Derivation of BBDF-α for solving ordinary differential equation

ABSTRACT

In this paper, the block backward differentiation formulas with parameter (BBDF-) of order three is derived in a constant step size for solving system of first order ordinary differential equations (ODEs). The coefficients of formula are generated using Maple software package. The influence of parameter is considered to produce better approximate solutions at two points simultaneously. Numerical experiment is included to show the capability of the derived method in solving ODEs. Numerical results indicate that the BBDF- outperforms the existing methods in term of accuracy.

Keyword: BBDF- ; Ordinary differential equations (ODEs)