Note: All the pages numbers need to be revised.

## Glossary of Notation


| | | |
|---|---|---|
| $C(X)$ | Set of all functions continuous on $X$ | *2* |
| $C^n(X)$ | Set of all functions having $n$ continuous derivatives on $X$ | *3* |
| $C^\infty(X)$ | Set of all functions having derivatives of all orders on $X$ | *3* |
| $0.\overline{3}$ | A decimal in which the numeral 3 repeats indefinitely | *3* |
| $\mathcal{R}$ | Set of real numbers | *9* |
| $\mathrm{fl}(y)$ | Floating-point form of the real number $y$ | *16* |
| $O(\cdot)$ | Order of convergence | *23* |
| $\Delta$ | Forward difference | *51* |
| $f[\cdot]$ | Divided difference of the function $f$ | *74* |
| $\binom{n}{k}$ | The $k$th binomial coefficient of order $n$ | *76* |
| $\nabla$ | Backward difference | *77* |
| $\rightarrow$ | Equation replacement | *238* |
| $\leftrightarrow$ | Equation interchange | *238* |
| $(a_{ij})$ | Matrix with $a_{ij}$ as the entry in the $i$th row and $j$th column | *239* |
| $\mathbf{x}$ | Column vector or element of $\mathcal{R}^n$ | *240* |
| $[A, \mathbf{b}]$ | Augmented matrix | *240* |
| $\delta_{ij}$ | Kronecker delta, 1 if $i = j$, 0 if $i \neq j$ | *258* |
| $I_n$ | $n \times n$ identity matrix | *258* |
| $A^{-1}$ | Inverse matrix of the matrix $A$ | *258* |
| $A^t$ | Transpose matrix of the matrix $A$ | *261* |
| $M_{ij}$ | Minor of a matrix | *261* |
| $\det A$ | Determinant of the matrix $A$ | *261* |
| $\mathbf{0}$ | Vector with all zero entries | *264* |
| $\mathcal{R}^n$ | Set of ordered $n$-tuples of real numbers | *288* |
| $\|\mathbf{x}\|$ | Arbitrary norm of the vector $\mathbf{x}$ | *288* |
| $\|\mathbf{x}\|_2$ | The $l_2$ norm of the vector $\mathbf{x}$ | *288* |
| $\|\mathbf{x}\|_\infty$ | The $l_\infty$ norm of the vector $\mathbf{x}$ | *288* |
| $\|A\|$ | Arbitrary norm of the matrix $A$ | *292* |
| $\|A\|_\infty$ | The $l_\infty$ norm of the matrix $A$ | *292* |
| $\|A\|_2$ | The $l_2$ norm of the matrix $A$ | *293* |
| $\rho(A)$ | The spectral radius of the matrix $A$ | *300* |
| $K(A)$ | The condition number of the matrix $A$ | *316* |
| $\Pi_n$ | Set of all polynomials of degree $n$ or less | *334* |
| $\widetilde{\Pi}_n$ | Set of all monic polynomials of degree $n$ | *343* |
| $\mathcal{T}_n$ | Set of all trigonometric polynomials of degree $n$ or less | *352* |
| $\mathcal{C}$ | Set of complex numbers | *370* |
| $\mathbf{F}$ | Function mapping $\mathcal{R}^n$ into $\mathcal{R}^n$ | *400* |
| $J(\mathbf{x})$ | Jacobian matrix | *403* |
| $\nabla g$ | Gradient of the function $g$ | *418* |
| $C_0^2[0,1]$ | Set of functions $f$ in $C^2[0,1]$ with $f(0) = f(1) = 0$ | *000* |