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CERTAIN FINITE INTEGRAL FORMULAS PERTAINING TO THE PRODUCT OF A GENERALIZED BESSEL-MAITLAND FUNCTION AND JACOBI POLYNOMIAL

S. C. Pandey and S. Tiwari

Faculty of Mathematics and Computing,
Department of Mathematics and Statistics,
Banasthali Vidyapith,
Niwai - 304022, Rajasthan, INDIA

E-mail : sharedpandey@yahoo.co.in, sameekshabanasthaliu@gmail.com

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Abstract: The main object of this paper is to evaluate certain finite single and double integral formulas involving the product of a generalized Bessel-Maitland function and the classical Jacobi polynomial. The outcomes of proposed integrals are expressed in terms of the well-known Srivastava and Daoust function. Several interesting special integrals are obtained as the particular cases of the results established in the present investigation.

Keywords and Phrases: Generalized Bessel-Maitland function, Jacobi polynomial, Srivastava and Daoust function.

2020 Mathematics Subject Classification: 33C10, 33C45, 33C65.

1. Introduction

Special functions are ubiquitous in the applied sciences. A number of special functions are compiled and presented in classical monographs [6, 14, 38]. Being the fundamental components of applicable mathematics, integrals and derivatives of special functions play a key role in diversified fields of science and technology. Due to a wide variety of applications, the Bessel function and its numerous generalizations are studied by distinguished researchers. For instance, Suthar et al. [33] have proposed an extension of the Bessel-Maitland function and investigated the