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Constant Order Predictor Corrector Method for the Solution of Modeled Problems of First Order IVPs of ODEs

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Abstract : This paper examines the development of one step, five hybrid point method for the solution of first order initial value problems. We adopted the method of collocation and interpolation of power series approximate solution to generate a continuous linear multistep method. The continuous linear multistep method was evaluated at selected grid points to give the discrete linear multistep method. The method was implemented using a constant order predictor of order seven over an overlapping interval. The basic properties of the derived corrector was investigated and found to be zero stable, consistent and convergent. The region of absolute stability was also investigated. The method was tested on some numerical experiments and found to compete favorably with the existing methods.

Keywords : interpolation, approximate solution, collocation, differential system, half step, converges, block method, efficiency
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