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DECOMPOSITION OF δ-CONTINUITY VIA e-OPEN SET

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Abstract. The main purpose of this paper is to obtain a new decomposition of δ-continuity via e-open set which is defined by Ekici [7]. For this aim, we introduce the notion of δ-locally e-closed set which is weaker than the notion of locally δ-closed set. Also, we investigate many fundamental properties of it. Finally, we obtain two new decompositions of the notion of δ-continuity.

1. Introduction

The notion of decomposition of continuity is one of the most important notions in general topology. Recently the notion of decomposition have been studied many mathematicians such as Tong [18], Ganster and Reilly [8], Przemski [15], Hatice [10], Al-Nashef [1], Hatice and Noiri [11], Noiri and Sayed [12], Erguang and Pengfei [4]. Furthermore, the concepts of t-set and B-set in topological spaces were defined and studied by Tong [18] in 1989. They have obtained different decompositions of continuity on their studies via these concepts.

In this paper, we define and study the notions of δ-locally-e-closed sets, δ-e-t-set, δ-e-B-set, δ-locally e-closed continuous function via the concept of e-open set defined by Ekici [7], and obtain decomposition of δ-continuity.

2. Preliminaries

Throughout this paper, (X,τ) and (Y,σ) (or simply X and Y) always mean topological spaces on which no separation axioms are assumed unless explicitly stated. Let X be a topological space and A a subset of X. The closure of A and the interior of A are denoted by $cl(A)$ and $int(A)$, respectively. The family of all closed (open) sets of X is denoted by $C(X,\tau)(O(X))$. Recall that a set A is called regular open [17] (resp. regular closed [17]) if $A = int(cl(A))$ (resp. $A = cl(int(A))$). A subset A of a space (X,τ) is called δ-open [19] if for each $x \in A$ there exists a regular open set V

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