International J. of Math. Sci. & Engg. Appls. (IJMSEA)
ISSN 0973-9424, Vol. 7 No. V (September, 2013), pp. 367-375

STARTING ONE STEP, FIVE OFF STEPS STOMER COWELL METHOD BY ADAMS BASHFORTH METHOD FOR THE SOLUTION OF FIRST ORDER INITIAL VALUE PROBLEMS OF ORDINARY DIFFERENTIAL EQUATIONS

ADESANYA A. OLAIDE[1], ABUBAKAR B. BINTA[2] AND ALKALI M. ADAMU[3]

[1,3] Department of Mathematics,
Modibbo Adama University of Technology, Yola,
Adamawa state, Nigeria
[2] Department of Mathematics and Statistics,
Adamawa state Polytechnic, Yola, Adamawa state, Nigeria

Abstract

A one step, five points Stomer Cowell method was developed using method of interpolation of the approximate solution and collocation of the differential system to generate a continuous linear multistep method which serve as the corrector to Adams Bashforth method which serve as a constant order predictor. Basic properties of the corrector Viz; order, zero stability, convergency and stability interval was veri.ed. the method was tested on some numerical examples and was found to compete favourably with the existing methods.

Key Words : *Approximate solution, Interpolation, Collocation, Corrector, Predictor, Order, Zero stability, Convergence, Stability interval.*

2010 AMS Subject Classification : 65L05, 65L06, 65D30.

© http: //www.ascent-journals.com