

## ESSENTIAL ATTRIBUTES OF THE DEGENERATED TRIPLE HYPERGEOMETRIC FUNCTION OF SRIVASTAVA'S $H_{A,p,\alpha}^{\lambda,l}(\cdot)$

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**Abstract.** The paper proposes to employ the extended Beta function  $B_{p,\alpha}^{\lambda,l}(z_1, z_2)$  introduced by Oraby et al, to degenerated triple hypergeometric function of Srivastava's  $H_A(\cdot)$ . Furthermore, a few attributes like integral expression, derivative formulas and several integral transforms of the proposed function are also discussed using the extended Beta function. In addition, we use Wolfram Mathematica and computer algebraic software or object-oriented programming to build a numerical approximation table of this generalized hypergeometric function  $H_{A,p,\alpha}^{\lambda,l}(\cdot)$ .

### 1. Introduction, definitions and preliminaries

The Hypergeometric functions finds its applicability in many areas of Mathematical Physics, Quantum Chemistry, etc. The Gauss hypergeometric function for  $w_1, w_2 \in \mathbb{C}, w_3 \in \mathbb{C} \setminus \mathbb{Z}_0^-$ , is defined by [18]

$${}_2F_1 \left( \begin{matrix} w_1, w_2 \\ w_3 \end{matrix}; z \right) = \sum_{n=0}^{\infty} \frac{(w_1)_n (w_2)_n}{(w_3)_n} \frac{z^n}{n!} \quad (1.1)$$

where  $|z| < 1$ ;  $w_1, w_2 \in \mathbb{C}, w_3 \in \mathbb{C} \setminus \mathbb{Z}_0^-$  and  $(w_1)_i (1 \leq i \leq 3)$  denotes the Pochhammer symbol defined by

$$(w_1)_i := \frac{\Gamma(w_1 + i)}{\Gamma(w_1)} = \begin{cases} 1, & (i = 0; w_1 \in \mathbb{C} \setminus \{0\}) \\ w_1(w_1 + 1) \dots (w_1 + i - 1), & (i \in \mathbb{N}; w_1 \in \mathbb{C}). \end{cases} \quad (1.2)$$

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