

MULTIVARIABLE I-FUNCTION OF RELATING SOME MULTIPLES INTEGRALS

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Abstract: Recently Kushwah et al [1] have provided closed-form expressions for a number of general integrals involving the I-function of two variables. Motivated by this recent work, we establish several multiples integrals involving the products of the generalized multivariable I-function in terms of multiple Mellin-Barnes type contour integral. Some attractives integrals involving the product of orthogonal polynomials and generalized hypergeometric function have also been obtained as particular cases of the main results.

Keywords and Phrases: Generalized multivariable I-function, multiple integral, Jacobi polynomial, Legendre function, Hermite polynomial , Generalized hypergeometric function.

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1. Introduction and preliminaries

The object of this document is to study a number of a general integrals involving the generalized multivariable I-function. These function generalize the multivariable I-function recently study by C.K. Sharma and Ahmad [4]. The generalized multivariable I-function is an a generalisation of G and H-functions of multiple variables. The multiple Mellin-Barnes integral occurring in this paper will be referred to as the generalized multiple I-function throughout our present study and will be defined and represented as follows.

For convenience, we will ask.

$$R_i = p_i, q_i; R; R_{i'} = p_{i'}, q_{i'}; R : \dots : R_{i^{(r)}} = p_{i^{(r)}}, q_{i^{(r)}}; R \quad (1.1)$$

$$A(r) = \{(a_j; \alpha_j^{(1)}, \dots, \alpha_j^{(r)})_{1,n}\}, \{(a_{ji}; \alpha_{ji}^{(1)}, \dots, \alpha_{ji}^{(r)})_{n+1, p_i}\} \quad (1.2)$$

$$B(r) = \{(b_j; \beta_j^{(1)}, \dots, \beta_j^{(r)})_{1,m}\}, \{(b_{ji}; \beta_{ji}^{(1)}, \dots, \beta_{ji}^{(r)})_{m+1, q_i}\} \quad (1.3)$$