National Institute of Technology Calicut
Department of Computer Science and Engineering

Syllabus for the written test (MCQ) for admission to
M.Tech in Computer Science and Engineering (AI and Data Analytics)

Part I: Engineering Mathematics (50% weightage)

Vectors and Matrices: Vector spaces, basis, coordinate transformations, linear transformations, matrices Determinants, System of linear equations, Eigenvalues and eigenvectors, inner products, orthonormal basis, Gram Schmidt orthogonalization.

Calculus: Limits, continuity and differentiability, Maxima and minima, Mean value theorem, Integration, partial derivatives, maximum and minimum, Lagrange multipliers.

Probability: Random variables, Uniform, normal, exponential, poisson and binomial distributions, mean, variance and standard deviation, density and distribution functions, normal distribution.

Part II: Computer Programming (50% weightage)

Variables and data types, composite data types - arrays and structures, assignment statement, conditional and iterative constructs, subroutines, parameter passing and recursion, pointers and dynamic memory allocation.