D. B. G. GOVT. COLLEGE, PANIPAT

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: Dr. Meenakshi

DESIGNATION: Assistant Professor in Botany

SUBJECT/PAPER: (B23-BOT-401) Cytology and Genetics

CLASS- B.Sc. II (4^{TH} SEM)

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	1 to 15 Feb 16 to 28 feb	**Cell as a unit of Life;** The Cell Theory; Prokaryotic and eukaryotic cells; Eukaryotic Cell components Structure and functions of Cell Wall, Plasma Membrane, nucleus, **Nuclear Envelope**- structure of nuclear pore complex, Golgi Apparatus, Ribosome, Endoplasmic Reticulum, Chloroplast, Mitochondria, Lysosomes, Peroxisomes and Vacuoles.	Assignment 1+ Test
2.	1 to 15 March 16 to 31 March	Cell Division: Mitosis and Meiosis. Chromosome: structural organization, ultrastructure of Centromere and Telomere, lampbrush and polytene chromosomes. DNA: structure, types and replication. RNA: structure and types. Genetic code	Assignment 2+Test
3.	1 to 15 April	Mendel's laws of Inheritance. Lethal Genes; Codominance, incomplete	Revision +Test

	16 to 31 April	dominance; Gene interaction (inter- and intra-allelic); Multiple allelism; Pleiotropism. Chi Square test; Pedigree Analysis. **Cytoplasmic Inheritance:** Kappa particles in Paramecium, leaf variegation in *Mirabilis jalapa,* Shell coiling	
4.	**1 to 15 May** **15 to 30 May**	Complete & incomplete linkage, recombination frequency, crossing over. Chromosomal aberrations-deletions, duplications, translocations, inversions; Variations in chromosome number-aneuploidy, polyploidy; sex chromosomes and sex determination. Types of mutations, effects of physical & chemical mutagens.	

Signature of Assistant Professor

D. B. G. GOVT. COLLEGE, PANIPAT

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: Dr. Meenakshi

DESIGNATION: Assistant Professor in Botany

SUBJECT/PAPER: (B23-BOT-204) MDC Economic Botany

CLASS- B.A I (2nd SEM)

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	**1 to 15 February** **15 to 28 february**	Origin of Cultivated Plants Morphology and economic importance of: Food plants - Cereals (Rice, Wheat and Maize). Pulses -Gram, Arhar and Pea.	Assignment 1+ Test
2.	**1 to 15 March** **15 to 31 march**	Vegetables: Potato, Tomato and Onion. Fibers: Cotton Oils: Mustard and Coconut.	Assignment 2+Test
3.	**1 to 15 April** **16 to 31 April**	Morphology and economic importance of the following: Spices: Black pepper, Coriander, Ginger, Cloves, saffron. Medicinal Plants: *Cinchona*, *Atropa*, Opium, *Cannabis*, Neem.	Revision +Test
4.	**1 to 15 May** **15 to 30 May**	Botanical description and processing of: Beverages: Tea and Coffee. Types of wood	

Signature of Assistant Professor

D.B. G. GOVT. COLLEGE, PANIPAT

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: Dr. Meenakshi

DESIGNATION: Assistant Professor in Botany

SUBJECT/PAPER: (B23-BOT-201) Plant Taxonomy and Ecology

CLASS- B.Sc. II (Life Sciences)

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	**1 to 15 February** **16 to 28 February**	Botanical nomenclature and major rules of ICBN and ICN Keys to identification of plants. General introduction and importance of herbaria and botanical gardens. Documentation of Floristic diversity: Brief ideas about floras, monographs and journals. Brief idea of taxonomic evidences. Types of inflorescence, flower and parts of flower.	Assignment 1+ Test
2.	**1 to 15 March** **16 to 31 March**	Artificial, Natural and phylogenetic classifications. Bentham and Hooker system of classification, angiosperm phylogeny group. Diagnostic features and economic importance of different families.	Assignment 2+Test
3.	**1 to 15 April** **16 to 30 April**	Ecology: definition, scope and importance. Levels of organization. Environmental factors, climatic factors, edaphic factors, topographic and biotic factors. Population ecology: basic concept, characteristics, biotic potential, growth curves, ecotypes and ecads.	Revision +Test

		Community ecology: concepts, characteristics, methods of analysis, ecological succession. Ecosystem: structure and functions. Phytogeography: phyto-geographical regions of India, vegetation types of India	
4.	**1 to 15 May** **15 to 30 May**	Environmental pollution: sources, types and control of air and water pollution Global Change: Greenhouse effect and greenhouse gases: impact of global warming, carbon trading.	

D.B. G. GOVT. COLLEGE, PANIPAT

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: Dr. Meenakshi

DESIGNATION: Assistant Professor in Botany

SUBJECT/PAPER: (**B23-EVS-203)- Climate Change**

CLASS- B.Sc. I (2^{nd} SEM)

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	**1 to 15 February** **16 to 28 February**	Introduction: weather and climate; Atmosphere-origin, composition, structure, basic atmosphere properties; Radiations and Earth energy balance.	Assignment 1+ Test
2.	**1 to 15 March** **16 to 31 March**	Global atmospheric temperature, greenhouse gases-sources and trends in GHGs emission, role of aerosol, ozone and trace gases; global warming, climate change, climate variability in geological history, natural and human induced climate change.	Assignment 2+Test
3.	**1 to 15 April** **16 to 30 April**	Impact of climate change weather extreme, Sea level rise, coral bleaching, Extinction risk of temperature sensitive species, melting of snow, ice and glaciers.	Revision +Test
4.	**1 to 15 May** **15 to 30 May**	Mitigation strategies for global warming; Biological carbon sequestration in geological formations role of forests in carbon sequestration; Kyoto protocol.	
