## *ABSTRACT*

The main aim of this thesis is to extend and study some types of topological spaces by using b-open sets.

For a topological space $X$ ,the concepts of connected ,compact ,lindelof paracompact and expandable spaces are well studied .In this work, we extend these concepts by using b-open sets to study b-connected , b-compact , b-lindelof , b-paracompact and b-expandable spaces .We also , examine study the relations between them and with other concepts like $bT_1-, bT_2-,\ b-regular\ , b*-regular\ , b-normal\ , b*-normal$ .

Throughout this work, some important and new concepts have been illustrated including nearly b-compact, nearly b-lindelof and nearly b-paracompact spaces and the behavior of these invariants under certain kinds of maps. The following are among our main results:

1-Let $X$ be a regular space, the following conditions are equivalent:

i . $X$ is paracompact.

ii . $X$ is nearly paracompact.

iii. $X$ is nearly b-paracompact.

iv. $X$ is b-paracompact.

2- If every open cover $X$ has $\sigma-$locally finite open refinement ,the following conditions are equivalent:

i. $X$ is b-paracompact.

ii. $X$ is b-expandable.

iii. $X$ is countable b-expandable.

3- Let $f : X \to Y$ be a b-open perfect function ,then

i. If $X$ is b-paracompact , then Y is b-paracompact

ii. If $X$ is b-expandable, then Y is b-expandable

4- Let $f : X \to Y$ be a open perfect function ,then

i. If Y is b-paracompact , then $X$ is b-paracompact

ii . If Y is b-expandable, then $X$ is b-expandable

5- Let $f : X \to Y$ be a b-open completely perfect function ,then

i . If $X$ is nearly b-paracompact , then Y is nearly b-paracompact

ii . If $X$ is b-expandable, then Y is b-expandable

6- Let $f : X \to Y$ be a open completely perfect function ,then

i . If Y is nearly b-paracompact , then $X$ is nearly b-paracompact

ii. If Y is b-expandable, then $X$ is b-expandable