J. of Ramanujan Society of Mathematics and Mathematical Sciences
Vol. 10, No. 2 (2023), pp. 135-142

DOI: 10.56827/JRSMMS.2023.1002.10 **ISSN (Online): 2582-5461**

ISSN (Print): 2319-1023

SOME PROPERTIES OF k-RIEMANN-LIOUVILLE FRACTIONAL INTEGRAL OPERATOR

Radhe Shyam Prajapat and Indu Bala Bapna

Department of Mathematics,
M. L. V. Govt. P G College,
Bhilwara - 311001, Rajasthan, INDIA

E-mail : rprajapat71@yahoo.in, bapnain@yahoo.com

(**Received:** *Apr. 04, 2023* **Accepted:** *May 28, 2023* **Published:** *Jun. 30, 2023)*

Abstract: In this paper we will introduce some properties of k- Riemann Liouville fractional integral operator involving convolution property. The fractional derivative of k- Riemann Liouville fractional integral operator of integral transforms will be obtained. Applications of this operator will be introduced. All results of nature will be discussed as special cases.

Keywords and Phrases: Gamma function, Integral Transform, Riemann Liouville fractional integral, Fractional Singular Kernel.

2020 Mathematics Subject Classification: 26A33, 42A38, 35A22.

1. Introduction and Definitions

Various problems of physics and engineering are based on mathematical calculations. Some specific problems various fields based on theory of special functions and fractional calculus operators. Many mathematicians (like see [1], [5], [7], [8], [9]) have introduced various properties and applications of special functions and fractional calculus operators. For main results of this paper, we are considering following definitions.

In 2007, R. Diaz and E. Pariguan have introduced the following Pochhammer k-symbol and k-Gamma function (see [2], [3])

$$(a)_{n,k} = a.(a+k).(a+2k).(a+3k).....(a+(n-1)k); n \geq 1, k > 0 \qquad (1.1)$$