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GENERATING OPERATORS OF I-TRANSFORM OF THE MELLIN CONVOLUTION TYPE[†]

ALTAF AHMAD BHAT, JAVID AHMAD GANIE,
MOHAMMAD YOUNUS BHAT* AND FAIZA BAIT ALI SULEIMAN

Abstract. In this paper, the I-transform of the Mellin convolution type is presented. Based on the Mellin transform theory, a general integral transform of the Mellin convolution type is introduced. The generating operators for I-transform together with the corresponding operational relations are also presented.

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1. Introduction and Preliminaries

From functional point of view integral transform is a useful technique. We not only deal with mapping properties of the integral transforms but our aim is to show how they can be applied to different problems of mathematics, physical sciences like the solutions of ordinary and partial differential equations [1]. While considering certain problems of mathematical physics all integral transforms are not arbitrary linear operators. For all integral transforms both their inverse operators and the generating operators are known. The classical one-dimensional integral transforms are of the form [2]

$$[Kf](x) = \zeta(x) = \int_{-\infty}^{\infty} k(x,t)f(t)dt,$$

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