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### Syllabus for Ph.D Entrance examination

Aptitude	Quantitative Aptitude	Data interpretation: data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables Numerical computation and estimation: ratios, percentages, powers, exponents and logarithms, permutations and combinations, and series Mensuration and geometry Elementary statistics and probability.
	Analytical Aptitude	Logic: deduction and induction, Analogy, Numerical relations and reasoning
Mathematics	Linear Algebra	Matrices, determinants, system of linear equations, eigenvalues and eigenvectors, LU decomposition.
	Calculus	Limits, continuity and differentiability, Maxima and minima, Mean value theorem, Integration.
	Probability & Statistics	Random variables, Uniform, normal, exponential, Poisson and binomial distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.
Programming		Recursion, Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.
DSA	basic data structures	stacks, queues, linked lists, trees, hash tables;
	Search algorithms:	linear search and binary search
	Sorting algorithms:	basic sorting algorithms: selection sort, bubble sort and insertion sort; divide and conquer: mergesort, quicksort;
	Graph theory	basic graph algorithms: traversals, minimum spanning trees and shortest path