On Quasi Soft Semi #gα-Open and Quasi Soft Semi #gα-Closed Functions in Soft Topological Spaces

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ABSTRACT
In this Paper we define new functions namely quasi soft semi $^{\#}g\alpha$-open functions and quasi soft semi $^{\#}g\alpha$-closed functions in soft topological spaces via soft semi $^{\#}g\alpha$-closed sets. We also investigate their basic properties.

Keywords
semi $^{\#}g\alpha$-closed set, quasi semi $^{\#}g\alpha$-open function, quasi semi $^{\#}g\alpha$-closed function, soft semi $^{\#}g\alpha$-closed set, quasi soft semi $^{\#}g\alpha$-open function, quasi soft semi $^{\#}g\alpha$-closed function, semi $^{\#}g\alpha$-closure, semi $^{\#}g\alpha$-interior, semi $^{\#}g\alpha$-irresolute, soft semi $^{\#}g\alpha$-closure, soft semi $^{\#}g\alpha$-interior, soft semi $^{\#}g\alpha$-continuous, soft semi $^{\#}g\alpha$-irresolute.

1. INTRODUCTION
In 1999, Russian Mathematician Molodtsov introduced the concept of soft set theory which deals with uncertainties. Later Bin Chen [1] introduced soft semi-open sets and examined their properties in soft topological spaces. K.Kannan [3] introduced soft generalized closed sets in soft topological spaces. V.Kokilavani et.al [8], introduced the notion of soft $^{\#}g\alpha$-closed sets in soft topological spaces. V.Kokilavani and M. Vivek Prabu [5] introduced the concepts of soft semi $^{\#}g\alpha$-closed sets in soft topological spaces. In this paper we introduce new type of functions namely quasi soft semi $^{\#}g\alpha$-open functions and quasi soft semi $^{\#}g\alpha$-closed functions and examine the basic properties of these notions.

Throughout this paper X and Y denote soft topological spaces on which no separation axioms are assumed unless otherwise mentioned and f : X → Y denotes a function f of a soft topological space (X, τ, E) into a soft topological space (Y, σ, K). For a soft set (F,A) of (X,E), its soft semi $^{\#}g\alpha$-closure and soft semi $^{\#}g\alpha$-interior are denoted by $\tilde{s}$semi $^{\#}g\alpha$-cl(F,A) and $\tilde{s}$semi $^{\#}g\alpha$-int(F,A) respectively.

2. PRELIMINARIES
Definition 2.1
A soft set (F,A) of a soft topological space (X,τ ,E) is called

(i) soft α-closed [2] if $\tilde{s}$cl($\tilde{s}$int($\tilde{s}$cl((F,A)))) $\tilde{\subseteq}$ (F,A). The complement of soft α-closed set is called soft α-open.

(ii) soft semi-closed [1] if $\tilde{s}$int($\tilde{s}$cl((F,A))) $\tilde{\subseteq}$ (F,A). The complement of soft semi-closed set is called soft semi-open.

(iii) soft g-closed [3] if $\tilde{s}$cl((F,A)) $\tilde{\subseteq}$ (U,E), whenever (F,A) $\tilde{\subseteq}$ (U,E) and (U,E) is soft open in (X,τ,E). The complement of soft g-closed set is called soft g-open.

(iv) soft $g^{\#}\alpha$-closed [9] if $\tilde{s}\alpha$cl((F,A)) $\tilde{\subseteq}$ (U,E) whenever (F,A) $\tilde{\subseteq}$ (U,E) and (U,E) is soft g-open in (X,τ,E). The complement of soft $g^{\#}\alpha$-closed set is called soft $g^{\#}\alpha$-open.

(v) soft $^{\#}g\alpha$-closed [8] if $\tilde{s}\alpha$cl((F,A)) $\tilde{\subseteq}$ (U,E), whenever (F,A) $\tilde{\subseteq}$ (U,E) and (U,E) is soft $g^{\#}\alpha$-open in (X,τ,E). The complement of soft $^{\#}g\alpha$-closed set is called soft $^{\#}g\alpha$-open.

(vi) soft semi $^{\#}g\alpha$-closed [5] if $\tilde{s}$scl((F,A)) $\tilde{\subseteq}$ (U,E), whenever (F,A) $\tilde{\subseteq}$ (U,E) and (U,E) is soft $^{\#}g\alpha$-open in (X,τ,E). The complement of soft semi $^{\#}g\alpha$-closed set is called soft semi $^{\#}g\alpha$-open.

The union (resp. intersection) of all soft semi $^{\#}g\alpha$-open (resp. soft semi $^{\#}g\alpha$-closed) sets, each contained in (resp. containing) a soft set (F,A) of (X,τ,E) is called soft semi $^{\#}g\alpha$-interior (resp. soft semi $^{\#}g\alpha$-closure) of (F,A), which is denoted by $\tilde{s}$semi $^{\#}g\alpha$-int((F,A)) (resp. $\tilde{s}$semi $^{\#}g\alpha$-cl((F,A))).

Definition 2.2
A function f : X → Y is said to be

(i) soft semi $^{\#}g\alpha$-continuous [6] if for every soft closed set in Y, its inverse image is soft semi $^{\#}g\alpha$-closed in X.

(ii) soft semi $^{\#}g\alpha$-irresolute [6] if for every soft semi $^{\#}g\alpha$-closed set in Y, its inverse image is soft semi $^{\#}g\alpha$-closed in X.

Definition 2.3
A function f : X → Y is said to be soft pre-semi $^{\#}g\alpha$-closed [6], if for every soft semi $^{\#}g\alpha$-closed set (A,E) in X, f(A,E) is a soft semi $^{\#}g\alpha$-closed set in Y.

Definition 2.4
A soft topological space X is said to be soft semi $^{\#}g\alpha$-normal [6], if for any pair of disjoint soft semi $^{\#}g\alpha$-closed subsets (V_1,E) and (V_2,E) of X, there exist disjoint soft open sets (A,E) and (B,E) such that $V_1 \tilde{\subseteq} A$ and $V_2 \tilde{\subseteq} B$.

3. QUASI SOFT SEMI $^{\#}$GENERALIZED α-OPEN FUNCTIONS
Definition 3.1
A function f : X → Y is said to be quasi soft semi $^{\#}g\alpha$-open if the image of every soft semi $^{\#}g\alpha$-open set in X is soft open in Y.

Note
When f is a bijective function, then the above definition coincides with soft semi $^{\#}g\alpha$-continuity.

Theorem 3.2

A function f : X → Y is quasi soft semi $^{\#}g\alpha$-open if and only if for every soft subset (U,E) of X, f(soft semi $^{\#}g\alpha$-int(U,E)) $\tilde{\subseteq}$ $\tilde{s}$int(f(U,E)).

Proof

Let f be a quasi soft semi $^{\#}g\alpha$-open function. Since $\tilde{s}$int(U,E) $\tilde{\subseteq}$ (U,E) and soft semi $^{\#}g\alpha$-int(U,E) is soft semi $^{\#}g\alpha$-open, we have f(soft semi $^{\#}g\alpha$-int(U,E)) $\tilde{\subseteq}$ f(U,E). Also since f(soft semi $^{\#}g\alpha$-int(U,E)) is soft open, f(soft semi $^{\#}g\alpha$-int(U,E)) $\tilde{\subseteq}$ $\tilde{s}$int(f(U,E)).

Conversely, let (U,E) be soft semi $^{\#}g\alpha$-open in X. Then f(U,E) = f(soft semi $^{\#}g\alpha$-int(U,E)) $\tilde{\subseteq}$ $\tilde{s}$int(f(U,E)). But $\tilde{s}$int(f(U,E)) $\tilde{\subseteq}$ f(U,E), hence f(U,E) = $\tilde{s}$int(f(U,E)). Thus f is quasi soft semi $^{\#}g\alpha$-open.

Theorem 3.3

If a function f : X → Y is quasi soft semi $^{\#}g\alpha$-open, then soft semi $^{\#}g\alpha$-int(f^{-1} (V,K)) $\tilde{\subseteq}$ f^{-1} (int(V,K)) for every soft subset (V,K) of Y.

Proof

Let (V,K) be an arbitrary soft subset of Y. Since f is quasi soft semi $^{\#}g\alpha$-open, soft semi $^{\#}g\alpha$-int(f^{-1} (V,K)) is soft semi $^{\#}g\alpha$-open in X. Also from theorem 3.2, we have f(soft semi $^{\#}g\alpha$-int(f^{-1} (V,K))) $\tilde{\subseteq}$ $\tilde{s}$int(f(f^{-1} (V,K))) $\tilde{\subseteq}$ $\tilde{s}$int(V,K), which implies soft semi $^{\#}g\alpha$-int(f^{-1} (V,K)) $\tilde{\subseteq}$ f^{-1} ($\tilde{s}$int(V,K)).

Definition 3.4

A soft subset (U,E) of X is called a soft semi $^{\#}g\alpha$-neighbourhood of a point x in X, if there exists a soft semi $^{\#}g\alpha$-open set (F,A) such that x $\tilde{\in}$ (F,A) $\tilde{\subseteq}$ (U,E).

Theorem 3.5

For a function f : X → Y , the following conditions are equivalent:

(i) f is quasi soft semi $^{\#}g\alpha$-open

(ii) For every soft subset (U,E) of X, f(soft semi $^{\#}g\alpha$-int(U,E)) $\tilde{\subseteq}$ $\tilde{s}$int(f(U,E))

(iii) For each x $\tilde{\in}$ X and each soft semi $^{\#}g\alpha$-neighbourhood (U,E) of x in X, there exists a soft neighbourhood (V,K) of f(x) in Y such that (V,K) $\tilde{\subseteq}$ f(U,E).

Proof

(i) ⇒ (ii) It follows from theorem 3.2.

(ii) ⇒ (iii) Let x $\tilde{\in}$ X and (U,E) be an arbitrary soft semi $^{\#}g\alpha$-neighbourhood of x in X. Then there exists a soft semi $^{\#}g\alpha$-open set (F,A) in X such that x $\tilde{\in}$ (F,A) $\tilde{\subseteq}$ (U,E). From (ii),we have f(F,A) = f(soft semi $^{\#}g\alpha$-int(F,A)) $\tilde{\subseteq}$ $\tilde{s}$int(f(F,A)), but $\tilde{s}$int(f(F,A)) $\tilde{\subseteq}$ f(F,A). Hence f(F,A) = $\tilde{s}$int(f(F,A)) ⇒ f(F,A) is soft open in Y such that f(x) $\tilde{\in}$ (V,K) $\tilde{\subseteq}$ (U,E), where (V,K) = f(F,A).

(iii) ⇒ (i) Let (U,E) be an arbitrary soft semi $^{\#}g\alpha$-open set in X. By (iii), for each y $\tilde{\in}$ f(U,E), there exists a soft neighbourhood (V_y,K) of y in Y such that (V_y,K) $\tilde{\subseteq}$ f(U,E). Thus there exists a soft open set (W_y,K) in Y such that y $\tilde{\in}$ (W_y,K) $\tilde{\subseteq}$ (V_y,K). Hence f(U,E) = $\cup(Wy, K)$: y $\tilde{\in}$ f(U,E) which is soft open in Y. Thus f is quasi soft semi $^{\#}g\alpha$-open.

Theorem 3.6

A function f : X → Y is quasi soft semi $^{\#}g\alpha$-open if and only if for any soft subset (A,K) of Y and for any soft semi $^{\#}g\alpha$-closed set (M,E) of X containing f^{-1}(A,K), there exists a soft closed set (N,K) of Y containing (A,K) such that f^{-1}(N,K) $\tilde{\subseteq}$ (M,E).

Proof

Let f be quasi soft semi $^{\#}g\alpha$-open and (A,K) $\tilde{\subseteq}$ Y. Also let (M,E) be a soft semi $^{\#}g\alpha$-closed set of X containing f^{-1}(A,K). Let (N,K) = Y \ f(X \ (M,E)). Then f^{-1}(A,K) $\tilde{\subseteq}$ (M,E) ⟹ (A,K) $\tilde{\subseteq}$ (N,K). Since f is quasi soft semi $^{\#}g\alpha$-open, f(X \ (M,E)) is soft open. Hence (N,K) is a soft closed set of Y and f^{-1}(N,K) $\tilde{\subseteq}$ (M,E).

Conversely, suppose that (U,E) be soft $^{\#}g\alpha$-open in X and let (A,K) = Y \ f(U,E). Then X \ (U,E) is soft $^{\#}g\alpha$-closed in X containing f^{-1}(A,K). By hypothesis, there exists a soft closed set (M,K) of Y such that (A,K) $\tilde{\subseteq}$ (M,K) and f^{-1}(M,K) $\tilde{\subseteq}$ X \ U ⟹ f(U,E) $\tilde{\subseteq}$ Y \ (M,K). Also A $\tilde{\subseteq}$ (M,K) ⟹ Y \ (M,K) $\tilde{\subseteq}$ Y \ (A,K) = f(U,E). Thus f(U,E) = Y \ (M,K) is soft open and hence f is a quasi soft semi $^{\#}g\alpha$-open function.

Theorem 3.7

A function f : X → Y is quasi soft semi $^{\#}g\alpha$-open if and only if f^{-1}($\tilde{s}$cl(A,K)) $\tilde{\subseteq}$ soft semi $^{\#}g\alpha$-cl(f^{-1}(A,K)) for every soft subset (A,K) of Y.

Proof

Let f be quasi soft semi $^{\#}g\alpha$-open. For any soft subset (A,K) of Y, f^{-1}(A,K) $\tilde{\subseteq}$ soft semi $^{\#}g\alpha$-cl(f^{-1}(A,K)). By theorem 3.6, there exists a soft closed set (N,K) in Y such that (A,K) $\tilde{\subseteq}$ (N,K) and f^{-1}(N,K) $\tilde{\subseteq}$ soft semi $^{\#}g\alpha$-cl(f^{-1}(A,K)), which implies $\tilde{s}$cl(A,K) $\tilde{\subseteq}$ $\tilde{s}$cl(N,K) = (N,K). So f^{-1}($\tilde{s}$cl(A,K)) $\tilde{\subseteq}$ f^{-1}(N,K) $\tilde{\subseteq}$ soft semi $^{\#}g\alpha$-cl(f^{-1}(A,K)).

Conversely, let (A,K) $\tilde{\subseteq}$ Y and (M,E) be a soft semi $^{\#}g\alpha$-closed set in X such that f^{-1}(A,K) $\tilde{\subseteq}$ (M,E), which implies soft semi $^{\#}g\alpha$-cl(f^{-1}(A,K)) $\tilde{\subseteq}$ soft semi $^{\#}g\alpha$-cl(f^{-1}(M,E)) = (M,E). By hypothesis f^{-1}($\tilde{s}$cl(A,K)) $\tilde{\subseteq}$ soft semi $^{\#}g\alpha$-cl(f^{-1} (A,K)) $\tilde{\subseteq}$ (M,E), f is quasi soft semi $^{\#}g\alpha$-open (by theorem 3.6).

Theorem 3.8

Let f : X → Y and g : Y → Z be two functions such that g ∘ f : X → Z is quasi soft semi $^{\#}g\alpha$-open. If g is injective and continuous, then f is quasi soft semi $^{\#}g\alpha$-open.

Proof

Let (U,E) be soft semi $^{\#}g\alpha$-open in X. Since g ∘ f is quasi soft semi $^{\#}g\alpha$-open, (g ∘ f)(U;E) is soft open in Z. Moreover since g is an injective continuous function, f(U,E) = g^{-1}(g ∘ f(U,E)) is soft open in Y. Hence f is quasi soft semi $^{\#}g\alpha$-open.

4. QUASI SOFT SEMI $^{\#}$GENERALIZED α-CLOSED FUNCTIONS

Definition 4.1

A function f : X → Y is said to be quasi soft semi $^{\#}g\alpha$-closed if the image of every soft semi $^{\#}g\alpha$-closed set in X is soft closed in Y.

Theorem 4.2

A function f : X → Y is quasi soft semi $^{\#}g\alpha$-closed if and only if for any soft subset (B,K) of Y and for any soft semi $^{\#}g\alpha$-open set (A,E) of X containing f^{-1}(B,K), there exists a soft open set (N,K) of Y containing (B,K) such that f^{-1}(N,K) $\tilde{\subseteq}$ (A,E).

Proof

It is similar.

Theorem 4.3

If f : X → Y and g : Y → Z are two quasi soft semi $^{\#}g\alpha$-closed functions, then g ∘ f : X → Z is a quasi soft semi $^{\#}g\alpha$-closed function.

Proof

It is obvious.

Theorem 4.4

Let f : X → Y and g : Y → Z be two functions.

(i) If f is soft semi $^{\#}g\alpha$-closed and g is quasi soft semi $^{\#}g\alpha$-closed, then g ∘ f is soft closed.

(ii) If f is quasi soft semi $^{\#}g\alpha$-closed and g is soft semi $^{\#}g\alpha$-closed, then g ∘ f is soft pre-semi $^{\#}g\alpha$-closed.

(iii) If f is soft pre-semi $^{\#}g\alpha$-closed and g is quasi soft semi $^{\#}g\alpha$-closed, then g ∘ f is quasi soft semi $^{\#}g\alpha$-closed.

Proof

(i) Let f be soft semi $^{\#}g\alpha$-closed and g be quasi soft semi $^{\#}g\alpha$-closed. Let (U,E) be a soft closed set in X. Then f(U,E) is soft semi $^{\#}g\alpha$-closed in Y. Since g is quasi soft semi $^{\#}g\alpha$-closed, g(f(U,E)) is soft closed in Z. Hence g ∘ f is closed.

(ii) Let f be a quasi soft semi $^{\#}g\alpha$-closed and g be soft semi $^{\#}g\alpha$-closed. Let (V,E) be a soft closed set in X. Then f(V,E) is soft closed in Y and g(f(V,E)) is soft semi $^{\#}g\alpha$-closed in Z. Since every soft closed set is soft semi $^{\#}g\alpha$-closed [5],

f(V,E) is soft semi $^{\#}g\alpha$-closed in Y. Thus g ∘ f is soft pre-semi $^{\#}g\alpha$-closed.

(iii) Let f be soft pre-semi $^{\#}g\alpha$-closed and g be quasi soft semi $^{\#}g\alpha$-closed. Let (V,E) be a soft semi $^{\#}g\alpha$-closed set in X. Then f(V,E) is soft semi $^{\#}g\alpha$-closed in Y and g(f(V,E)) is soft closed in Z. So g ∘ f is quasi soft semi $^{\#}g\alpha$-closed.

Theorem 4.5

Every soft semi $^{\#}g\alpha$-closed function is soft pre-semi $^{\#}g\alpha$-closed.

Proof

Let f : X → Y be soft semi $^{\#}g\alpha$-closed function, then for every soft closed set (U,E) in X, its image f(U,E) is soft semi $^{\#}g\alpha$-closed in Y. Since every soft closed set is soft semi $^{\#}g\alpha$-closed [5], (U,E) is soft semi $^{\#}g\alpha$-closed in X. Hence f is soft pre-semi $^{\#}g\alpha$-closed.

Theorem 4.6

Let f : X → Y and g : Y → Z be two functions such that

g ∘ f : X → Z is quasi soft semi $^{\#}g\alpha$-closed.

(i) If g is injective and soft continuous, then f is quasi soft semi $^{\#}g\alpha$-closed.

(ii) If f is soft semi $^{\#}g\alpha$-irresolute surjective, then g is soft closed.

(iii) If g is soft semi $^{\#}g\alpha$-continuous injective, then f is soft pre-semi $^{\#}g\alpha$-closed.

Proof

(i) It is similar to the proof of theorem 3.8.

(ii) Let (M,E) be an arbitrary soft closed set in Y. Since f is soft semi $^{\#}g\alpha$-irresolute, f^{-1}(M,E) is soft semi $^{\#}g\alpha$-closed in X. Moreover g ∘ f is quasi soft semi $^{\#}g\alpha$-closed and f is surjective, we have (g ∘ f)(f^{-1}(M,E)) = g(M,E), which is soft closed in Z. Hence g is a soft closed function.

(iii) Let (V,E) be any soft semi $^{\#}g\alpha$-closed in X. Since g ∘ f is quasi soft semi $^{\#}g\alpha$-closed, (g ∘ f)(V,E) is soft closed in Z. If g is a soft semi $^{\#}g\alpha$-continuous injective function, we have g^{-1}(g ∘ f(V,E)) = f(V,E), which is soft semi $^{\#}g\alpha$-closed in Y. Thus f is soft pre-semi $^{\#}g\alpha$-closed.

Theorem 4.7

A function f : X → Y is quasi soft semi $^{\#}g\alpha$-closed if and only if f(X,E) is soft closed in Y and f(U,E) \ f((X,E) \ (U,E)) is soft open in f(X,E) for every soft semi $^{\#}g\alpha$-open set (U,E) in X.

Proof

Let f : X → Y be a quasi soft semi $^{\#}g\alpha$-closed function. Then (X,E) is soft semi $^{\#}g\alpha$-closed and f(X,E) is soft closed in Y. For an arbitrary soft semi $^{\#}g\alpha$-open set (U,E) in X, f(U,E) \ f((X,E) \ (U,E)) = f(U,E) $\tilde{\cap}$ f(X,E) \ f((X,E) \ (U,E)) is soft open in f(X,E).

Conversely suppose that f(X,E) is soft closed in Y and for every soft semi $^{\#}g\alpha$-open set (U,E) in X, f(U,E) n f((X,E) n (U,E)) is soft open in f(X,E). Let (A,E) be soft closed in X. Then f(A,E) = f(X,E) \ (f(X,E) \ f(A,E)) is soft closed in f(X,E) and hence it is soft closed in Y. Thus f is quasi soft semi $^{\#}g\alpha$-closed.

Theorem 4.8

A surjective function f : X → Y is quasi soft semi $^{\#}g\alpha$-closed if and only if f(U,E) \ f((X,E) \ (U,E)) is soft open in Y, for every soft semi $^{\#}g\alpha$-open set (U,E) in X.

Proof

It is obvious.

Theorem 4.9

If f : X → Y is soft semi $^{\#}g\alpha$-continuous surjective and quasi soft semi $^{\#}g\alpha$-closed function, then for every soft semi $^{\#}g\alpha$-open set (U,E) in X, f(U,E) \ f((X,E) \ (U,E)) is the soft topology on Y.

Proof

Let (V,K) be a soft open set in Y. Since f is soft semi $^{\#}g\alpha$-continuous, f^{-1}(V,K) is soft semi $^{\#}g\alpha$-open in X. Moreover f(f^{-1}(V,K)) \ f((X,E) \ f^{-1}(V,K)) = (V,K). Hence all soft open sets in Y are of the form f(U,E) \ f((X,E) \ (U,E)), where (U,E) is soft semi $^{\#}g\alpha$-open in X. Also from theorem 4.8, we have all the soft sets of the form f(U,E) \ f((X,E) \ (U,E)), for every soft semi $^{\#}g\alpha$-open set (U,E) in X are soft open in Y.

Theorem 4.10

If X is soft semi $^{\#}g\alpha$-normal and f : X → Y is soft semi $^{\#}g\alpha$-continuous surjective and quasi soft semi $^{\#}g\alpha$-closed function, then Y is soft normal.

Proof

Let (R_1,K) and (R_2,K) be disjoint soft closed subsets of Y. Since f is soft semi $^{\#}g\alpha$-continuous, f^{-1}(R_1,K) and f^{-1}(R_2,K) are disjoint soft semi $^{\#}g\alpha$-closed subsets of X. Also since X is soft semi $^{\#}g\alpha$-normal, there exist disjoint soft open sets (A,E) and (B,E) such that f^{-1}(R_1,K) $\tilde{\subseteq}$ (A,E) and f^{-1}(R_2,K) $\tilde{\subseteq}$ (B,E) ⟹ (R_1,K) $\tilde{\subseteq}$ f(A,E) and (R_2,K) $\tilde{\subseteq}$ f(B,E). i.e., (R_1,K) $\tilde{\subseteq}$ f(A,E) \ f((X,E) \ (A,E)) and (R_2,K) $\tilde{\subseteq}$ f(B,E) \ f((X,E) \ (B,E)) which are soft open sets in Y (by theorem 4.8), we have (f(A,E) \ f((X,E) \ (A,E))) $\tilde{\cap}$ f(B,E) \ f((X,E) \ (B,E))) = ∅. Hence Y is soft normal.

Theorem 4.11

If X is soft semi $^{\#}g\alpha$-normal and f : X → Y is soft semi $^{\#}g\alpha$-continuous surjective and soft pre-semi $^{\#}g\alpha$-closed function, then Y is soft semi $^{\#}g\alpha$-normal.

Proof

It is similar to the proof of the above theorem.

Theorem 4.12

If X is soft normal and f : X → Y is soft semi $^{\#}g\alpha$-continuous surjective and soft semi $^{\#}g\alpha$-closed function, then Y is soft semi $^{\#}g\alpha$-normal.

Proof

It is obvious.

5. CONCLUSION

In this Paper we defined new functions namely quasi soft semi $^{\#}g\alpha$-open functions and quasi soft semi $^{\#}g\alpha$-closed functions in soft topological spaces via soft semi $^{\#}g\alpha$-closed sets. We also investigated their basic properties. In future, we can examine the applications of these functions and their relationship with the other existing functions.

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