Abstract

In this paper an efficient numerical scheme to approximate the solutions of fifth-order boundary value problems in a finite domain with two different types of boundary conditions has been presented, by taking basis functions with quartic B-splines and weight functions with quintic B-splines in Petrov-Galerkin method. In this method, the quartic B-splines and quintic B-splines are redefined into new sets of functions which contain the equal number of functions. The analysis is accompanied by numerical examples. The obtained results demonstrate the reliability and efficiency of the proposed scheme.

References

Index Terms

Computer Science  Applied Mathematics

Keywords

Basis functions, Boundary value problem, B-splines, Petrov-Galerkin method, Weight functions.