

ON COMPACTNESS IN BI-GENERALIZED TOPOLOGICAL SPACES

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Abstract: In this paper, we define compactness for all open sets defined in bi-generalized topological spaces such as: $\mu_{(m,n)}$ -semi compactness, $\mu_{(m,n)}$ -pre compactness, $\mu_{(m,n)}$ -regular compactness, $\mu_{(m,n)}$ - α -compactness, $\mu_{(m,n)}$ - β -compactness, $\bar{\mu}_{(m,n)}$ -compactness and (m, n) -compactness. For our investigation, we choose $\mu_{(m,n)}$ -semi compactness as a base space and studies the relationships between the $\mu_{(m,n)}$ -semi compactness and other compactness in bi-generalized topological spaces.

Keywords and Phrases: Bi-generalized topological spaces, Open sets, Compactness.

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1. Introduction

Kelly [15] initiated the concept of bi-topological space (briefly, *Bi-TS*) in 1963 and thereafter many mathematicians generalized the topological ideas into bi-topological settings. Császár [6] introduced the concepts of generalized neighborhood systems and generalized topological space (briefly, *GTS*). Research in *GTS* is still a hot area of research in which researchers introduced several types of continuity, compactness, homogeneity, and sets are extended from ordinary topological spaces to include *GTS*. As a generalization of *Bi-TS*, Boonpok [3] introduced the concept of bi-generalized topological space (briefly, *Bi-GTS*) and studied (m, n) -closed sets and (m, n) -open sets in *Bi-GTS*. Also, several authors [2, 7, 10, 12, 14, 21, 24] further extended the concept of various types of closed sets in *Bi-GTS*.