School of Engineering & Technology

Islamic University of Science and Technology Kashmir, J&K

Syllabus for Ph.D. Admission Entrance Test 2023
Department of CE/ ECE/ EE/ CSE/ ME/ CS/ FT

Paper – I: Research Methodology for Engineering & Technology

Max. Marks: 35

Unit 1: Research Concepts & Design

Research: Meaning, Objectives and Types. Research Approaches, Research Process, and Criteria for good research. Research Problem: Selecting the Problem, Steps in formulating research problems, Techniques for problem identification. Meaning and importance of research design, Types of research design, Features of a good research design.

Unit 2: Data Collection & Analysis

Data Sources: Primary and secondary. Tools and techniques for data collection (questionnaires, interviews, observations, schedules etc.), Selection of appropriate method of data collection. Logic, Deduction, Numerical Relations & Reasoning, Data Interpretation, Data charts & graphs, 2 and 3-dimensional plots, maps, and tables. Numerical computation and estimation: ratios, percentages, powers, exponents, and logarithms, permutations and combinations, and series.

Unit 3: Statistics & Probability

Measures of Central Tendency & Dispersion: Mean, Mode, Median, Variance & Standard Deviation. Probability, Conditional Probability, Binomial Distribution, Poisson Distribution, Normal Distribution and Exponential Distribution.

Unit 4: Mathematical Aptitude

Vectors, Matrices and Determinants, Eigen Values and Eigen Vectors, Rank, Solution of Linear Equations, Maxima and Minima. Differential Equations of first order, higher order linear differential equations, analytic functions. Numerical Analysis: Interpolation, numerical solution of ordinary differential equations.

****