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Solution of Telegraph Equation by Using Double Mahgoub Transform

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Abstract : In this paper, we apply Double Mahgoub transform to solve the general linear telegraph equation. The applicability of this new transform is demonstrated using some functions.

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Key Words : Telegraph equation; Double Mahgoub Transform

1 Introduction :

A lot of problems have been solved by integral transforms such as Laplace [1], Fourier, Mellin, and Sumudu [2, 3], Elzaki and Aboodh.

Also these problems have been solved by differential transform method [4-11]. In this paper we derive, we believe for the first time and solve telegraph equations by using Double Mahgoub transform.

1.1 Mahgoub Transform

Definition 1.1.1 Let function f(t) defined for $t \geq 0$ then Mahgoub transform of f(t) is the function H defined as follows:

$$M[f(t)] = H(v) = v \int_0^\infty f(t)e^{-vt}dt, t \geq 0$$