

UNIFIED THEORY OF OBTAINING A NOVEL CLASS OF
BILATERAL GENERATING RELATIONS OF CERTAIN SPECIAL
FUNCTIONS BY GROUP THEORETIC METHOD

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Abstract : In this paper, we have presented a unified theory of obtaining a novel class of bilateral generating relations involving certain special functions by group theoretic method. In Section 2, the method has been fully discussed and finally we have arrived at a conclusion in connection with the unification of a class of bilateral generating functions involving some special functions which is stated in Theorem 2.1. In Section 3, we have obtained a good number of theorems on bilateral generating functions involving various special functions in course of application of Theorem 2.1 obtained in this investigation.

1. INTRODUCTION

Theories in connection with the unification of bilateral or trilateral generating relations for various special functions are of greater importance in the study of special functions. For previous works in this direction, one can see the works [[1]-[7]] and [[8]-[14]] in connection with the unification of bilateral and mixed trilateral generating relations. In this present article, we have discussed a group theoretic method for deriving a unified presentation of a novel class of bilateral generating relations for certain special functions subject to the condition of construction of one parameter continuous transformations group for the special functions under consideration. Furthermore, we would like to mention that a good number of theorems on bilateral generating relations for various special functions can be easily obtained in course of application of our result (Theorem 2.1). In fact the main result of our investigation is given in Section 2(Theorem 2.1).

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