations (Diwali)**
5thWeek **27, 29, 30 Oct**	Revision

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November,2025)

Name of the Teacher– Dr. Preeti Sharma
Class – M.Sc. Biotechnology, Sem- III
Subject– Immunology
Paper–M24-BTY-305

November,2025 **1st Week** **1 Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2ndWeek **3 Nov-8 Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rdWeek **10, 12, 13, 15 Nov**	Development of diagnostics and biotech and nanotech tools.
16 Nov,2025	**Sunday**
4thWeek **17, 19, 20, 22 Nov**	Revision + Class Test
23 Nov,2025	**Sunday**
5thWeek **24 November, 2025** **Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. II Minor Semester III

Subject– Cell Biology

Paper– B23-BTY-301

July,2025 **4thWeek** **22, 23 July, 2025**	Introduction of cell biology, basics of cell biology and book discussion.
27July,2025	**Sunday**
31 July	**Shaheed Udham Singh Martyrdom Day**
2ndWeek **4, 5, 6 Aug**	Discovery of cell and Cell Theory; Comparison between plant and animal cells.
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rdWeek **11, 12, 13 Aug**	Structure and function of Protoplasm, Cell wall, Plasma membrane, Modification of plasma membrane and intracellular junctions.
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4thWeek **18, 19, 20 Aug**	Cytoskeleton, Mitochondria, Chloroplast, ER, Golgi complex, Structure and function of Lysosome.
24Aug,2025	**Sunday**
5thWeek **25, 26, 27 Aug**	Structure and function of endosome and microbodies, Ribosome, Centriole, Nucleus, Chromosomes, Chemical components of a cell.
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. II Minor Semester III

Subject– Cell Biology

Paper– B23-BTY-301

September,202 5 1st Week 1, 2, 3 Sept	Catalysis and use of energy by cells. Biogenesis of Cellular organelles – Biogenesis of mitochondria, chloroplast, ER, Golgi complex.
7 Sept , 2025	**Sunday**
2nd Week 8, 9, 10 Sept	Biosynthetic process in ER and Golgi apparatus, Protein synthesis and folding in the cytoplasm, Degradation of cellular components.
14 Sept , 2025	**Sunday**
3rd Week 15, 16, 17 Sept	Structure and function of Prokaryotic cell and its components - The Slime and the cell wall of bacteria containing peptidoglycan and related molecules.
21Sept,2025 22Sept,2025 23Sept,2025	**Sunday Maharaja AgrasenJayanti Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week 22, 23, 24 Sept	The outer membrane of Gram-negative bacteria, the cytoplasmic membrane, Water and ion transport, mesosomes, flagella, Pilus, fimbriae, ribosomes.
28Sept,2025	**Sunday**
5th Week 29 Sept – 30 Sept,2025	Carboxysomes, sulfur granules, glycogen, polyphosphate bodies, fat bodies, gas vesicles; endospores, exospores, cysts.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. II Minor Semester III

Subject– Cell Biology

Paper– B23-BTY-301

October,202 5 1st Week 1Oct	Mycelia of fungi and Actinomycetes, Cytoskeleton filament, heterocysts and akinets of Cyanobacteria, Gliding and motility.
2Oct, 2025 5Oct,2025	**Mahatma Gandhi Jayanti/Dussehra Sunday**
2nd Week 6, 7, 8 Oct	Membrane structure and transport – Models of membrane structure, Membrane lipids, proteins and carbohydrates.
7Oct,2025 12Oct,2025	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti Sunday**
3rd Week 13, 14, 15 Oct	Solute transport by Simple diffusion, Facilitated diffusion and Active transport.
19Oct – 26 Oct	**Vacations (Diwali)**
5th Week 27, 28, 29 Oct	Cell cycle - An overview of cell cycle, Components of cell cycle control system.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. II Minor Semester III

Subject– Cell Biology

Paper– B23-BTY-301

November,202 5 1st Week 1Nov,2025 2 Nov, 2025	**Haryana Day Sunday**
2nd Week 3, 4, 5 Nov	**Sessional Exams**
5 Nov,2025 9 Nov,2025	**Guru Nanak Dev Jayanti Sunday**
3rd Week 10, 11, 12 Nov, 2025	Intracellular and Extra-cellular control of cell division, Programmed cell death (Apoptosis).
16Nov,2025	**Sunday**
4th Week 17, 18, 19 Nov, 2025	Revision and Discussion.
23Nov,2025	**Sunday**
5th Week 24November,2025 Onwards	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. I Minor Semester I

Subject– Laboratory Techniques & Practices

Paper– B23-BTY-103

July,2025 **4thWeek** **23, 24 July, 2025**	Introduction of Lab Safety Rules and Book Discussion.
27July,2025	**Sunday**
31 July	**Shaheed Udham Singh Martyrdom Day**
2ndWeek August, 2025 **6, 7 Aug, 2025**	Lab rules and safety measures to be taken in Biotechnology Lab., Commonly used equipments for Biotechnological workLaminar air-flow, Centrifuge, pH meter.
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rdWeek **13, 14Aug, 2025**	Incubator, Fermenter, Colony-counter, Autoclave, Inoculating loop and needle, Use of bright-field microscope, Colorimeter and spectrophotometer.
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4thWeek **20, 21Aug, 2025**	Incubator, Fermenter, Colony-counter, Autoclave, Inoculating loop and needle, Use of bright-field microscope, Colorimeter and spectrophotometer.
24Aug,2025	**Sunday**
5thWeek **27, 28 Aug, 2025**	Qualitative and quantitative estimation of various biomolecules- sugars, proteins; determination of various metabolites in given biological samples, Preparation of standard curve.
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. I Minor Semester I

Subject– Laboratory Techniques & Practices

Paper– B23-BTY-103

September,202 5 1st Week 3, 4 Sept, 2025	Preparation of buffers, Preparation of normal, molar, percent solutions, buffer solutions and determination of their pH, Thin-layer, Paper and Two-dimensional Chromatography, Paper electrophoresis.
7 Sept , 2025	**Sunday**
2nd Week 10, 11 Sept, 2025	Sterilization techniques followed in biotechnology lab.-dry and wet sterilization techniques, Preferred method of sterilization for different materials.
14 Sept , 2025	**Sunday**
3rd Week 17, 18 Sept, 2025	Biological indicators for checking the efficiency of sterilization process, Evaluation of different disinfectants and antiseptics and their usage.
21Sept,2025 22Sept,2025 23Sept,2025	**Sunday Maharaja AgrasenJayanti Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week 24, 25 Sept, 2025	Microorganisms, Preparation of cotton plugs.
28Sept,2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. I Minor Semester I

Subject– Laboratory Techniques & Practices

Paper– B23-BTY-103

October,202 5 1st Week 1, 2 Oct, 2025	Different types of culture media for growth of microorganisms.
2Oct, 2025 5Oct, 2025	**Mahatma Gandhi Jayanti/Dussehra Sunday**
2nd Week 8, 9 Oct, 2025	Animal and plant cell culture media.
7Oct,2025 12 Oct, 2025	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti Sunday**
3rd Week 15, 16 Oct, 2025	Revision and Discussion
19Oct – 26 Oct	**Vacations (Diwali)**
5th Week 29, 30 Oct, 2025	Preparation of dilutions and isolation of micro-organisms from air, water and soil.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – B.Sc. I Minor Semester I

Subject– Laboratory Techniques & Practices

Paper– B23-BTY-103

November,202 5 1st Week 1Nov,2025 2 Nov, 2025	**Haryana Day Sunday**
2nd Week 3 Nov-8Nov	**SessionalExams**
5 Nov,2025 9 Nov,2025	**Guru Nanak Dev Jayanti Sunday**
3rd Week 12, 13 Nov	Subculturing/ Picking off technique- streaking, pour-plate, spread plate methods.
16Nov,2025	**Sunday**
4th Week 19, 20 Nov, 2025	Revision and Discussion
23Nov,2025	**Sunday**
5th Week 24November,2025 Onwards	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – M.Sc. II Semester III

Subject– Molecular Genetics

Paper– M24-BTY-303

July,2025 **4th Week** **25, 26 July, 2025**	Introduction of Molecular Genetics, Mutation.
27 July,2025	**Sunday**
5th Week **28 July, 2025**	Book Discussion of Molecular Genetics.
31 July	**Shaheed Udham Singh Martyrdom Day**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – M.Sc. II Semester III

Subject– Molecular Genetics

Paper– M24-BTY-303

August,2025 **1st Week** **1Aug – 2 Aug,2025**	Eukaryotic Genome Structure and Organization: Genome sequence and chromosome diversity, Variation in chromosome number, Special features of metaphase chromosomes, Chromosome banding.
3 Aug, 2025	**Sunday**
2nd Week **4Aug, 8Aug,2025**	Genome size and complexity, organization and content of human genome, Repetitive DNA, Microsatellites, genome wide repeats, Split genes, overlapping genes, cryptic genes, Retrogenes, Multigene families.
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rd Week **11Aug,2025**	Pseudo genes, Nucleosome-Basic Structure, spatial arrangements of histones, chromatosome, Solenoid model, Chromatin domains, Chromatin modifications.
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4th Week **18, 22, 23 Aug,2025**	The Mutability of DNA: An overview of mutation and polymorphism, VNTR polymorphism, DNA damage- spontaneous, Induced (Alkylation, oxidation, radiation).
24Aug,2025	**Sunday**
5th Week **25, 28, 29 Aug,2025**	Genotoxicity/ mutagenicity test systems - Ames test, Sister Chromatid exchanges, Micronucleus, Comet assay, Positive and Negative control of transcription, Repression and activation, Organization and regulation of Lac, Trp and Ara operon in E. coli, Organization of genome in lambda phage (early, middle and late genes).
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – M.Sc. II Semester III

Subject– Molecular Genetics

Paper– M24-BTY-303

September,20 25 1st Week 1, 5, 6 Sept,2025	Regulation of lytic cascade, Antitermination, Repressor proteins (c1, c11, c111, cro), Establishment of lysogeny, cooperative binding of repressor, maintenance of autogenous circuit by c1 repressor**.**
7 Sept , 2025	**Sunday**
2ndWeek 8, 12, 13Sept,2025	Transcription Regulation in Eukaryotes: Eukaryotic activators, DNA binding domains, Transcriptional repressors, positive and negative regulation of Yeast galactose utilizing genes.
14 Sept , 2025	**Sunday**
3rdWeek 15, 19, 20 Sept,2025	Signal transduction and control of transcriptional regulators, Gene silencing, Epigenetic gene regulation, Regulatory RNAs: Riboswitches, Interfering RNA (RNAi) and gene expression.
21Sept,2025 22Sept,2025 23Sept,2025	**Sunday Maharaja AgrasenJayanti Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4thWeek 26, 27 Sept,2025	Short interfering RNA (siRNA) and its functions, MicroRNA and its functions, Antisense RNA and gene expression, an overview of CRISPER-Cas9 gene editing technology.
28 Sept,2025	**Sunday**
5thWeek 29 Sept,2025	Site-Specific Recombination: Concept, Recombinases and their function, cre-lox recombination, Biological role and applications of site-specific recombination in genome manipulation.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – M.Sc. II Semester III

Subject– Molecular Genetics

Paper– M24-BTY-303

October,2025 **1st Week** **3, 4 Oct, 2025**	Genome Mapping: DNA markers for genetic mapping-RFLP, SSP, SNPs, Physical Mapping- Restriction mapping, Florescent in situ hybridization (FISH), Sequence tagged sites (STS) mapping.
2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **6, 10, 11Oct, 2025**	Genome Sequencing: Types-Whole genome sequencing, Whole exome sequencing, targeted sequencing, metagenomic sequencing; Clone by clone approach or map-based sequencing, shot gun sequencing; Technologies for genome sequencing- 1st generation sequencing methods (Sanger sequencing, Pyrosequencing), Next generation sequencing- High throughput sequencing; Applications of genome sequencing.
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **13, 17, 18 Oct, 2025**	Comparative Genomics: Concept, Orthologs and paralogs, exon shuffling, Horizontal gene transfer, genome similarity, Comparative genomics in prokaryotes and eukaryotes, genomic synteny, phylogenetic footprinting.
19Oct – 26 Oct	**Vacations (Diwali)**
5th Week **27Oct- 31 Oct,2025**	Functional Genomics -Expression profiling, Transcriptome, DNA Arrays, Gene function determination (Gene knockout strategy, Insertional mutagenesis) Metabolic Engineering: Principle and methods of metabolic engineering.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Dr. Ritu Rani

Class – M.Sc. II Semester III

Subject– Molecular Genetics

Paper– M24-BTY-303

November,202 5 1st Week 1Nov,2025 2 Nov, 2025	**Haryana Day Sunday**
2nd Week 3 Nov-8Nov	**Sessional Exams**
5 Nov,2025 9 Nov,2025	**Guru Nanak Dev Jayanti Sunday**
3rd Week 10, 14, 15 Nov,2025	Directed production of molecules, production of novel compounds, Case studies on rerouting of metabolic pathways; Applications of metabolic engineering.
16Nov,2025	**Sunday**
4th Week 17, 21, 22 Nov,2025	Revision and Disscussion
23Nov,2025	**Sunday**
5th Week 24November,2025 Onwards	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. I
Subject – Biomolecules
Paper – M24-BTY-101

August, 2025 **4th Week** **19, 21, 23 Aug**	Carbohydrates: Structure, occurrence and biological importance of important monosaccharides. Oligosaccharides and polysaccharides. Carbohydrate of lndustrial importance (cane sugar, starch, gum arabica, pectin, cellulose).
24 Aug, 2025	**Sunday**
5th Week **26, 28, 30 Aug**	Glycosaminoglycans; Proteoglycans. Water: Structure, hydrogen bonding, as a biological solvent, ionization and fitness of the aqueous environment for living organisms; pH; Buffers; an introduction to physiological buff'ers.
31 Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. I
Subject – Biomolecules
Paper – M24-BTY-101

September, 2025 **1st Week** **2, 4, 6 Sept**	Amino acids and Proteins: Common structural features, classification by R group; Zwitter ion structures, acid-base properties and titration curves of amino acids.
7 Sept , 2025	**Sunday**
2nd Week **9, 11, 13 Sept**	Essential amino acids; biologically active peptide. Classification and different structural levels (Primary, secondary, tertiary & quatemary) of proteins
14 Sept , 2025	**Sunday**
4th Week **16, 18, 20 Sept**	Ramachandran plot. Basic introduction to terms: domains, motifs, prion protein. Determination of amino acid sequences of proteins;
21 Sept, 2025 **22 Sept, 2025** **23 Sept, 2025**	**Sunday** **Maharaja Agrasen Jayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week **25, 27 Sept**	Determination of amino acid sequences of proteins; Effect of amino acid sequencg on the function of a protein and Stability.
28 Sept, 2025	**Sunday**
5th Week **30 Sept, 2025**	Chemical synthesis of polypeptides.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. I
Subject – Biomolecules
Paper – M24-BTY-101

October, 2025 **1st Week** **2, 4 Oct**	Lipids: Classification, structures, nomcnclature of fatty acids: Essential fatty acids; Acylglycerols
2 Oct, 2025 **5 Oct, 2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **7, 9, 11 Oct**	Characterization of .f'ats-Saponification value, iodine number, rancidity, acid value; Structure and properties of phospholipids and sphingolipids (sphingomyelins, cerebrosides & gangliosides);
7 Oct, 2025 **12 Oct, 2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **14, 16, 18 Oct**	Structure and functions of prostaglandins, Prostacyclins, Thromboxanes, leukotrienes and Sterols.
19 Oct – 26 Oct	**Vacations (Diwali)**
5th Week **28, 30 Oct**	Nucleic Acids: Structure and properties of purines and pyrimidine bases; Nucleosides and Nucleotides.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. I
Subject – Biomolecules
Paper – M24-BTY-101

November, 2025 **2nd Week** **3 Nov - 8 Nov**	**Sessional Exams**
5 Nov, 2025 **9 Nov, 2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rd Week **11, 13, 15 Nov**	Biologically important nucleotides; Nuclcic acids as the genetic material experimental evidences; Chargafls rules. The covalent backbone of nuclcic acids; Double helical model of DNA structure.
16 Nov, 2025	**Sunday**
4th Week **17, 18, 22 Nov**	Structural polymorphism of DNA (A, B and Z-DNA) and RNA; Denaturation & annealing of DNA; Biological functions of nucleotides; Chemical synthesis of oligonucleotides.
23 Nov, 2025	**Sunday**
5th Week **24 November,2025** **Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Plant Biotechnology
Paper – M24-BTY-301

July, 2025 **4th Week** **22, 23, 26 July**	Introduction to Plant Biotechnology. Current status of transgenic crops; Bane and boon of GM crops.
27 July, 2025	**Sunday**
5th Week **28, 29, 30 July**	Concerns about GM crops– environmental, biosafety and ethical issues.
31 July	**Shaheed Udham Singh Martyrdom Day**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Plant Biotechnology
Paper – M24-BTY-301

August, 2025 **1st Week** **2 Aug**	**Plant genetic transformation:** Organization of plant genome – Nuclear genome, Chloroplast genome and mitochondrial genome.
3 Aug, 2025	**Sunday**
2nd Week **4, 5, 6 Aug**	Gene tagging. Chloroplast transformation – vector designing, method and advantages.
9 Aug, 2025 **10 Aug, 2025**	**Raksha Bandhan** **Sunday**
3rd Week **11, 12, 13 Aug**	*Agrobacterium* mediated transformation – Ti and Ri plasmids, role of virulence genes, mechanism of T-DNA transfer. Vectors based on Ti and Ri plasmids – cointegrate and binary vectors, technique and factors affecting *Agrobacterium* mediated transformation of plants.
15 Aug, 2025 **16 Aug, 2025** **17 Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4th Week **18, 19, 20, 23 Aug**	Direct gene transfer – particle bombardment, ArF excimer laser, electroporation, microinjection and alternative methods. Screenable and selectable markers.
24 Aug, 2025	**Sunday**
5th Week **25, 26, 27, 30 Aug**	Analysis of transgenic plants: for the presence, integration and expression of transgenes and by biological assays. Gene silencing in transgenic plants.
31 Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Plant Biotechnology
Paper – M24-BTY-301

September, 2025 **1st Week** **1, 2, 3, 6 Sept**	Gene stacking in plants: methods, advantages and drawbacks of each method. Strategies for introducing biotic resistance: Viral resistance; Fungal resistance;
7 Sept , 2025	**Sunday**
2nd Week **8, 9, 10, 13 Sept**	Strategies for introducing biotic Resistance: Insect resistance; Herbicide resistance; Strategies for introducing abiotic stress tolerance: Various abiotic stresses (like drought, salinity, temperature).
14 Sept , 2025	**Sunday**
3rd Week **15, 16, 17, 20 Sept**	Genetic engineering of plants for molecular farming/pharming: Production of antibodies, vaccines and other medically related proteins in plants.
21 Sept, 2025 **22 Sept, 2025** **23 Sept, 2025**	**Sunday** **Maharaja Agrasen Jayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week **24, 27 Sept**	Nutritional enhancement of plants (carbohydrates, seed storage proteins, vitamins).
28 Sept, 2025	**Sunday**
5th Week **29, 30 Sept, 2025**	Manipulation of flower colours and production of enzymes of industrial importance.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Plant Biotechnology
Paper – M24-BTY-301

October, 2025 **1st Week** **1, 4 Oct**	Plant cells as bio-factories for the production of secondary metabolites: Secondary metabolites. Types of cell culture systems used for production of secondary metabolites.
2 Oct, 2025 **5 Oct, 2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **6, 7, 8, 11 Oct**	Advantages of in vitro production of secondary metabolites. Strategies used for high yield of product – development and selection of high yielding cell line cultures. Optimization of factors affecting yield of plant cells (physical culture conditions, media and other biochemicals).
7 Oct, 2025 **12 Oct, 2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **13 Oct - 18 Oct**	Immobilization of plant cells. Bioreactors for plant cell, organ and immobilized plant cell cultures.
19 Oct – 26 Oct	**Vacations (Diwali)**
5th Week **27 Oct- 31 Oct**	Biotransformation. Permeabilization of cells and removal of secreted products.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Plant Biotechnology
Paper – M24-BTY-301

November, 2025 **2nd Week** **3 Nov - 8 Nov**	**Sessional Exams**
5 Nov, 2025 **9 Nov, 2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rd Week **10, 11, 12, 15 Nov**	**Intellectual Property Rights, Biosafety and Ethical Issues:** Intellectual property rights (IPR): Patents, trade secrets, copyright, Geographical indications, trademarks.
16 Nov, 2025	**Sunday**
4th Week **17, 18, 19, 22 Nov**	GATT & TRIPPS; Patenting of biological material; Plant breeders rights (PBRs) and farmers rights; Clean gene technology;
23 Nov, 2025	**Sunday**
5th Week **24 November,2025 Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Biotechnology and Human Welfare
Paper – M24-OEC-303

July, 2025 **4th Week** **25, 26 July**	Introduction
27 July, 2025	**Sunday**
31 July	**Shaheed Udham Singh Martyrdom Day**
August, 2025 **1st Week** **1 Aug – 2 Aug**	**Industrial Biotechnology** Introduction, Isolation and screening of microbes, approaches for strain development.
3 Aug, 2025	**Sunday**
2nd Week **8 Aug**	Production of organic compounds, enzymes and antibiotics by microbes.
9 Aug, 2025 **10 Aug, 2025**	**Raksha Bandhan** **Sunday**
15 Aug, 2025 **16 Aug, 2025** **17 Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4th Week **22, 23 Aug**	Types of Fermentation, Downstream processing. Enzyme immobilization. Industrial applications of enzymes.
24 Aug, 2025	**Sunday**
5th Week **29, 30 Aug**	Protein and enzyme engineering. **Environmental Biotechnology** Role of Biotechnology in the treatment of waste water, Solid waste management using biotech approaches.
31 Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Biotechnology and Human Welfare
Paper – M24-OEC-303

September, 2025 **1st Week** **5, 6 Sept**	Bioremediation: Concept and principles. Bioremediation using microbes and plants.
7 Sept , 2025	**Sunday**
2nd Week **12, 13 Sept**	Biofuels, Biosensors **Animal and Medical Biotechnology** Molecular Diagnostics- DNA/RNA probes, PCR to detect infectious Diseases.
14 Sept , 2025	**Sunday**
3rd Week **19, 20 Sept**	Monoclonal antibodies- their production and applications. Vaccines: live, attenuated, conjugate and DNA vaccines.
21 Sept, 2025 **22 Sept, 2025** **23 Sept, 2025**	**Sunday** **Maharaja Agrasen Jayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week **26, 27 Sept**	Gene Therapy-Types of gene therapy, Augmentation Gene therapy, Targeted gene therapy. DNA fingerprinting and forensic analysis.
28 Sept, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Biotechnology and Human Welfare
Paper – M24-OEC-303

October, 2025 **1st Week** **3, 4 Oct**	Transgenic animals- mice, cattle, sheep, pigs, fish etc.
2 Oct, 2025 **5 Oct, 2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **10, 11 Oct**	Biofarming, pharmaceutical products. Animal cloning, Bioethics.
7 Oct, 2025 **12 Oct, 2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **17, 18 Oct**	Transgenic plants for biotic (insects, herbicide, fungal and viral resistance) and abiotic stress tolerance.
19 Oct – 26 Oct	**Vacations (Diwali)**
5th Week **31 Oct**	Nutritional quality modifications in crop plants.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher – Dr. Twinkle Sugla
Class – M.Sc. II
Subject – Biotechnology and Human Welfare
Paper – M24-OEC-303

November, 2025 **2nd Week** **3 Nov - 8 Nov**	**Sessional Exams**
5 Nov, 2025 **9 Nov, 2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rd Week **14, 15 Nov**	Molecular Farming (Medically Related Proteins - edible vaccines, plantibodies etc.).
16 Nov, 2025	**Sunday**
4th Week **21, 22 Nov**	Plant secondary metabolites. Revision
23 Nov, 2025	**Sunday**
5th Week **24 November,2025** **Onwards**	**University Examinations**

KUMARIVIDYAVATIANANDD.A.V.COLLEGEFORWOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – B.Sc. Biotechnology Semester III
Subject– Cell Biology
Paper– B23-BTY-301

July,2025 **4thWeek** **24 July–26 July**	Basics of Cell Biology – Discovery of cell and Cell Theory.
27 July,2025	**Sunday**
31 July, 2025	**Shaheed Udham Singh Martyrdom Day**
August,2025 **1stWeek** **1 Aug – 2 Aug**	Comparison between plant and animal cells Structure and function of Protoplasm, Cell wall Structure and function of Plasma membrane.
3 Aug, 2025	**Sunday**
2ndWeek **7Aug– 8Aug**	Modification of intracellular junctions, Cytoskeleton, Mitochondria, Chloroplast, ER, Golgi complex. **+ DISCUSSIONS AND TEST**
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rdWeek **14 Aug**	Structure and function of Lysosome, endosome and microbodies, Ribosome, Centriole.
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4thWeek **21 Aug -23 Aug**	Structure and function of Nucleus, Chromosomes, Chemical components of a cell.
24 Aug,2025	**Sunday**
5thWeek **28 Aug -30Aug**	Catalysis and use of energy by cells. Biogenesis of Cellular organelles – Biogenesis of mitochondria, chloroplast.
31 Aug, 2025	**Sunday**

KUMARIVIDYAVATIANANDD.A.V.COLLEGEFORWOMEN, KARNAL

Lesson Plan for the Odd Semester (July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – B.Sc. Biotechnology Semester III
Subject– Cell Biology
Paper– B23-BTY-301

September,2025 **1st Week** **4 Sept – 6 Sept**	Biogenesis of ER, Golgi complex, Biosynthetic process in ER and Golgi apparatus. Protein synthesis and folding in the cytoplasm.
7 Sept , 2025	**Sunday**
2nd Week **11 Sept– 13 Sept**	Structure and function of Prokaryotic cell and its components - The Slime and the cell wall of bacteria containing peptidoglycan and related molecules. **+ REVISION AND TEST**
14 Sept , 2025	**Sunday**
3rd Week **18 Sept–20 Sept**	Structure and function of Prokaryotic cell and its components - the outer membrane of Gram-negative bacteria, the cytoplasmic membrane. Water and ion transport, mesosomes, flagella, Pilus, fimbriae, ribosomes, carboxysomes, sulfur granules, glycogen, polyphosphate bodies, fat bodies, gas vesicles.
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week **25 Sept–27 Sept**	Structure and function of Prokaryotic cell and its components - endospores, exospores, cysts. Mycelia of fungi and Actinomycetes. Cytoskeleton filament, heterocysts and akinets of Cyanobacteria, Gliding and motility.
28 Sept,2025	**Sunday**

KUMARIVIDYAVATIANANDD.A.V.COLLEGEFORWOMEN, KARNAL

Lesson Plan for the Odd Semester (July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – B.Sc. Biotechnology Semester III
Subject– Cell Biology
Paper– B23-BTY-301

October,2025 **1st Week** **3 Oct –4 Oct**	Membrane structure and transport – Models of membrane structure, Membrane lipids, proteins and carbohydrates. **+ REVISION AND TEST**
2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **9 Oct-11Oct**	Solute transport by Simple diffusion, Facilitated diffusion and Active transport. Cell cycle **+ DISCUSSIONS AND TEST**
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **16 Oct-18 Oct**	An overview of cell cycle, Components of cell cycle control system. Intracellular and Extra-cellular control of cell division. **+ DISCUSSIONS AND TEST**
19Oct – 26 Oct	**Vacations (Diwali)**
5th Week **30 Oct- 31 Oct**	Degradation of cellular components. Programmed cell death (Apoptosis). Prokaryotic cell and its components Biogenesis of Cellular organelles.

KUMARIVIDYAVATIANANDD.A.V.COLLEGEFORWOMEN, KARNAL

Lesson Plan for the Odd Semester (July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – B.Sc. Biotechnology Semester III
Subject– Cell Biology
Paper– B23-BTY-301

November,2025 **1st Week** **1Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2nd Week **3 Nov-8 Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rd Week **13 Nov-15 Nov**	Structure and function of Prokaryotic cell and its components Membrane structure and transport. **+ Discussions**
16 Nov,2025	**Sunday**
4th Week **20 Nov-22 Nov**	**Doubts clearance, Discussions, Revisions and Tests**
23 Nov,2025	**Sunday**
5th Week **24 November, 2025 Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V.COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – M.Sc. Biotechnology Semster I
Subject– Enzyme Technology
Paper– M24-BTY-104

4thWeek **18Aug -20Aug**	History of Enzymology; General characteristics of enzymes. Advantages of enzymes over chemical catalysts. Nomenclature and classification of enzymes, Significance of enzymes Commission.
24Aug,2025	**Sunday**
5thWeek **25Aug -27Aug**	Denatumtion and renaturation; Isoenzynes, enzyme specificity, monomeric and oligomeric enzymes, multienzyme complex. Holoenzyme, apoenzyme, cofactor, coenzyme, prosthetic group; enzyme activity unit, tum over number and specific activity. Ribozymes and Abzymed A brief account.
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V.COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – M.Sc. Biotechnology Semster I
Subject– Enzyme Technology
Paper– M24-BTY-104

September,2025 **1st Week** **1Sept – 3 Sept**	Enzyme action; effect of enzyme on the rate and equilibrium of a reaction. Principles that explain catalyic power and substrate specificity of enzymes; enzyme substate complex (Iock & Key Model, Induced Fit Theory, Substrate Strain Theory). Factors responsible for catalyic efficiency of enzyme; proximity and orientation effect, acid-base catalysis, covalent catalysis, strain and distortion theory.
7 Sept , 2025	**Sunday**
2nd Week **8 Sept– 10Sept**	Nature of active site, identification of functional groups at active sites. Regulatory enzymes- covalently modulated enzymes, allosteric enzymes and their mode of action. Regulation of enzyme activity in the living system.
14 Sept , 2025	**Sunday**
3rd Week **15Sept–17 Sept**	X-ray crystallography and NMR spectrometry importance of 3-D structure of an enzyme. Classification of enzyme structures, structures dopted by enzyrmes, principles that govern the 3-D structure adopted by enzymes. Forces for stability of 3-D structure. An introduction to enzyme kinetics and its importance. Methods used for investigating the kinetics of enzyme catalysed reactions.
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**

4thWeek **24Sept**	Factors that influence the velocity of enzyrne catalysed reaction(effect of substrate concentration, enzyme concentration, pH, temperature, presence of activator/inhibitor etc.).
28Sept,2025	**Sunday**
5thWeek **29 Sept – 30 Sept,2025**	Michaelis-Menten equation, Vmax, Km and its significance; Lineweaver Burk plot- its advantages and limitations, Eadie- Hofstee and Hanes plots enzyme inhibition. Types of enzyme inhibitions- competitive, uncompetitive, noncompetitive, mixed type inhibition.

KUMARI VIDYAVATI ANAND D.A.V.COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – M.Sc. Biotechnology Semster I
Subject– Enzyme Technology
Paper– M24-BTY-104

October,2025 **1st Week** **1Oct**	Determination of Ki. Determination of Km and Vmax in the presence and absence of inhibitor; feed- back inhibition.
2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2ndWeek **6, 8 Oct**	Bisubstrate reactions- brief introduction to sequential and Ping-Pong mechanism with examples.
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rdWeek **13 Oct-15 Oct**	Strategies used for enzyme production, isolation and purification at laboratory and industrial scale from plant, animal and microbial sources. Method of calculating the purification fold; estimation of enzyme activity; characterization of an enzyme, criteria of enzyrme purity.
19Oct – 26 Oct	**Vacations (Diwali)**
5thWeek **27Oct- 29 Oct**	Determination of thc molecular weight (MW) and the number of sub-units of an enzyme; enzyme immobilization and its importance; protein engineering; enzyme therapy.

KUMARI VIDYAVATI ANAND D.A.V.COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Manpreet Kaur
Class – M.Sc. Biotechnology Semster I
Subject– Enzyme Technology
Paper– M24-BTY-104

November,2025 **1st Week** **1Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2ndWeek **3 Nov-5 Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rdWeek **10 Nov-12 Nov**	Enzyme inhibitors and drug design; enzymes as biosensors , enzyme reactors. Applications of enzymes in medicine, textile, leather, detergent, paper, bakery, dairy industry, beverage and fruit processing.
16Nov,2025	**Sunday**
4thWeek **17Nov-19 Nov**	Applications of food processing and preservation, clinical applications of enzyrme estimation. **Doubts clearance, Discussions, Revisions and Tests**
23Nov,2025	**Sunday**
5thWeek **24November,2025** **Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Ms. Sonika

Class – B.sc I (Biotechnology) Ist sem

Subject– Introduction of Biotechnology

Paper– B23-BTY-101

July,2025 **4thWeek** **22,23 July**	Introduction to biotechnology and Book Discussions.
27July,2025	**Sunday**
5thWeek **28,29,30 July**	Introduction of Preservation Techniques and Laboratory Equipment.
31 July	**Shaheed Udham Singh Martyrdom Day**
August,2025 1stWeek **1Aug**	Introduction to biotechnology – an interdisciplinary pursuit; Main areas of application of biotechnology, Biotechnology research in India.
3 Aug, 2025	**Sunday**
2ndWeek **4,5,6 Aug**	Biotechnology in context of developing world; Public perception of biotechnological products; Brief account of safety guidelines.
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rdWeek **11,12,13 Aug**	Risk assessment and ethics in biotechnology, Very brief account of intellectual property rights; Substrates (raw materials).
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4thWeek **18,19,20Aug**	The future of biotechnology. In brief scope and techniques of preservation. Introduction of fermentation technology.
24Aug,2025	**Sunday**
5thWeek **25,26,27 Aug**	Introduction of animal tissue culture (brief of history, culture media, substrate surfaces, culture procedures, primary cultures, cell lines, organ culture and tissue engineering etc.). Introduction of plant tissue culture.
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Ms. Sonika

Class – – B.sc Ist (Biotechnology) Ist sem

Subject– Introduction of Biotechnology

Paper– B23-BTY-101

September,20 25 1st Week 1,2,3 Sept	In brief history, culture media, explants, totipotency, dedifferentiation and types of cell & tissue culture etc.
7 Sept , 2025	**Sunday**
2nd Week 8,9,10Sept	Scope and applications of animal biotechnology and plant biotechnology.
14 Sept , 2025	**Sunday**
3rd Week 15,16,17 Sept	Brief account of immune technology: immune system (immune cells, types of immunity and general structure of immune globulins), Hybridoma technology and monoclonal antibodies. *In vitro* fertilization and embryo transfer technology in brief.
21Sept,2025 22Sept,2025 23Sept,2025	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week 23,24 Sept	Genetics and Biotechnology: Introduction of genetic engineering, gene and, history of genetic manipulations.
28Sept,2025	**Sunday**
5th Week 29, 30 Sept,2025	Introduction of enzyme technology: nature of enzymes, application of enzymes and immobilized enzymes.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Ms. Sonika

Class – – B.sc Ist (Biotechnology) Ist sem

Subject– Introduction of Biotechnology

Paper– B23-BTY-101

October,2025 **1st Week** **1 Oct**	Genomes, proteins and proteome.
2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2ndWeek **6,Oct**	DNA fingerprinting and forensic analysis. Industrial genetics, Potential l Laboratory biohazards of genetic engineering. Introduction to molecular markers and genetic mapping.
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rdWeek **13,14,15 Oct**	Environmental Biotechnology: An overview, scope and market of biological control of environment.
19Oct – 26 Oct	**Vacations (Diwali)**
5thWeek **27,28,29 Oct**	Brief account on bioremediation and waste treatment biotechnology, Microbial insecticides and application.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Ms. Sonika

Class – – B.sc Ist (Biotechnology) Ist sem

Subject– Introduction of Biotechnology

Paper– B23-BTY-101

November,2025 **1st Week** **1Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2ndWeek **3 Nov-8Nov**	**SessionalExams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rdWeek **10,11,12 Nov**	Biofertilizers, microbes in oil recovery and bioleaching Application.
16Nov,2025	**Sunday**
4thWeek **17,18,19 Nov**	Biotechnology in medicine (pharmaceutical industry, vaccines, antibiotics etc.), food industry, biofuels and chemical industry.
23Nov,2025	**Sunday**
5thWeek **24November,2025** **Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher–Ms. Sonika

Class – M.sc II Sem - II (BIOTECHNOLOGY)

Subject– Microbial Biotechnology.

Paper– M24-BTY-302

July,2025 **4thWeek** **22,23,26 July**	Introduction to microbial biotechnology.
27July,2025	**Sunday**
5thWeek **29 July**	Books and syllabus discussion.
31 July	**Shaheed Udham Singh Martyrdom Day**
August,2025 **1stWeek** **1Aug – 2 Aug**	Biology of industrial micro- organisms: Industrial microorganisms Growth.
3 Aug, 2025	**Sunday**
2ndWeek **4,5,7 Aug**	Detail application of microbial biotechnology.
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rdWeek **11,12,14 Aug**	Microbial Biotechnology: Scopes application and challenges.
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4thWeek **18,19,21,23Aug**	Microbial Biotechnology: Scopes application and challenges. metabolism regulation, substrate assimilation/ product formation.
24Aug,2025	**Sunday**
5thWeek **25,26,28,30Aug**	Isolation and preservation of industrially important microorganisms, Fermentation system; batch and continuous system, fed batch System.
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Ms. Sonika

Class – M.sc II Sem-II (BIOTECHNOLOGY)

Subject— Microbial Biotechnology

Paper– M24-BTY-302

September,2025 **1st Week** **1,2,4, 6 Sept**	Multistage system. Solid state fermentation and its applications, Overproduction of primary & secondary metabolites.
7 Sept , 2025	**Sunday**
2ndWeek **8,9,11,12 Sept**	Selection and recombination techniques, Fermentation raw materials: Media for industrial fermentations. Cell disruption, centrifugation, solvent recovery, drying and crystallization. Recovery schemes for non-volatile metabolites, biomass, extracellular polysaccharides and enzymes.
14 Sept , 2025	**Sunday**
3rdWeek **15,16,18, 20 Sept**	Criteria used in media formulation, reactor, mass transfer, Foam formation and control.
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4thWeek **24Sept–27 Sept**	Fermenter/bioreactor design and operation; types of fermenter, stirred tank reactor, bubble column reactor, airlift reactor, packed bed reactor, fluidized bed reactor and trickle bed reactor, agitation and aeration.
28Sept,2025	**Sunday**
5thWeek **25,27, Sept,2025**	Industrial production of alcoholic beverages (whisky, wine and beer), Microbial Production of industrial chemicals: Bulk organic chemicals ethanol.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of the Teacher– Ms. Sonika

Class – M.sc II Sem-II (BIOTECHNOLOGY)

Subject– Microbial Biotechnology

Paper— M24-BTY-302

2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **6,7,9, 11Oct**	Improvement by genetic engineering. Microbial production of food additives: amino acids, nucleosides and vitamins.
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **13,14,16, 18 Oct**	Citric acid, acetic acid, gluconic acid, glycerol acetone and butanol, Microbial production of healthcare products: Down-stream processing: separation processes for microbial cells and other solids.
19Oct – 26 Oct	**Vacations (Diwali)**
5th Week **27,28,30 Oct**	Antibiotics (Penicillin & tetracyclines), Vaccines (Bacterial cells and toxins).

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester

(July to November, 2025)

Name of theTeacher– Ms. Sonika

Class – M.sc II Sem-II (BIOTECHNOLOGY)

Subject– Microbial Biotechnology

Paper— M24-BTY-302

November,2025 **1st Week** **1Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2nd Week **3 Nov-8Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rd Week **10 ,11,13, 15 Nov**	Microbial inoculants: Food starter cultures; baker's yeast, starter cultures for the dairy industry, meat starter cultures.
16Nov,2025	**Sunday**
4th Week **17,18,20,22 Nov**	Biomass production: single cell protein (SCP) production, Microbial transformation of steroids and sterols.
23Nov,2025	**Sunday**
5th Week **24November,2025** **Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Chetna
Class – M.Sc. I Biotechnology
Subject– Molecular Cell Biology
Paper– M24-BTY-102

4thWeek **20, 21, 22, 23Aug**	Origin and evolution of cells, Cells as experimental models, tools of cell biology, Heredity, Genes, and DNA, Expression of Genetic Information.
24Aug,2025	**Sunday**
5thWeek **27, 28, 29, 30Aug**	Recombinant DNA, Detection of Nucleic Acids and Proteins, Nuclear envelope and traffic between the nucleus and cytoplasm.
31Aug, 2025	**Sunday**
September,2025 1st Week **3,4 , 5, 6 Sept**	Internal organization of the nucleus, nucleolus, nucleus during mitosis, Endoplasmic reticulum, Golgi apparatus, and Lysosomes, mechanism of vesicular transport.
7 Sept , 2025	**Sunday**
2ndWeek **10,11, 12, 13Sept**	DNA polymerases, replication fork, fidelity of replication, origins and initiation of replication. Replication at the ends of chromosomes, Nonsense, Missense Mutation.
14 Sept , 2025	**Sunday**
3rdWeek **17,18, 19, 20 Sept**	Frameshift and point mutations; intragenic and intergenic, suppression mutation, Direct reversal of DNA damage, excision repair. Error-prone repair, Recombinational repair, Prokaryotic transcription Eukaryotic transcription.
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4thWeek **24, 25,26, 27 Sept**	RNA polymerases and transcription factors, model systems of transcriptional control: lac operon, trp operon, Lambda phage; promoters, Enhancers. Repressors. Revision and doubt clearing
28Sept,2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Chetna
Class – M.Sc. I Biotechnology
Subject– Molecular Cell Biology
Paper– M24-BTY-102

October,2025 **1st Week** **1, 3, 4 Oct**	RNA processing and turnover, Protein Synthesis, Processing and Regulation: universal genetic code, degeneracy of codons, mechanisms of initiation, elongation and termination of translation, wobble hypothesis.
2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **8 ,9,10,11Oct**	Protein folding and processing, regulation of protein function protein degradation, Signalling molecules and their receptors, functions of cell surface receptors, pathways of intracellular signal transduction.
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **15,16,17,18 Oct**	Signal transduction and cytoskeleton, Developmental abnormalities due to defective signaling pathways, Signal transducing machinery as targets for potential drugs. Test
19Oct – 26 Oct	**Vacations (Diwali)**
5th Week **30, 31 Oct**	Cell death and cell renewal: programmed cell death stem cells and maintenance of adult tissues.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Chetna
Class – M.Sc. I Biotechnology
Subject– Molecular Cell Biology
Paper– M24-BTY-102

November,2025 **1st Week** **1Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2nd Week **3 Nov-8Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rd Week **12,13,14,15 Nov**	Embryonic stem cells and therapeutic cloning, Cancer: Development and causes of cancer.
16Nov,2025	**Sunday**
4th Week **19,20,21,22 Nov**	Tumour viruses, oncogenes, turnover suppressor genes, application of molecular biology to cancer prevention and treatment. Doubt Clearing
23Nov,2025	**Sunday**
5th Week **24November,2025** **Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Dr. Preeti Sharma + Ms. Chetna
Class – M.Sc. I Biotechnology
Subject– Microbiology and Biotechniques
Paper– M24-BTY-103

4thWeek **21Aug, 23Aug**	Various branches and Applications of Microbiology, History and contributions of various scientists to this science , Spontaneous generation versus biogenesis, Distinguishing features of prokaryotic and eukaryotic microbial cells.
24Aug,2025	**Sunday**
5thWeek **28Aug, 30Aug**	Morphology and arrangement of bacterial cells, Bacterial- flagella, fimbriae, capsule, spores and cysts, cell walls of Gram +ve and Gram -ve bacteria, Nutritional requirements and nutritional categories of microorganisms. Doubts Clearing
31Aug, 2025	**Sunday**
September,2025 1st Week **4Sept, 6 Sept**	Influence of environmental factors on microbial growth (temperature, oxygen concentration, pH, pressure, solute, light, radiations), Enrichment culture techniques for isolation of microorganisms, pure culture techniques and preservation techniques, study of growth curve.
7 Sept , 2025	**Sunday**
2ndWeek **11 Sept, 13Sept**	Quantitative measurement of growth, Distinguishing features of bacteria, viruses, Distinguishing features of fungi. protozoa, algae; Introduction to Microbial Classification and Taxonomy, Taxonomic ranks.
14 Sept , 2025	**Sunday**
3rdWeek **18Sept, 20 Sept**	Various approaches for identification of microorganisms including molecular approaches; Gram (+) and Gram (-) bacteria. fungi and algae of medical and industrial importance.
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4thWeek **25Sept, 27 Sept**	Sterilization methods- dry heat, moist heat, radiations, filtration, and gaseous sterilization. Factors affecting antimicrobial action, Mode of action of antimicrobial agents.
28Sept,2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Dr. Preeti Sharma + Ms. Chetna
Class – M.Sc. I Biotechnology
Subject– Microbiology and Biotechniques
Paper– M24-BTY-103

October,2025 **1st Week** **4 Oct**	Antibiotics and their mode of action, Disinfectants and techniques to evaluate the potency of antimicrobial chemical agents, Types of toxins and their mode of action, Bio-separation, cell disruption, extraction.
2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **9 Oct, 11Oct**	Bio-separation; Cell disruption; Purification by chromatographic techniques-Paper, Thin layer, Gel-filtration, ion exchange, Affinity chromatography, Gas liquid chromatography, High pressure liquid chromatography, Reversed Phase chromatography.
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **16 Oct, 18 Oct**	Drying; Crystallization; Storage and packaging, Centrifugation Methods: Principles of Sedimentation, centrifugation techniques and their applications, differential centrifugation, Density gradient and ultracentrifugation techniques. Revision
19Oct – 26 Oct	**Vacations (Diwali)**
6th Week **30 Oct**	Electrophoresis: Concept, Factors affecting electrophoresis, Agarose gel electrophoresis, Pulse field gel electrophoresis, PAGE, SDS PAGE, Isoelectrofocusing, 2-DimentionaI electrophoresis.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Dr. Preeti Sharma + Ms. Chetna
Class – M.Sc. I Biotechnology
Subject– Microbiology and Biotechniques
Paper– M24-BTY-103

November,2025 **1st Week** **1Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2ndWeek **3 Nov-8Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rdWeek **13 Nov, 15 Nov**	Microscopy: Light Microscopy - Magnification, resolving power. Numerical aperture, Limit of Resolution. Test
16Nov,2025	**Sunday**
4thWeek **20Nov, 22 Nov**	Principles and applications of bright field, phase contrast, fluorescence, scanning and transmission electron microscopy. Revision and Doubts Clearing
23Nov,2025	**Sunday**
5thWeek **24November,2025** **Onwards**	**University Examinations**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Chetna
Class – B.Voc. FSQC (Sem-III)
Subject– Techniques in Biochemistry
Paper– B23-FTQ-304

July,2025 **4thWeek** **22,23,24July**	Introduction to Biochemistry.
27July,2025	**Sunday**
5thWeek **28,29,30 July**	An overview of Techniques used in Biochemistry.
31 July	**Shaheed Udham Singh Martyrdom Day**
1st Week **1,2 Aug**	Methods of Sampling
3 Aug, 2025	**Sunday**
2ndWeek **4,5, 6Aug**	Sampling and sampling techniques, Proximate analysis- Moisture
9Aug, 2025 **10Aug, 2025**	**RakshaBandhan** **Sunday**
3rdWeek **11,12,13Aug**	Proximate analysis- Ash, crude fat and crude fibre by difference method.
15 Aug, 2025 **16 Aug, 2025** **17Aug, 2025**	**Independence Day** **Janmashtmi** **Sunday**
4thWeek **18,19,20Aug**	Proximate analysis- crude protein and carbohydrates by difference method, Principles and methods of food analysis.
24Aug,2025	**Sunday**
5thWeek **25,26,27Aug**	Test and Revision Basic principles: Refractometry, polarimetry
31Aug, 2025	**Sunday**

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Chetna
Class – B.Voc. FSQC (Sem-III)
Subject– Techniques in Biochemistry
Paper– B23-FTQ-304

September,2025 **1st Week** **1,2, 3 Sept**	Basic principles: Densitometry, HPLC, GLC, Spectrophotometry
7 Sept , 2025	**Sunday**
2nd Week **8,9,10 Sept**	Basic principles: Electrophoresis, automatic amino acid analyzer.
14 Sept , 2025	**Sunday**
3rd Week **15,16,17 Sept**	Determination of starch, Test for unsaturation of fats. Test and Doubt Clearance
21Sept,2025 **22Sept,2025** **23Sept,2025**	**Sunday** **Maharaja AgrasenJayanti** **Shaheedi Divas/Haryana War Heroes' Martyrdom Day**
4th Week **24Sept**	Rancidity of fats Doubts Clearing
28Sept,2025	**Sunday**
5th Week **29,30 Sept,2025**	Quantitative analysis of protein by Biuret method, Ninhydrin method.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Chetna
Class – B.Voc. FSQC (Sem-III)
Subject– Techniques in Biochemistry
Paper– B23-FTQ-304

October,2025 **1st Week** **1Oct**	Quantitative analysis of protein by Lowry's method and Dye-binding method.
2Oct, 2025 **5Oct,2025**	**Mahatma Gandhi Jayanti/Dussehra** **Sunday**
2nd Week **6,8 Oct**	Bio assays for protein quality of grains. Test
7Oct,2025 **12Oct,2025**	**Maharishi Valmiki Jayanti/Maharaja Ajmidh Jayanti** **Sunday**
3rd Week **13,14,15 Oct**	Chemical, and microbiological, methods of analysis of fat soluble and water soluble vitamins.
19Oct – 26 Oct	**Vacations (Diwali)**
5th Week **27,28,29 Oct**	Fluro metric and colorimetric methods of analysis of fat soluble and water soluble vitamins.

KUMARI VIDYAVATI ANAND D.A.V. COLLEGE FOR WOMEN, KARNAL

Lesson Plan for the Odd Semester
(July to November, 2025)

Name of the Teacher– Ms. Chetna
Class – B.Voc. FSQC (Sem-III)
Subject– Techniques in Biochemistry
Paper– B23-FTQ-304

November,2025 **1st Week** **1Nov,2025** **2 Nov, 2025**	**Haryana Day** **Sunday**
2nd Week **3 Nov-8Nov**	**Sessional Exams**
5 Nov,2025 **9 Nov,2025**	**Guru Nanak Dev Jayanti** **Sunday**
3rd Week **10,11,12 Nov**	Test Revision and Doubts Clearing
16Nov,2025	**Sunday**
4th Week **17,18,19 Nov**	Revision
23Nov,2025	**Sunday**
5th Week **24November,2025** **Onwards**	**University Examinations**