

SPECIMEN FORMAT FOR THESES OF MONTH

Faculty : Science

Department : Mathematics

Branch / Area: : Topology

Sub Subject Heading: :

Candidate's Name : Meena. K

Candidate's Address with email : 18, K.P.R.Lay Out –I-Street,
Singanallur,
Coimbatore-641005
meena.k.sci@kct.ac.in

Title of the thesis : Analysis of Δ^* -Closed Sets in Topological Spaces

(i) In Roman Script -

(ii) In roman Script -

Nomenclature of Degree: : Ph.D.

Month & Year of Enrolment: : July, 2013

Month & Year of Registration: : July, 2013

Month & Year of Submission: : December, 2016

Month & Year of Award : June, 2017

Name of Supervisor : Dr.K.Sivakamasundari

Designation of Supervisor : Professor

Centre/department/school in which research was conducted : Avinashilingam Institute for Home Science and Higher Education for Women

University's Name & Address : Avinashilingam University
Coimbatore-641043

Abstract : The endeavor of the thesis is to introduce and analyse a new class of closed sets, namely, Δ^* -closed (Delta star closed) sets in topological spaces. Their association with other existing closed sets, properties and characterizations are analysed under various concepts such as continuity, irresoluteness, homeomorphisms and locally closedness. The nature of this newly defined closed sets are discussed in different topological spaces, like semi regular space, Hausdorff space, almost weakly Hausdorff space, R_1 -topological space, Partition space and $T_{1/2}$ -partition space. Also four new separation axioms are established and their imperative properties are proved as applications of Δ^* -closed sets. The extensions of homeomorphisms, namely, Δ^* -homeomorphism and Δ^* C-homeomorphisms are introduced and their significance in topological spaces are proved in this thesis. Moreover the group property of Δ^* C-homeomorphisms is analyzed. The preservation of composition of two Δ^* -continuous functions, Δ^* -irresolute functions, Δ^* -homeomorphisms and Δ^* -locally continuous functions are analyzed. All the concepts studied in topological spaces are extended to bitopological spaces and the analysis has been done in a similar way.

i) Major objectives : To define a new definition of Δ^* -closed sets and analyse the properties with other existing generalized closed sets.

ii) Hypothesis : Analysis

iii) Methodology :

- Analytical Method
- Counter Examples
- Preservation of Properties
- Characterization Theorems

iv) Findings : The concept of Δ^* -closedness which is stronger than $g\delta$ -closedness but weaker than δg^* -closedness is established in the thesis. It is proved that the composition of two Δ^* -continuous functions, Δ^* -irresolute functions, Δ^* -homeomorphisms and Δ^* -locally continuous functions is not preserved. But after changing the conditions in different ways, it is shown that the composition of mapping is preserved. Further the family of all Δ^* C-homeomorphisms forms a group under the composition of maps. Also several results are analysed under Δ^* -locally closed sets. The analysis of Δ^* -closed sets is extended to bitopological spaces.

Examiners

Internal Examiner : Dr.G.Thangaraj

Professor,
Department of Mathematics,
Thiruvalluvar University,
Vellore - 632115

External Examiner : Alias Barakat Khalaf

Professor
College of Science
University of Dhhok
Kurdistan Region
Iraq