Summary and Conclusion

The thesis is to investigate a new form of generalized closed sets called $\psi^*\alpha$-closed sets in topological and bitopological spaces.

The preliminary definitions and notations used in the thesis are presented in chapter1.

In chapter 2, $\psi^*\alpha$-closed sets and $\psi^*\alpha$-open sets are introduced. Their properties and characterizations are studied. It is observed that $\psi^*\alpha$-closed sets form a topology and the closure operator defined for $\psi^*\alpha$-closed sets satisfies Kuratowski closure axioms. As an application of $\psi^*\alpha$-closed sets new spaces namely, ${}_{\psi^*\alpha}T_c$ -space, ${}_{\psi^*\alpha}T_\alpha$-space, ${}_{g\alpha}T_{\psi^*\alpha}$-space, ${}_{\alpha g}T_{\psi^*\alpha}$-space and ${}_{\psi g}T_{\psi^*\alpha}$-space are defined and their interrelations are obtained.

The concepts of $\psi^*\alpha$-continuity, quasi $\psi^*\alpha$-continuity, perfectly $\psi^*\alpha$-continuity, totally $\psi^*\alpha$-continuity, strongly $\psi^*\alpha$-continuity and contra $\psi^*\alpha$-continuity are introduced in chapter 3. Properties, characterizations and interrelations between these maps are obtained.

Chapter 4 deals with $\psi^*\alpha$-irresolute maps and contra $\psi^*\alpha$-irresolute maps.The association of these maps with other existing irresolute maps are analyzed.

$\psi^*\alpha$-closed maps,$\psi^*\alpha$-open maps, quasi $\psi^*\alpha$-closed maps, quasi $\psi^*\alpha$-open maps, $\psi^*\alpha$-homeomorphisms and $\psi^*\alpha$-quotient maps are introduced and their related properties are analyzed in chapter 5. Also the concepts $\psi^*\alpha$-compact spaces and $\psi^*\alpha$-connected spaces are determined and the standard results are derived.

In chapter 6, (i, j)-$\psi^*\alpha$-closed sets and (i, j)-$\psi^*\alpha$-open sets are defined in bitopological spaces. Properties and characterizations are analyzed. (i, j)-${}_{\psi^*\alpha}T_c$-space, (i, j)-${}_{\psi^*\alpha}T_\alpha$-space, (i, j)-${}_{g\alpha}T_{\psi^*\alpha}$-space and (i, j)-${}_{\alpha g}T_{\psi^*\alpha}$-space are defined and their interrelations among them are discussed.

In chapter 7, (i, j)-$\psi^*\alpha$-σ_k-continuous maps quasi (i, j)-$\psi^*\alpha$-continuous maps, perfectly (i, j)-$\psi^*\alpha$-continuous maps, totally (i, j)-$\psi^*\alpha$-σ_k-continuous maps, strongly

(i, j)-$\psi^*\alpha$-σ_k-continuous maps, contra (i, j)-$\psi^*\alpha$-σ_k-continuous maps, (i, j)-$\psi^*\alpha$-irresolute maps and contra (i, j)-$\psi^*\alpha$-irresolute maps are introduced in bitopological spaces and their properties and interrelations are analyzed.

(i, j)-$\psi^*\alpha$-closed and open maps, quasi (i, j)-$\psi^*\alpha$-closed and open maps and (i, j)-$\psi^*\alpha$-homeomorphisms are defined and their properties and characterizations are discussed in the final chapter.

The Recommendations for Future Study

1. Weaker and stronger forms of $\psi^*\alpha$-closed sets may be defined and studied in topological spaces.
2. The concepts of $\psi^*\alpha$-closed sets may be extended to ideal and digital topological spaces.
3. Fuzzy $\psi^*\alpha$-closed sets may be defined and analyzed in fuzzy topological spaces.
4. $\psi^*\alpha$-locally closed sets may be defined and studied in topological and bitopological spaces.
5. $\psi^*\alpha$-closed sets may be defined and examined in supra topological spaces.