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QUARTER SYMMETRIC NON-METRIC CONNECTION ON A $(k,\mu)-$CONTACT METRIC MANIFOLD

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Abstract: The object of the present paper is to introduce a new type of quarter symmetric non-metric connection on a $(k,\mu)-$contact metric manifold and study some properties of quarter symmetric non-metric connection on a $(k,\mu)-$contact metric manifold. Further, we obtain some properties of nearly Ricci recurrent on a $(k,\mu)-$contact metric manifold with respect to quarter symmetric non-metric connection. Finally, we present an example to verify our result.

Keywords and Phrases: $(k,\mu)-$contact metric manifold, quarter symmetric non-metric connection, Curvature tensor, symmetric and skew-symmetric and nearly Ricci recurrent.

2020 Mathematics Subject Classification: 53C25, 53D15..

1. Introduction

The notion of $(k,\mu)-$contact metric manifolds was introduced by Blair, Koufogiorgos and Papantoniou [2] where k and μ are real constants. A class of contact manifolds with contact metric structure (ϕ,ξ,η,g) in which the curvature tensor R satisfies the condition:

$$R(X,Y)\xi = k[\eta(Y)X - \eta(X)Y] + \mu[\eta(Y)hX - \eta(X)hY],$$

$\forall\ X,Y \in$TM, where k and μ are real constants, is called $(k,\mu)-$contact metric manifold. The class of $(k,\mu)-$contact metric manifolds contains both the class of