REVIEW OF LITERATURE

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In the study of topological spaces many concepts of topology have been generalized by considering the concepts of generalized open sets due to Levine [21] instead of open sets. Intensive research in the field of generalized closed sets was done in the past 15 years as the theory was developed by Balachandran, Devi, Maki [12, 13], Noiri, Ogata, Sundaram et.al [47]. Several forms of generalized continuity, openness and irresoluteness of functions associated with the generalized closedness in question have been introduced and investigated.

A number of articles on generalized open sets and generalized continuity have been published by Veerakumar [50] , H.Maki,R.Devi and K.Balachandran [24,25,26], Bhattacharya and Lahiri [7] O.Ravi and Lellis Thivagar [46].

Here we shall give a brief survey of some of the articles published on g-closed sets*-closed sets and α-closed sets etc and g-continuous maps and α-g-continuous etc.

The initiation of the study of generalized closed sets was done by Levine [21] in 1970 as he considered sets whose closures belong to every open super set. The space in which the concepts of g-closed and closed sets coincide is called $T_{1/2}$ spaces.

In 1987, Bhattacharya and Lahiri [7] 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 [4] 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-closedness 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 surjection 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 [6] introduced the concept of semi-generalized continuous maps and generalized semi-continuous maps. In 1993, Devi, Maki and Balachandran [24] introduced sg and gs closed maps and studied 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. Further, they characterized the class of $T_{1/2}$-spaces by using gs-closed sets and semi-closed sets and they investigated the relation between the product and $T_{1/2}$-spaces.

Njasted [33] had introduced the notion of α-sets. In 1993-1994, the concept of generalized α-closed sets and α-generalized closed sets have been introduced as generalizations of α-closed sets and generalized closed sets respectively by Devi, Balachandran and Maki [24,25,26].

They have introduced and investigated 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 1994, Maki [25] defined αg-closed sets and α^{**} g-closed sets. Dontchev [14], Gnanambal [17] and Palaniappan and Rao [34] introduced gsp-closed sets, gpr-closed sets and r-g-closed sets respectively and discussed the fundamental properties.

In 1997, Dunham [16] showed that $T_{1/2}$-spaces are precisely the spaces in which singletons are open or closed.

In 1997, Gnanambal [17] has introduced the concept of generalized pre regular closed sets, pre regular $T_{1/2}$-spaces and generalized pre regular continuity. Properties, characterizations and applications of these closed sets are discussed.

In 1998, they introduced the concept of pre-α-closed maps and proved that normality and α-regularity are preserved under the maps.

They introduced some classes of spaces called ${}_\alpha T_b$ and ${}_\alpha T_d$ and investigate relations among their spaces and ${}_\alpha T_1$, ${}_\alpha T_{1/2}$ spaces. They proved that the concepts ${}_\alpha T_b$ and ${}_\alpha T_d$ spaces are preserved under homeomorphisms. They investigated αg-openness and g-openness in the product space of a family of non-empty topological spaces and proved that a projection map from the product space onto its factor space is αg-

irresolute. As an application they had a product theorem for ${}_{\alpha}T_b$ and ${}_{\alpha}T_d$ spaces respectively.

In 2000, Zorlutuna and Noiri [56] have studied some characterizations of strongly pre continuous functions. Properties of these functions are analyzed.

In 2002, Veerakumar [50] has introduced α-generalized regular closed set which lies between the class of all α-generalized closed sets and the class of generalized pre regular closed sets. As an application of these sets, he has introduced α-generalized regular $T_{1/2}$ spaces, αgr-continuous maps and αgr-irresolute maps and discusses the characterizations

In 2003, Pratulananda Das and Mamun A.R.Rashid [36] have introduced the concept of g^*-closed sets is Alexandroff space. Properties and a new separation axiom called T_ω-axiom in the Alexandroff spaces with the help of g^*-closed sets are discussed.

In 2004, Miguel Caldas and Govindappa Navalagi [30] have introduced weakly preopen and weakly preclosed functions as generalization of weak openness and weak closedness. Properties, characterizations and relationships of preopen and preclosed functions are analyzed.

In 2005, Veerakumar [54] has introduced the concept of contra-pre-semi-continuous functions .This new class is a super class of contra β-continuous functions and contra-pre-continuous functions.

In 2005, Takashi Noiri and Valeriu Popa [48] have introduced the notion almost contra-pre-continuous functions. Properties and characterizations of these functions are discussed.

In 2006, Ravi and Lellis Thivagar [46] have introduced a new type of generalized sets called $(1, 2)^*$-semi generalized closed sets and a new class of generalized functions $(1, 2)^*$-semi generalized continuous maps. Properties, characterization and the relationship with $(1, 2)^*$-g-continuous maps and $(1, 2)^*$-g-irresolute map are discussed.

In 2008, Chandrasekhara Rao and Narasimhan [9] have studied the concept of pair wise T_s-space and its basic properties in bitopological spaces.

In 2009, Pushpalatha and Subha [41] have introduced the concept of smg-closed set and proved that this set is a stronger form of mg-closed sets due to T. Noiri.

In 2009, Ahmed Al-Oman and Mohd .Salmi Md.Noorani [1] have studied the concept of generalized b-closed sets and use this notion to consider new weak and stronger forms of continuities associated with these sets .Properties and characterization of extremely disconnected spaces and T_{gs} –spaces are discussed.

In 2009, Chawalit Boonpok [10] has studied Ω-sets in closure spaces. The concept of Ω-continuous maps and its properties are analyzed.

In 2010, Pushpalatha and Eswaran [38] have introduced a new class of maps called τ*-gc-irresolute map, strongly τ*-generalized continuous map and perfectly τ*-generalized continuous maps in topological space and study some of their properties and relations among them.