

On Approximation by Gupta type general family of Operators

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Abstract

In this paper, we study Gupta type family of positive linear operators, which have a wide range of many well known linear positive operators e.g. Phillips, Baskakov-Durrmeyer, Baskakov-Sz\{a}sz, Sz\{a}sz-Beta, Lupa\{c}s-Beta, Lupa\{c}s-Sz\{a}sz, genuine Bernstein-Durrmeyer, Link, P\{u}a\{t}u\{a}nea, Mihe\{c}s-an-Durrmeyer, link Bernstein-Durrmeyer etc. We first establish direct results in terms of usual modulus of continuity having order 2 and Ditzian-Totik modulus of smoothness and then study quantitative Voronovskaya theorem for the weighted spaces of functions. Further, we establish Gr\{u}ss-Voronovskaja type approximation theorem and also derive Gr\{u}ss-Voronovskaja type asymptotic result in quantitative form.

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