

Curriculum Plan: B.A. (Prog.) Mathematics (Semester V)- Combinatorics
2025-26 Odd Sem

Dr. Rajni Kanwar Assistant Professor Department of Mathematics Kalindi College University of Delhi Delhi- 110008 Mobile: 7607401426 E- mail: rajnikanwar@kalindi.du.ac.in			Marks Distribution	Theory - 90
				Internal Assessment- 30 Tutorial 40
			Classes Assigned	Lectures: 3 per week
	References	1. Sane, Sharad S. (2013). Combinatorial Techniques. Hindustan Book Agency (India). 2. Tucker, Alan (2012). Applied Combinatorics (6th ed.). John Wiley & Sons, Inc.		
	Week	Topics		
	1st week	Basic counting principles		
	2nd week	Permutations and Combinations (with and without repetitions)		
	3rd week	Binomial coefficients, Multinomial coefficients		
	4th week	Counting subsets of size k; Set-partitions		
	5th week	The inclusion-exclusion principle and applications.		
	6th week	Revision and Class Test		
	7th week	Generating functions: Generating function models		
	8th week	Calculating coefficients of generating functions, Polynomial expansions.		
	9th week	Binomial identity, Exponential generating functions.		
	10th week	Recurrence relations: Recurrence relation models,		
	11th week	Divide-and-conquer relations, Solution of linear recurrence relations, Solutions by generating function		
	12th week	Class Test & Partition theory of integers		
	13th week	Ordered partition, Unordered partition, Ferrers diagram		
	14th week	Conjugate of partition, Self-conjugate partition, Durfee square		
	15th week	Euler's pentagonal theorem. Class Test and Revision		

