REVIEW OF LITERATURE

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Generalized closed sets play on important role in the study of topological spaces. The initiation of the study of generalized closed sets was done by Levine [31] in 1970 as he considered sets whose closures belong to every open super set. The space in which the concept of g-closed and closed sets coincides are called $T_{1/2}$ spaces.

In 1987, Bhattacharya and Lahiri [11] have introduced the notion of semi-generalized closed sets by replacing the closure operator in the original Levine's definition by semi-closure operator and by replacing openness of the superset with semi-openness.

In 1990, Arya and Nour [6] defined the notion of generalized semi-closed sets (gs-closed sets). Although g-closed and sg-closed sets are independent notions, they both imply gs-closed ness and the reverse implications fail to be always true. They studied some of their properties and characterizations of S-normal space by using semi-open sets. It is known that normality of spaces is preserved under continuous regular closed surjections [35] and under g-closed continuous surjection. It is also known that regularity of spaces is preserved under closed, continuous, open surjection and under g-closed, continuous open surjection.

In 1991, Sundaram [9] has introduced the concept of semi-generalized continuous maps and generalized semi-continuous maps. In 1993, Devi, Maki and Balachandran [18] have introduced sg and gs closed maps discussed and some of their basic properties. As applications, they showed that under the continuous, gs-closed surjection the image of a normal space is s-normal and that under semi-open continuous, generalized semi-closed surjection the image of a regular space is s-regular. Characterization of $T_{1/2}$-spaces is obtained interms gs-closed sets and semi-closed sets. The relation between the product and $T_{1/2}$-spaces are analyzed.

Njastad [46] has introduced the notion of α-sets. In 1993-1994, the concept of generalized α-closed sets [40] and α-generalized closed sets [41] have been introduced as generalizations of α-closed sets and generalized closed sets respectively by Devi, Balachandran and Maki [14]. They have introduced the concept of generalized α-closed maps, α-generalized closed maps and α-regular spaces as generalizations of closed maps, generalized closed maps and regular spaces respectively.

In 1997, Dunham [19] showed that $T_{1/2}$-spaces are precisely the spaces in which singletons are both open or closed.

In 2000, Miguel caldas cueva [45] has introduced ap-irresolute maps, ap semi-closed maps and contra-irresolute maps using these concepts. Another has obtained characterization of semi- $T_{1/2}$-spaces.

In 2001, Ei-shafei [20] has introduced the notions of g-regularity and g-normality in fuzzy topological spaces and discussed some characterizations and several preservation theorems of such spaces.

In 2002, Jiling cao, Maximilian Ganster and Ivan Reilly [28] have studied some lower separation axioms weaker than T_1 using the concept of generalized closed sets due to Levine. Characterization of extremely dis connected spaces and sg-sub minimal spaces are obtained the various kinds of generalized closed sets.

In 2002, Jafari and Noiri [24] have introduced the concept of contra continuity due to Donchev [18]. Further they discussed the generalization of contra continuity called contra-pre continuity.

In 2003, Veerakumar [67] has introduced $g^{\#}$-closed sets in topological spaces which is properly placed in between the class of closed sets and the class of g-closed sets. As applications of $g^{\#}$-closed sets, he has introduced $g^{\#}$-continuous maps and $g^{\#}$-irresolute maps.

In 2005, Veerakumar [66] has introduced contra-pre-semi-continuous functions which contains the contra-β-continuous functions, contra-pre-continuous functions and the properties of such functions are discussed.

In 2005, Noiri and Popa [21] have introduced the notion of almost contra-pre-continuous functions as a generalization of contra-pre-continuous functions due to Jafari and Noiri [24]. They have discussed the characterizations and properties of almost contra-pre-continuous functions and showed that (s,p) continuity due to Jafari [25] is equivalent to almost contra-pre continuity.

In 2006, Alimohammady and Roohi [2] have introduced fuzzy minimal space as a new generalization of the notion of fuzzy topology and investigated the class of fuzzy minimal vector spaces as a generalization of the class of fuzzy topological vector spaces. They have generalized the concept of fuzzy compactness and introduced the concept of fuzzy (countably) compactness in fuzzy minimal spaces and obtained some basic results in these new settings. It is proved that (X, M) is fuzzy m-compact if and only if every fuzzy m-open cover of it has a finite o-partition.

In 2007, Benchalli and Wali [10] have introduced the concept of regular w-closed sets in topological spaces. This new class of sets has between the class of all w- closed sets and the class of all regular g-closed sets. Properties of these sets are discussed.

In 2009, Parimelazhagan and Nagaveni [53] have introduced fuzzy minimal weakly generalized closed functions, fuzzy weakly generalized closed functions, fuzzy weakly generalized open maps, the fuzzy minimal strongly continuous, almost continuous, perfectly continuous functions and the properties and characterizations analyzed.

In 2009, Won Keun Min and Young key kim [68] have introduced the notion of minimal pre continuity, m-pre closed graph, almost m-pre compact and m-pre compact spaces and investigated some properties of these concepts.

In 2009, Ahmad Al-Omari and Mohd.salmi.Md.Noorani [1] have introduced the class of generalized b-closed sets and the notion of new weak and stronger forms of continuous functions associated with these sets. Properties, characterizations and applications of these closed sets are studied.

In 2010, Maragathavalli, Sheik John and Sivaraj [42] have defined g_μ-closed sets and Tg_μ-closed sets in generalized topological spaces with a hereditary class and discussed characterization and properties of these sets.