SPECIMEN FORMAT FOR THESES OF MONTH

Faculty	:	Science
Department	:	Mathematics
Branch/ Area:	:	Topology
Sub Subject Heading:	:	General Topology
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Title of the thesis	:	A Generalization of Delta Closed Sets in Topological Spaces and Applications
(i) In Roman Script		-
(ii) In roman Script		-
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Abstract within 300 words:

The aim of this work is to establish and study the properties of the notion of λ_g^δ-closed sets in topological spaces and fuzzy topological spaces. This is followed by the application of this notion in image processing in order to check for the efficiency of this notion in real life scenario.

i) Major objectives :

- To establish the notion of λ_g^δ-closed sets in topological and fuzzy topological spaces.
- To study various notions related to λ_g^δ-closed sets.
- To work on the applications of λ_g^δ-closed sets.

ii) Methodology :

The research has been done by the following methods.

- Analytical method of comparing λ_g^δ-closed sets with existing closed sets.
- Producing Counter examples wherever necessary to substantiate the result.
- Analysis of preservation of topological properties by λ_g^δ-closed sets.
- Obtaining Characterization theorems.
- Apply the developed theory to suitable real life scenario and test its efficiency.

iii) Findings:

In this thesis, the study of the notion λ_g^δ-closed sets is presented. This notion is properly placed between δ-closed sets and δg*-closed sets. It is the nearest weaker form of δ-closed sets. λ_g^δ-closed sets are much stronger than many existing generalizations of δ-closed sets. The reverse implications of the dependence relationship, which do not hold good, are substantiated by counter examples.

The characterizations of λ_g^δ-closed sets in semi-regular space, almost weakly Hausdorff space, $T_{3/4}$-spaces are also derived. Properties of various notions related to λ_g^δ-closed sets namely λ_g^δ-neighborhood, λ_g^δ-limit point, λ_g^δ-derived set, λ_g^δ-frontier, λ_g^δ-boundary, λ_g^δ-exterior and λ_g^δ-saturated set are studied. λ_g^δ-open sets are characterized using the concept of grill in topological spaces.

As an application of λ_g^{δ}-closed sets, five new spaces are constructed and their interrelations with existing spaces and among themselves are analyzed. It is shown that the composition of two λ_g^{δ}-continuous functions is not preserved. But after changing the conditions suitably, the composition is preserved.

Characteristics of λ_g^{δ}-irresoluteness and contra λ_g^{δ}-irresoluteness functions by inducing surjection, bijection on various types of continuity are presented. Efficiency of λ_g^{δ}-closed sets is tested against that of regular closed and δ-closed sets in image processing. A glimpse of the study on fuzzy λ_g^{δ}-closed sets is presented with some interesting examples.

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