

# CONSTRUCTION OF GENERALIZED MULTIPLE HYPERGEOMETRIC FUNCTION AND CONTRIVANCE OF APPELL FUNCTIONS AS ITS SPECIAL CASES

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**Abstract :** In the present paper an attempt has been made to formulate generalized function, whose particular cases are Appell functions and other multiple hypergeometric functions. Differential equation for the generalized function has been investigated and its validity has been established with the help of known results.

**1. Introduction :** Gauss series has been generalized by increasing the number of parameters and by making the series infinite in the both directions. The detailed account of work in this context can be seen in the work of Slater (1966). The another way of generalization is of increasing the number of variables leading to the formation of Appell and other similarly generalized functions given in the book of Exton (1976). Some finite summation formulas involving generalized hypergeometric functions can be seen in the work of Srivastava (1985). A general class of mixed trilinear generating relations for Gauss hypergeometric function has been investigated by Chakrabarty and Hazra (1993). The two papers of Exton (1994 & 1995) and books of Agarwal (1996) also gives sufficient material on generalized hypergeometric functions.

We in our earlier studies (1998) have formed finite multiplicative group for  $n$  - lateral multiple hypergeometric functions. In the present work an attempt has been made to acquire product of two generating functions in order to obtain generalized multiple hypergeometric functions and its differential equation.

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