SOME RESULTS OF EXTENDED τ-GAUSS HYPERGEOMETRIC FUNCTION AND τ-KUMMER HYPERGEOMETRIC FUNCTION BY USING WIMAN'S FUNCTION

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Abstract. The main aim of this research paper is to introduce a new extension of τ-Gauss hypergeometric function and τ-Kummer hypergeometric function by using an extended beta function. Some functional relations, summation relations, integral representations, linear transformation formulas, and derivative formulas for these extended functions are derived.

1. Introduction and Preliminaries

In the past years, various extensions, properties and applications of special functions have been discussed by many researchers and authors. Here, we aim to study some results of beta function and τ-Gauss hypergeometric function by using Wiman's function.

Classical Euler Beta function and Gamma function are defined as [10]

$$B(y_1, y_2) = \int_0^1 t^{y_1-1}(1-t)^{y_2-1}dt, \tag{1.1}$$

where $\Re(y_1) > 0$ and $\Re(y_2) > 0$.

$$\Gamma(y_1) = \int_0^\infty t^{y_1-1}e^{-t}dt, \tag{1.2}$$

where $\Re(y_1) > 0$.

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