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Fixed Point Theory on a Soft Banach Space

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Abstract:- In this present paper some soft point and comman soft point results are provrd.which generalized some wellkown results.
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Keywards :- soft point ,contractive mapping , soft Banach space,normed linear space.
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2. Introduction and Preliminaries:- In 1999, Molodtsov [10]proposed a completely new approach,which is called soft set theory for modeling uncertainly. Then Maji et al.(2003)[8] introduced several operations on soft sets .Aktas and Cagman (2007) [1] compared soft set with fuzzy sets and rough sets. Resently studies on soft vector spaces and soft normed linear space have been intiated by Das and Samanta [3, 4, 5] and later on studied by Yazar et al[19]. Maji et al[9],Chen [2] introduced a new definition of soft set theory.
we introduced soft contractive mapping on soft Banach space and section 1 study some of its properties.In section 2 preliminary results are given.In section 3 show that concept of soft Banach space and Related theorem proved.

Definition 2.1:- Let X be an initial universe set and E be a set of parameters. A pair (F,E) is called a soft set over X if and only if X is a mapping from E into the set of all subsets of the set X i.e. $F:E\rightarrow P(X)$ is the power set of X.

Definition 2.2:- The intersection of two sets (A,D) and (B,C) over X is the soft set (F,G),where
C= D∩C and $\forall \varepsilon\epsilon$ C, $H(\varepsilon)= A(\varepsilon) \cap B(\varepsilon)$.This is denoted by (A,D) ∩(B,C)= (F,G).

Definition 2.3:- The union of two sets (A,D) and (B,C) over X is the soft set,where C= A∪ B and $\forall\varepsilon \epsilon$C,

$$H(\varepsilon)=\begin{cases} A(\varepsilon) & \text{if } \varepsilon\epsilon D-C \\ B(\varepsilon) & \text{if } \varepsilon\epsilon C-D \\ A(\varepsilon)\cup B(\varepsilon) & \text{if } \varepsilon\epsilon D\cap C \end{cases}$$

This relationship is denoted by (A,D)∪ (B,C)= (F,G).

Definition 2.4:- The soft set (A,D) over X is said to be a null soft set denoted by $\emptyset$ if for all $\varepsilon\epsilon$ D, $A(\varepsilon)= \emptyset$(null set).

Definition 2.5:- A soft set (A,D) over X is said to be an absolute soft set, if for all $\varepsilon\epsilon$ D, $A(\varepsilon)= X$.

Definition 2.6:- The difference (F,E) of two soft sets (F,E) and (F,E) over X denoted by (F,E)/(F,E),is defined as F(e)= A(e)/B(e)for all eϵ E

Definition 2.7:- The complement of a soft set (A,D) is denoted by $(A, D)^c$ and is defined by $(A, D)^c$ =(A^c, D) where $A^c: D \rightarrow S(X)$ mapping given by $A^c(\alpha) = A(\alpha)$, $\forall\ \alpha\epsilon$ D.

Definition 2.8:- Let μ be the set of real number and $B(\mu)$ be the collection of all nonempty bounded subsets of μ and E taken set of parameters. Then a mapping $A:E\rightarrow B(\mu)$ is called a soft real set. It is denoted by (A,E). If specifically (A,E) is a singleton soft set , then identififying (A,E) with the corresponding soft element , it will be called a soft real number and denoted $\tilde{r}, \tilde{s}, \tilde{t}$ etc. $\bar{0}, \bar{1}$ are the soft real number where $\bar{0}$(e)=0, $\bar{1}$(e)=1 for all eϵ

E,respectively.

Definition 2.9:- for two soft real numbers

I. $\tilde{r} \leq \tilde{s}$ if $\tilde{r}$(e) $\leq \tilde{s}$ (e) , for all e$\in$ E.

II. $\tilde{r} \geq \tilde{s}$ if $\tilde{r}$(e) $\geq \tilde{s}$ (e) , for all e$\in$ E.

III. $\tilde{r} < \tilde{s}$ if $\tilde{r}$(e)$< \tilde{s}$ (e) , for all e$\in$ E.

IV. $\tilde{r} > \tilde{s}$ if $\tilde{r}$(e)$> \tilde{s}$ (e) , for all e$\in$ E.

Definition 2.10:- **A** soft set over X is said to be a soft point if there is exactly one e$\in$ E, such that P(e)= {x} for some x$\in$ X and P(e) = $\emptyset$, $\forall \varepsilon \in$ E\{e}. It will be denoted by $\tilde{x}_{\lambda}$.

Definition 2.11:- Two soft point $\tilde{x}_{\lambda}$, $\tilde{y}_{\lambda}$ are said to be equal if e=e' and P(e)=P(e') i.e. x=y. Thus $\tilde{x}_{\lambda} \neq \tilde{y}_{\lambda} \Leftrightarrow$ x $\neq y$ or e$\neq$ e'.

Definition 2.12:- A mapping $\tilde{d}$: SP($\tilde{X}$) * SP($\tilde{X}$) →Ř(E)*,is said to be a soft metric on the soft set $\tilde{X}$ if d satisfies the following condition:

(M1) $\tilde{d}$ ($\tilde{x}_{\lambda_1}$, $\tilde{y}_{\lambda_2}$)$\geqq \bar{0}$ for all $\tilde{x}_{\lambda_1}$,$\tilde{y}_{\lambda_2}$ $\tilde{\in} \tilde{X}$,

(M2) $\tilde{d}$ ($\tilde{x}_{\lambda_1}$, $\tilde{y}_{\lambda_2}$)= $\bar{0}$ if and only if $\tilde{x}_{\lambda_1} = \tilde{y}_{\lambda_2}$,

(M3) $\tilde{d}$ ($\tilde{x}_{\lambda_1}$, $\tilde{y}_{\lambda_2}$)$\geqq$ $\tilde{d}$ ($\tilde{y}_{\lambda_2}$,$\tilde{x}_{\lambda_1}$) for all $\tilde{x}_{\lambda_1}$,$\tilde{y}_{\lambda_2}$ $\tilde{\in} \tilde{X}$,

(M4) $\tilde{d}$ ($\tilde{x}_{\lambda_1}$, $\tilde{z}_{\lambda_3}$)$\geqq$ $\tilde{d}$ ($\tilde{x}_{\lambda_1}$, $\tilde{y}_{\lambda_2}$)+ $\tilde{d}$ ($\tilde{y}_{\lambda_2}$,$\tilde{z}_{\lambda_3}$) for all $\tilde{x}_{\lambda_1}$,$\tilde{y}_{\lambda_2}$,$\tilde{z}_{\lambda_3}$ $\tilde{\in} \tilde{X}$.

The soft set $\tilde{X}$ with a soft metric $\tilde{d}$ on $\tilde{X}$ is called a soft metric space and denoted by ($\tilde{X}, \tilde{d}, E$).

Definition 2.13:- (Cauchy Sequence): A sequence{ $\tilde{x}_{\lambda_n}$ }n of soft point in($\tilde{X}, \bar{d}, E$) is considered as a Cauchy Sequence in $\tilde{X}$ if corresponding to every $\tilde{\varepsilon} \geqq \bar{0}$, ∃ m $\in$N such that d($\tilde{x}_{\lambda_i}$,$\tilde{x}_{\lambda_j}$) $\leqq$ $\tilde{\varepsilon}$, $\forall i, j$ ≥m,i.e. d($\tilde{x}_{\lambda_i}$,$\tilde{x}_{\lambda_j}$) → $\bar{0}$as i,j → ∞.

Definition 2.14:- (Complete Metric Space): A soft metric space ($\tilde{X}, \bar{d}, E$) is called complete, if every Cauchy Sequence in $\tilde{X}$ converges to some point of $\tilde{X}$.

Definition 2.15:- Let $\tilde{X}$ be the absolute soft vecter space i.e $\tilde{x}_{\lambda}$ =x, $\forall \lambda \tilde{\in} A$.Then a mapping $\|\cdot\|$:SE→R̂(A)* is said to be soft norm on the soft vector space $\tilde{X}$ if $\|\cdot\|$ satisfies the following condition.

1. $\|\tilde{x}\| \geqq \tilde{0}$, for all $\tilde{x} \tilde{\in} \tilde{X}$.
2. $\|\tilde{x}\| = \tilde{0}$, if and only if $\tilde{x} = \tilde{0}$
3. $\|\alpha\tilde{x}\| \geqq |\tilde{\alpha}|$ $\|\tilde{x}\|$,for all $\tilde{x} \tilde{\in} \tilde{X}$ and for every soft scalar $\tilde{\alpha}$.

Definition 2.16:- A sequence of soft element $\{\widetilde{x_n}\}$in a normed linear space ($\tilde{x}$, $\|\cdot\|$,A) is said to be convergent and converges to a soft element $\tilde{x}$ *if* $\|\widetilde{x_n} - \tilde{x}\| \to \tilde{0}$ as n→ ∞.This means for every $\tilde{\epsilon} \geqq \tilde{0}$, choose arbitrary,there exists a natural number =N(∈),such that $\tilde{0} \leq \|\widetilde{x_n} - \tilde{x}\| \leq \tilde{\epsilon}$,whenever n $> N$ .we denoted this by $\widetilde{x_n} \to \tilde{x}$ as n → ∞ or by $\lim_{n\to\infty} \widetilde{x_n} = \tilde{x}$ is said to be the limit of the sequence $\widetilde{x_n}$ *as* n → ∞ .

Definition 2.17:- Let ($\tilde{x}$, $\|\cdot\|$,A) be a soft normed linear space.Then $\tilde{x}$ is said to be complete if every of Cauchy sequence in $\tilde{x}$ convergents to a soft element of $\tilde{x}$.Every complete soft normed linear space is called a soft Banach space.

Definition 2.18:- A sequence of soft real number $\{\tilde{s}_n\}$ is said to be convergent if for arbitrary $\tilde{\epsilon} \geqq \tilde{0}$, there exists a natural number N such that for all $n \geq N$, $|\tilde{s} - \tilde{s}_n| \leq \tilde{\epsilon}$ .we denoted it by $\lim_{n\to\infty} \tilde{s}_n = \tilde{s}$

3. MAIN RESULT

THEORAM 3.1: Let (f,φ) be a soft mapping of Banach space $\tilde{X}$ in to itself. If F satisfies the following contractive conditions.

$(f,\varphi)^2 = I$, Where I is the identity mapping (3.1.1)

$$\|((f,\varphi)(\tilde{x}_\lambda) - (f,\varphi)(\tilde{y}_\lambda))\|$$

$$\leq \mu \max\left\{\frac{\|(\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda))\ (\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda))\| + \|(\tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda))\ (\tilde{y}_\lambda - (f,\varphi)(\tilde{x}_\lambda))\|}{\|(\tilde{x}_\lambda - \tilde{y}_\lambda)\|},\right.$$
$$\left.\frac{\|(\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda))\ (\tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda))\| + \|(\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda))\ (\tilde{y}_\lambda - (f,\varphi)(\tilde{x}_\lambda))\|}{\|(\tilde{x}_\lambda - \tilde{y}_\lambda)\|}\right\} +$$

$$\rho\{\|(\tilde{x}_\lambda) - (f,\varphi)(\tilde{x}_\lambda))\| + \|(\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda))\|\} + \omega\, \tilde{d}\, \|(\tilde{x}_\lambda - \tilde{y}_\lambda)\|$$

For Every $\tilde{x}_\lambda, \tilde{y}_\lambda \in SP(\tilde{X})$. Where $\mu, \rho, \omega > 0$ *and* $\mu + \omega < 1$. Then (f,φ) has a soft point, if $4\mu + 3\rho + \omega < 2$. then (f,φ) has a unique soft point.

PROOF: Suppose $\tilde{x}_\lambda$ in a point in the Banach sapace.

$$\tilde{y}_\lambda = \frac{1}{2}[(f,\varphi) + I]\, \tilde{x}_\lambda$$
$$\tilde{z}_\lambda = (f,\varphi)(\tilde{y}_\lambda) \text{ and}$$
$$\tilde{u} = 2\tilde{y}_\lambda - \tilde{z}_\lambda$$

We have

$$\|\tilde{z}_\lambda - \tilde{x}_\lambda\| = \|((f,\varphi)(\tilde{y}_\lambda) - (f,\varphi)^2(\tilde{x}_\lambda))\| = \|((f,\varphi)(\tilde{y}_\lambda) - (f,\varphi)(f,\varphi)(\tilde{x}_\lambda))\|$$

$$\leq \mu \max\left\{\frac{\|((\tilde{y}_\lambda) - (f,\varphi)(\tilde{y}_\lambda))\|\ \|((f,\varphi)(\tilde{x}_\lambda) - (f,\varphi)^2(\tilde{x}_\lambda))\| + \|((\tilde{y}_\lambda) - (f,\varphi)^2(\tilde{x}_\lambda))\|\ \|((f,\varphi)(\tilde{x}_\lambda) - (f,\varphi)(\tilde{y}_\lambda))\|}{\|((\tilde{y}_\lambda) - (f,\varphi)(\tilde{x}_\lambda))\|},\right.$$

$$\left.\frac{\|((\tilde{y}_\lambda) - (f,\varphi)(\tilde{y}_\lambda))\|\ \|((\tilde{y}_\lambda) - (f,\varphi)^2(\tilde{x}_\lambda))\| + \|((f,\varphi)(\tilde{x}_\lambda) - (f,\varphi)^2(\tilde{x}_\lambda))\|\ \|((f,\varphi)(\tilde{x}_\lambda) - (f,\varphi)(\tilde{y}_\lambda))\|}{\|((\tilde{y}_\lambda) - (f,\varphi)(\tilde{x}_\lambda))\|}\right\} +$$

$$\rho\{\|((\tilde{y}_\lambda) - (f,\varphi)(\tilde{y}_\lambda))\| + \|((f,\varphi)(\tilde{x}_\lambda) - (f,\varphi)^2(\tilde{x}_\lambda))\|\}$$
$$+\omega\ \|((\tilde{y}_\lambda) - (f,\varphi)(\tilde{x}_\lambda))\|$$

$$\leq \mu \max\left\{\frac{\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\|\ \|(f,\varphi)(\tilde{x}_\lambda) - \tilde{x}_\lambda\| + \|\frac{1}{2}((f,\varphi)+I)\tilde{x}_\lambda - \tilde{x}_\lambda\|\ \|(f,\varphi)(\tilde{x}_\lambda) - (f,\varphi)(\tilde{y}_\lambda)\|}{\|\frac{1}{2}((f,\varphi)+I)\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|},\right.$$

$$\frac{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\left\|\frac{1}{2}((f,\varphi)+I)\bar{x}_\lambda-\bar{x}_\lambda\right\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\,\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|}{\left\|\frac{1}{2}((f,\varphi)+I)\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\right\|}\Big\}+$$

$$\rho\{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\}+\omega\left\|\frac{1}{2}((f,\varphi)+I)\bar{x}_\lambda-\bar{x}_\lambda\right\|$$

$$\leq \mu\max\Big\{\frac{2\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|\,\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\,\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|}{\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|},$$

$$\frac{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|\,\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|+2\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\,\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|}{\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|}\Big\}+$$

$$\rho\{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|+\frac{\omega}{2}\|(f,\varphi)\bar{x}_\lambda-\bar{x}_\lambda\|\}$$

$$\leq \mu\max\{2\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|,\ \|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+2\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|\}$$

$$\rho\{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\}+\frac{\omega}{2}\|(f,\varphi)(\bar{x}_\lambda)-(\bar{x}_\lambda)\|$$

………………………… (A)

CASE I: When

$$\max\{2\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|,\ \|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+2(f,\varphi)(\bar{x}_\lambda)\text{-}(f,\varphi)(\bar{y}_\lambda)$$

$$=2\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|$$

Then

$$\|\bar{x}_\lambda-\bar{x}_\lambda\|\leq\mu\{2\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|\}$$
$$+P\{\|(\bar{y}_\lambda)-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\}+\frac{\omega}{2}\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|$$

$$\leq\mu\{2\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{y}_\lambda\|+\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|\}$$

$$+p\{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\}+\frac{\omega}{2}\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|$$

$$\leq\mu\{3\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{y}_\lambda\|\}+p\{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\}+\frac{\omega}{2}\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|$$

$$\leq(3\mu)\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\mu\|(f,\varphi)(\bar{x}_\lambda)-\bar{y}_\lambda\|+P\{\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\}+\frac{\omega}{2}\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|$$

$$\leq(3\mu+P)\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\mu\left\|(f,\varphi)(\bar{x}_\lambda)-\frac{1}{2}((F+I)\bar{x}_\lambda)\right\|+P\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|$$
$$+\|(f,\varphi)(\bar{x}_\lambda)-\bar{x}_\lambda\|\}+\frac{\omega}{2}\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|$$
$$\leq(3\mu+P)\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+(\frac{\mu}{2}+P+\frac{\omega}{2})\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|$$

………………… (B)

Also,

$$\|\bar{u}-\bar{x}_\lambda\|\leq\|2\bar{y}_\lambda-\bar{z}_\lambda-\bar{x}_\lambda\|=\|(f,\varphi)+I)\bar{x}_\lambda-(f,\varphi)(\bar{y}_\lambda)-\bar{x}_\lambda\|$$
$$=\|(f,\varphi)(\bar{x})-(f,\varphi)(\bar{y}_\lambda)\|$$

$$\leq\mu\max\Big\{\frac{\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|\,\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|\bar{x}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|\,\|\bar{y}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|}{\|\bar{x}_\lambda-\bar{y}_\lambda\|},$$

$$\frac{\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|\,\|\bar{x}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|+\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|\,\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|}{\|\bar{x}_\lambda-\bar{y}_\lambda\|}\Big\}+$$

$$\rho\{\|\bar{x}_\lambda-(f,\varphi)(\bar{x}_\lambda)\|+\|\bar{y}_\lambda-(f,\varphi)(\bar{y}_\lambda)\|\}+\omega\|\bar{x}_\lambda-\bar{y}_\lambda\|$$

$$\leq \mu \max \left\{ \frac{\| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| \, \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \left\| \frac{1}{2}(f,\varphi) + I \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \right\|}{\left\| x - \frac{1}{2}((f,\varphi) + I)\tilde{x}_\lambda \right\|}, \right.$$

$$\left. \frac{\| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| \, \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \left\| \frac{1}{2}((f,\varphi) + I)\tilde{y}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \right\|}{\left\| x - \frac{1}{2}((f,\varphi) + I)\tilde{x}_\lambda \right\|} \right\} +$$

$$\rho \{ \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| + \| \tilde{y}_\lambda - (f,\square)(\tilde{y}_\lambda) \| \} + \omega \left\| \tilde{x}_\lambda - \frac{1}{2}((f,\varphi) + I)\tilde{x}_\lambda \right\|$$

$$\leq \mu \max \left\{ \frac{2 \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| \, \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \, \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|}{\| x - (f,\varphi)\tilde{x}_\lambda \|}, \right.$$

$$\left. \frac{2 \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| \, \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \, \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|}{\| x - (f,\varphi)\tilde{x}_\lambda \|} \right\}$$

$$+ \rho \{ \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \} + \frac{\omega}{2} \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$\leq \mu \max \{ 2 \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \|, \; 2 \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \}$$

$$+ \rho \{ \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \frac{\omega}{2} \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| \} \qquad \text{……………. (C)}$$

CASE I When

$$\max \{ 2 \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \|, \; 2 \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \}$$

$$= 2 \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda)$$

Then

$$\| \hat{u} - \tilde{x}_\lambda \| \leq \mu \{ 2 \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \} + \rho \{ \| \tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \} + \frac{\omega}{2} \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$\leq \mu \{ 2 \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{x}_\lambda - \tilde{y}_\lambda \| \} + \rho \{ \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \}$$

$$+ \frac{\omega}{2} \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$\leq \mu \{ 3 \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \| \tilde{x}_\lambda - \tilde{y}_\lambda \| + \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| \} + \rho \{ \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$
$$+ \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \frac{\omega}{2} \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$\leq \mu \{ 3 \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \frac{1}{2} \| \tilde{x}_\lambda - (f,\varphi)\tilde{x}_\lambda \| \} + \rho \{ \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$
$$+ \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \frac{\omega}{2} \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$\leq (3\mu + P) \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \left(\frac{\mu}{2} + \rho + \frac{\omega}{2} \right) \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

………………… (D)

Now by equations (B) and (D)

$$\| \tilde{z}_\lambda - \hat{u} \| \leq \| \tilde{z}_\lambda - \tilde{x}_\lambda \| + \| \tilde{x}_\lambda - \hat{u} \|$$

$$\leq (3\mu + \rho) \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \left(\frac{\mu}{2} + \rho + \frac{\omega}{2} \right) \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$+ (3\mu + \rho) \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + \left(\frac{\mu}{2} + \rho + \frac{\omega}{2} \right) \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$\leq 2(3\mu + \rho) \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + 2 \left(\frac{\mu}{2} + \rho + \frac{\omega}{2} \right) \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

$$\leq 2(3\mu + \rho) \| \tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda) \| + (\mu + 2\rho + \omega) \| \tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda) \|$$

Also

$$\| z - u \| \leq \| (f,\varphi)(\widetilde{y_\lambda}) - (2\widetilde{y_\lambda}) - \widetilde{z} \| = \| (f,\varphi)(\widetilde{y_\lambda}) - 2\widetilde{y_\lambda} - \widetilde{z} \|$$

$$= 2\| (f,\varphi)(\widetilde{y_\lambda}) - \widetilde{y_\lambda} \|$$

So

$$2\| (f,\varphi)(\widetilde{y_\lambda}) - \widetilde{y_\lambda} \| \leq 2(3\mu + \rho) \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + (\mu + 2\rho + \omega) \| \widehat{x_\lambda} - (f,\varphi)(\widehat{x_\lambda}) \|$$

$$\| (f,\varphi)(\widetilde{y_\lambda}) - \widetilde{y_\lambda} \| \leq (3\mu + \rho) \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \left(\frac{\mu + 2P + \omega}{2}\right) \| \widehat{x_\lambda} - (f,\varphi)(\widehat{x_\lambda}) \|$$

$$(1 - 3\mu - \rho) \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| \leq \frac{(\mu + 2P + \omega)}{2} \| \widehat{x_\lambda} - (f,\varphi)(\widehat{x_\lambda}) \|$$

$$\| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| \leq \frac{(\mu + 2P + \omega)}{2(1 - 3\mu - P)} \| \widehat{x_\lambda} - (f,\varphi)(\widehat{x_\lambda}) \|$$

Since

$$4\mu + 3\rho + \omega < 2$$

CASE II :- When

$$\max \{ 2\| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \|(f,\varphi)(\widehat{x_\lambda}) - (f,\varphi)(\widetilde{y_\lambda})\|, \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + 2\| (f,\varphi)(\widehat{x_\lambda}) - (f,\varphi)(\widetilde{y_\lambda}) \|$$

$$= \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + 2\, \|(f,\varphi)(\widehat{x_\lambda}) - (f,\varphi)(\widetilde{y_\lambda})\|,$$

Then

$$\| \widehat{z_\lambda} - \widehat{x_\lambda} \| \leq \mu \left\{ 2\| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + 2\, \|(f,\varphi)(\widehat{x_\lambda}) - \widetilde{y_\lambda}\| + \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| \right\}$$

$$\rho \{ \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda})\| + \|(f,\varphi)(\widehat{x_\lambda}) - \widehat{x_\lambda}\| \} + \frac{\omega}{2} \|(f,\varphi)(\widehat{x_\lambda}) - \widehat{x_\lambda}\|$$

$$\leq \mu \left\{ 3\| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \left\| (f,\varphi)\widehat{x_\lambda} - \frac{1}{2}\left((f,\varphi) + I\right)\widehat{x_\lambda} \right\| \right\}$$

$$+ \rho \{ \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \|(f,\varphi)(\widehat{x_\lambda}) - \widehat{x_\lambda}\| \} + \frac{\omega}{2} \| \widehat{x_\lambda} - (f,\varphi)(\widehat{x_\lambda}) \|$$

$$\leq (3\mu) \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \mu\, \|(f,\varphi)(\widehat{x_\lambda}) - \widehat{x_\lambda} \| + P\, \{ \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \|$$

$$+ \|(f,\varphi)(\widehat{x_\lambda}) - \widehat{x_\lambda} \| \} + \frac{\omega}{2} \|(f,\varphi)\widehat{x_\lambda} - \widehat{x_\lambda} \|$$

$$\leq (3\mu + P) \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \left(\mu + P\frac{\omega}{2}\right) \| (f,\varphi)\widehat{x_\lambda} - \widehat{x_\lambda} \|$$

………………… (E)

CASE II :- By equation (C) When

$$\max \{ 2\| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \| \widehat{x_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \|, 2\| \widehat{x_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| \}$$

$$= 2\, \| \widehat{x_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \| + \| \widetilde{y_\lambda} - (f,\varphi)(\widetilde{y_\lambda}) \|$$

Then

$\|\tilde{y} - \tilde{x}_\lambda\| \leq \mu \{ 2\|\tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + \|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| \}$ P $\{ \|\tilde{x}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + \|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| \} + \frac{\omega}{2}\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$\leq \mu \{ 2\|\tilde{x}_\lambda - \tilde{y}_\lambda\| + \|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + \|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| \} + P \{ \|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\| + \|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| \} + \frac{\omega}{2}\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$\leq \mu \{ \|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\| + 3\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| \} + P \{ \|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\| + \|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| \}$

$+ \frac{\omega}{2}\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$\leq (3\mu + P)\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + (\mu + P + \frac{\omega}{2})\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

………………… (F)

Now by equations (E) and (F)

$\|\tilde{z}_\lambda - \tilde{u}\| \leq \|\tilde{z}_\lambda - \tilde{x}_\lambda\| + \|\tilde{x}_\lambda - \tilde{u}\|$

$\leq (3\mu + P)\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + (\mu + P + \frac{\omega}{2})\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$+ \leq (3\mu + P)\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + (\mu + P + \frac{\omega}{2})\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$\leq 2(3\mu + P)\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + 2(\mu + P + \frac{\omega}{2})\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

Also

$\|\tilde{z}_\lambda - \tilde{u}\| \leq \|(f,\varphi)(\tilde{y}_\lambda) - (2\tilde{y}_\lambda) - \tilde{z}_\lambda\| = \|(f,\varphi)(\tilde{y}_\lambda) - 2\tilde{y}_\lambda + \tilde{z}_\lambda\| = 2\|(f,\varphi)(\tilde{y}_\lambda) - \tilde{y}_\lambda\|$
So

$2\|(f,\varphi)(\tilde{y}_\lambda) - \tilde{y}_\lambda\| \leq 2(3\mu + P)\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + 2(\mu + 2P + \frac{\omega}{2})\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$\leq (3\mu + P)\|\tilde{y}_\lambda - (f,\varphi)(\tilde{y}_\lambda)\| + (\mu + 2P + \frac{\omega}{2})\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$(1 - 3\mu - P)\|(f,\varphi)(\tilde{y}_\lambda) - \tilde{y}_\lambda\| \leq (\mu + P + \frac{\omega}{2})\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$

$$\|(f,\varphi)(\tilde{y}_\lambda) - \tilde{y}_\lambda\| \leq \frac{(\mu + P + \frac{\omega}{2})}{(1 - 3\mu - P)}\|\tilde{x}_\lambda - (f,\varphi)(\tilde{x}_\lambda)\|$$

Since

$$\frac{(\mu + P + \frac{\omega}{2})}{(1 - 3\mu - P)} < 1$$

$$4\mu + 2P + \frac{\omega}{2} < 2$$

On taking

$F = \frac{1}{2}((f,\varphi) + I)$ then for every $\tilde{x}_\lambda \in \tilde{x}$

By definition of q. we claim that $\{\tilde{x}_\lambda\}$ is a Cauchy sequence in $\tilde{x}$ There fore by the property of completeness

{ $(g,\varphi)^n (\tilde{x}_\lambda)$ } converge to same element $\tilde{x}_\lambda{}^0$ in $\tilde{X}$.

i.e. $\lim_{n\to\infty} (g,\varphi)^n (\tilde{x}_\lambda) = \tilde{x}_\lambda{}^0$

which implice $(g,\varphi)^n (\tilde{x}_\lambda) = \tilde{x}_\lambda{}^0$ hence $(f,\varphi)(\tilde{x}_\lambda{}^0) = \tilde{x}_\lambda{}^0$

i.e. x_0 is a soft point of (f,φ)

Uniqueness :- If possible let $\tilde{y}_\lambda{}^0 (\neq \tilde{x}_\lambda{}^0)$ be another soft point of (f,φ)

Then

$$\| \tilde{x}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \| = \| (g,\varphi)(\tilde{x}_\lambda{}^0) - (g,\varphi)(\tilde{y}_\lambda{}^0) \|$$

$$\| \tilde{x}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \| \le \mu \max \Big\{ \frac{\|\tilde{x}_\lambda{}^0-(g,\varphi)(\tilde{x}_\lambda{}^0)\|\,\|\tilde{y}_\lambda{}^0-(g,\varphi)(\tilde{y}_\lambda{}^0)\| + \|\tilde{x}_\lambda{}^0-(g,\varphi)(\tilde{y}_\lambda{}^0)\|\,\|\tilde{y}_\lambda{}^0-(g,\varphi)(\tilde{x}_\lambda{}^0)\|}{\|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\|},$$

$$\frac{\|\tilde{x}_\lambda{}^0-(g,\varphi)(\tilde{x}_\lambda{}^0)\|\,\|\tilde{x}_\lambda{}^0-(g,\varphi)(\tilde{y}_\lambda{}^0)\| + \|\tilde{y}_\lambda{}^0-(g,\varphi)(\tilde{y}_\lambda{}^0)\|\,\|\tilde{y}_\lambda{}^0-(g,\varphi)(\tilde{x}_\lambda{}^0)\|}{\|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\|} \Big\}$$

$$+ \rho \{ \| \tilde{x}_\lambda{}^0 - (g,\varphi)(\tilde{x}_\lambda{}^0) \| + \| \tilde{y}_\lambda{}^0 - (g,\varphi)(\tilde{y}_\lambda{}^0) \| \} + \omega \| \tilde{x}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \|$$

$$\le \mu \max \Big\{ \frac{\|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\|\,\|\tilde{y}_\lambda{}^0-\tilde{y}_\lambda{}^0\| + \|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\|\,\|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\|}{\|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\|}$$

$$\frac{\|\tilde{x}_\lambda{}^0-\tilde{x}_\lambda{}^0\|\,\|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\| + \|\tilde{y}_\lambda{}^0-\tilde{y}_\lambda{}^0\|\,\|\tilde{y}_\lambda{}^0-\tilde{x}_\lambda{}^0\|}{\|\tilde{x}_\lambda{}^0-\tilde{y}_\lambda{}^0\|} \Big\}$$

$$+ \rho \{ \| \tilde{x}_\lambda{}^0 - \tilde{x}_\lambda{}^0 \| + \| \tilde{y}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \| \} + \omega \| \tilde{x}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \|$$

$$\le \mu \max \{ \| \tilde{x}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \|, 0 \} + p(o) + \omega \| \tilde{x}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \|$$

$$< (\mu + \omega) \| \tilde{x}_\lambda{}^0 - \tilde{y}_\lambda{}^0 \|$$

Since $\mu + < 1$, there for $\| \tilde{x}_\lambda - \tilde{y}_\lambda \| = 0$

Hence $\tilde{x}_\lambda{}^0 = \tilde{y}_\lambda{}^0$

This complete the proof.

THEOREM 3.2:- let K closed and convex subset of a soft Banach space $\tilde{X}$.Let (g,φ):K→ K, (f,φ):K→K, satisfy the following condition,

(3.2.1) (g,φ) and (f,φ) commute.

(3.2.2) $(g,\varphi)^2$ =I and $(f,\varphi)^2$ = I ,where I denotes identity mappings.

(3.2.3)

$$\|(g,\varphi)(\tilde{x}_\lambda) - (g,\varphi)(\tilde{y}_\lambda)\| \le \mu \max$$

$$\Big\{ \frac{\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|\,\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\| + \|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|\,\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|},$$

$$\frac{\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|\,\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\| + \|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|\,\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|} \Big\}$$

$$+ \rho \{ \|(f,\varphi)(\tilde{x}_\lambda) - (g,\varphi)(\tilde{x}_\lambda)\| + \|(f,\varphi)(\tilde{y}_\lambda) - (g,\varphi)(\tilde{y}_\lambda)\| \}$$

$+\omega\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|$

For every $\tilde{x},\tilde{y}\tilde{\in}\tilde{X}$. $\mu+\omega+\eta+\rho \geqq \tilde{0}$ and there exist at leaJst one soft point$\tilde{x}_\lambda^o=\tilde{X}$. such that $(g,\varphi)(\tilde{x}_\lambda^o)=(f,\varphi)(\tilde{x}_\lambda^o)=\tilde{x}_\lambda^o$

futher if $(\mu+\omega)<1$.

Then $\tilde{x}_\lambda$ is the unique soft point of (f,φ) and(g,φ).

PROOF:-

From (3.2.1) and (3.2.2) if follows that $[(g,\varphi)(f,\varphi)]^2$ =I and (3.2.2) and (3.2.3) imply

$$\|(g,\varphi)(f,\varphi)^2\ (\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)^2\ (\tilde{y}_\lambda)\|\le$$

$$\le \mu\max\{\frac{\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)\|\|(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|+\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|\|(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)\|}{\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|},$$

$$\frac{\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)\|\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|+\|(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|\|(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)\|}{\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|}\}$$

$$+\rho\{\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)\|+\|(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|\}$$
$$+\omega\|(f,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(f,\varphi)(f,\varphi)^2(\tilde{y}_\lambda)\|$$

Now we put $(f,\varphi)(\tilde{x}_\lambda)=\tilde{z}_\lambda$ and $(f,\varphi)(\tilde{y}_\lambda)=\tilde{v}_\lambda$, then we get

$$\|(g,\varphi)(f,\varphi)\ (\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)\ (\tilde{v}_\lambda)\|\le$$

$$\le \mu\max\{\frac{\|(\tilde{z}_\lambda)-(g,\varphi)((\tilde{z}_\lambda))\|\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{v}_\lambda))\|\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{v}_\lambda))\|\|\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{z}_\lambda))\|\|}{\|\tilde{z}_\lambda-\tilde{v}_\lambda\|},$$
$$\frac{\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{z}_\lambda))\|\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{v}_\lambda))\|+\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{v}_\lambda))\|\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{z}_\lambda))\|}{\|\tilde{z}_\lambda-\tilde{v}_\lambda\|}\}$$
$$+\rho\{\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{z}_\lambda))\|+\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)((\tilde{v}_\lambda))\|\}$$
$$+\omega\|(\tilde{z}_\lambda)-(\tilde{v}_\lambda)\|$$

We have

$(g,\varphi)(f,\varphi)^2$ = I' $(g,\varphi)(f,\varphi)$ has at least one fixed point,say $\tilde{x}_\lambda^0$ in K,i.e

(3.2.4)

$$(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^0)=\tilde{x}_\lambda^0$$

and $(g,\varphi)(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^0)=(g,\varphi)\widetilde{(x_\lambda^0})$

(3.2.5) $\qquad (f,\varphi)(\tilde{x}_\lambda^0)=(g,\varphi)\widetilde{(x_\lambda^0})$

NOW

$$\|(g,\varphi)\ (\tilde{x}_\lambda^0)-(\tilde{x}_\lambda^0)\|=\|(g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)^2\ (\tilde{x}_\lambda^0)\|=\|(g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)\|$$

$$\le \mu\max(\frac{\|(f,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)\ (\tilde{x}_\lambda^0)\|\|(f,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)\|+\|(f,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0))\|\|(f,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)\ (\tilde{x}_\lambda^0))\|}{\|(f,\varphi)\ (\tilde{x}_\lambda^0))-(f,\varphi)\ (g,\varphi)\ (\tilde{x}_\lambda^0)\|},$$

$$\frac{\|(f,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)\ (\tilde{x}_\lambda^0)\|\|(f,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)\|+\|(f,\varphi)\ (g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0))\|\|(f,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)\ (\tilde{x}_\lambda^0)\|}{\|(f,\varphi)\ (\tilde{x}_\lambda^0))-(f,\varphi)\ (g,\varphi)\ (\tilde{x}_\lambda^0)\|}\}$$

$$+\rho\{\|(f,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)\ (\tilde{x}_\lambda^0)\|+\|(f,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)(g,\varphi)\ (\tilde{x}_\lambda^0)\|\}$$
$$+\omega\|(f,\varphi)\ (\tilde{x}_\lambda^0)-(f,\varphi)\ (g,\varphi)\ (\tilde{x}_\lambda^0)\|$$

$$\le \mu\max(\ \frac{\|(g,\varphi)\ (\tilde{x}_\lambda^0)-(g,\varphi)\ (\tilde{x}_\lambda^0)\|\|\ (\tilde{x}_\lambda^0)-(\tilde{x}_\lambda^0)\|+\|(g,\varphi)\ (\tilde{x}_\lambda^0)-\ (\tilde{x}_\lambda^0))\|\|\ (\tilde{x}_\lambda^0)-(g,\varphi)\ (\tilde{x}_\lambda^0))\|}{\|(g,\varphi)\ (\tilde{x}_\lambda^0))-(\tilde{x}_\lambda^0)\|},$$

$$\frac{\|(g,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(\tilde{x}^0_\lambda)\|\|(\tilde{x}^0_\lambda)-(\tilde{x}^0_\lambda)\|+\|(g,\varphi)(\tilde{x}^0_\lambda)-(\tilde{x}^0_\lambda))\|\|(\tilde{x}^0_\lambda)-(g,\varphi)(\tilde{x}^0_\lambda)\|}{\|(g,\varphi)(\tilde{x}^0_\lambda))-(\tilde{x}^0_\lambda)\|}\}$$

$$+\rho\,\{\|(g,\varphi)\ (\tilde{x}^0_\lambda)-(g,\varphi)\ (\tilde{x}^0_\lambda)\|+\|\ (\tilde{x}^0_\lambda)-\ (\tilde{x}^0_\lambda)\|\}+\omega\|(g,\varphi)\ (\tilde{x}^0_\lambda)-(\tilde{x}^0_\lambda)\|$$

$$\le\mu\ max\{\ \|(g,\varphi)\ (\tilde{x}^0_\lambda)-\ (\tilde{x}^0_\lambda))\|,0\}+\rho\{0\}+\omega\|(g,\varphi)\ (\tilde{x}^0_\lambda)-\ (\tilde{x}^0_\lambda))\|$$

$$\le(\mu+\omega)\ \|(g,\varphi)\ (\tilde{x}^0_\lambda)-\ (\tilde{x}^0_\lambda)\|$$

There for

$$\|(g,\varphi)\ (\tilde{x}^0_\lambda)-\ (\tilde{x}^0_\lambda)\|\le(\mu+\omega)\ \|(g,\varphi)\ (\tilde{x}^0_\lambda)-\ (\tilde{x}^0_\lambda))\|$$

Since $\mu+\omega+\eta+\rho<1$,it follow

$(g,\varphi)\ (\tilde{x}^0_\lambda)=\ (\tilde{x}^0_\lambda)$ i.e

$(\tilde{x}^0_\lambda)$ is the soft point of $(g,\varphi)\ (\tilde{x}^0_\lambda)=\ (f,\varphi)(\tilde{x}^0_\lambda)$ therefor,we have

$$(f,\varphi)(\tilde{x}^0_\lambda)=\ (\tilde{x}^0_\lambda)$$

i.e. $\tilde{x}^0_\lambda$ is the common soft point of (g,φ) and (f,φ).

Uniqueness:-Now we shall prove that $\tilde{x}^0_\lambda$ is the uniqness common soft point of (g,φ) and (f,φ).If possible let $\tilde{y}^0_\lambda$ be another soft point of (g,φ) and (f,φ).

Now by using (3.2.1),(3.2.2)(3.2.3) and (3.2.4) ,(3.2.5)

We have

$$\|\tilde{x}^0_\lambda-\tilde{y}^0_\lambda\|=\|(g,\varphi)^2\ (\tilde{x}^0_\lambda)-(g,\varphi)^2\ (\tilde{y}^0_\lambda)\|=\|(g,\varphi)\ (g,\varphi)\ (\tilde{x}^0_\lambda)-(g,\varphi)\ (g,\varphi)\ (\tilde{y}^0_\lambda)\|$$

$$\le\mu\max\{\frac{\|(f,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)\|\|(f,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)-(g,\varphi)(f,\varphi)(\tilde{y}^0_\lambda)\|+\|(g,\varphi)(f,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(f,\varphi)(\tilde{y}^0_\lambda)\|\|(f,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)-(g,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)\|}{\|(g,\varphi)(f,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(f,\varphi)(\tilde{y}^0_\lambda)\|},$$

$$\frac{\|(f,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)\|\|(f,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)\|+\|(f,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)-(g,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)\|\|(f,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)-(g,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)\|}{\|(f,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(f,\varphi)(\tilde{y}^0_\lambda)\|}\}$$

$$+\rho\,\{\|(f,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(f,\varphi)(\tilde{x}^0_\lambda)\|+\|(f,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)-(g,\varphi)(g,\varphi)(\tilde{y}^0_\lambda)\|\}$$

$$+\omega\|(f,\varphi)(g,\varphi)(\tilde{x}^0_\lambda)-(g,\varphi)(f,\varphi)(\tilde{y}^0_\lambda)\|$$

$$\le\mu\max\{\frac{\|(\tilde{x}^0_\lambda)-(\tilde{x}^0_\lambda)\|\|(\tilde{y}^0_\lambda)-(\tilde{y}^0_\lambda)\|+\|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|\|(\tilde{y}^0_\lambda)-(\tilde{x}^0_\lambda)\|}{\|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|},\frac{\|(\tilde{x}^0_\lambda)-(\tilde{x}^0_\lambda)\|\|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|+\|(\tilde{y}^0_\lambda)-(\tilde{y}^0_\lambda)\|\|(\tilde{y}^0_\lambda)-(\tilde{x}^0_\lambda)\|}{\|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|}\}$$

$$+\rho\,\{\|(\tilde{x}^0_\lambda)-(\tilde{x}^0_\lambda)\|+\|(\tilde{y}^0_\lambda)-(\tilde{y}^0_\lambda)\|\}\quad+\omega\|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|$$

$$\le\boldsymbol{\mu}\ \boldsymbol{max}\{\ \|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|\ ,0\}+\rho\{0\}+\omega\|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|$$

$$\le(\mu+\omega)\quad\|(\tilde{x}^0_\lambda)-(\tilde{y}^0_\lambda)\|$$

Since $\mu+\omega+\eta+\rho<1$,it follow that

$$(\tilde{x}^0_\lambda)=(\tilde{y}^0_\lambda)$$

Proving the uniqueness of $\tilde{x}^0_\lambda$, the proof of the theorem 2 is complete.

THEOREM 3.3:- Let k be closed and convert subset of a soft Banach space $\tilde{X}$.Let(g,φ) and $(f,\varphi) and (h,\varphi)$ be three mapping of $\tilde{X}$ in to it self such that

(3.3.1)

$$(g,\varphi)\ (f,\varphi)=\ (f,\varphi)\ (g,\varphi),\qquad (f,\varphi)\ (h,\varphi)=\ (h,\varphi)\ (f,\varphi),\ \text{and}$$
$$(g,\varphi)\ (h,\varphi)=\ (h,\varphi)\ (g,\varphi)$$

(3.3.2) $(g,\varphi)^2=$ I, $(f,\varphi)^2=$ I, $(h,\varphi)^2=$ I, where I denotes the identity mapping.

(3.3.3)

$$\|(g,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|\le\mu\max\ \{\ \frac{\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(h,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|+\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|\|(f,\varphi)(h,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|},$$

$$\frac{\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|+\|(f,\varphi)(h,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|\|(f,\varphi)(h,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|}\}$$

$$+\rho\,\{\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(\tilde{x}_\lambda)\|+\|(f,\varphi)(h,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(\tilde{y}_\lambda)\|\}$$
$$+\omega\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|$$

For every $\tilde{x},\tilde{y}\,\tilde{\in}\,\tilde{K}$ and $\mu,\omega,\rho \cong \tilde{0}$ such that$+\omega+\rho<2$. Then there exist at least one soft point $\tilde{x}^{o}_{\lambda}=\tilde{X}$. such that $(g,\varphi)(\tilde{x}^{o}_{\lambda})=(f,\varphi)(h,\varphi)(\tilde{x}^{o}_{\lambda})$ and $(g,\varphi)(f,\varphi)(\tilde{x}^{o}_{\lambda})=(h,\varphi)(\tilde{x}^{o}_{\lambda})$ futher if $(\mu+\omega+\rho)<1$. Then $\tilde{x}^{0}_{\lambda}$ is the common soft point of(g,φ) (f,φ) and(h,φ).

Proof:- From (3.3.1) and (3.3.2) if follows that $[(g,\varphi)(f,\varphi)(h,\varphi)]^2$ =I ,where I is the identity mapping, from (3.3.2) and (3.3.3)

We have

$$\|(g,\varphi)(h,\varphi)\ (f,\varphi)(f,\varphi)\ (\tilde{x}_\lambda)-(g,\varphi)(h,\varphi)(f,\varphi)(f,\varphi)\ \ (\tilde{y}_\lambda)\|=$$
$$\|(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)\ (\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)\ \ (\tilde{y}_\lambda)\|\leq$$

$$\leq \mu\max\{\frac{\|(f,\varphi)(h,\varphi)(f,\varphi)^2(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|+\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(h,\varphi)2(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(h,\varphi)2(f,\varphi)(\tilde{y}_\lambda)\|},$$

$$\frac{\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{y}_\lambda)\|+\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{y}_\lambda)\|\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{y}_\lambda)\|}\}$$

$$+\rho\,\{\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|+\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)(\tilde{y}_\lambda)\|\}$$
$$+\omega\|(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(h,\varphi)^2(f,\varphi)(\tilde{y}_\lambda)\|$$

$$\leq \mu\max\{\frac{\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|+\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|},$$
$$\frac{\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)(\tilde{y}_\lambda)\|+\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)(\tilde{y}_\lambda)\|\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|}\}$$
$$+\rho\,\{\|(f,\varphi)(\tilde{x}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)(\tilde{x}_\lambda)\|+\|(f,\varphi)(\tilde{y}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(f,\varphi)(\tilde{y}_\lambda)\|\}$$
$$+\omega\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|$$

Now if we put $(f,\varphi)(\tilde{x}_\lambda)=\tilde{z}_\lambda$ and $(f,\varphi)(\tilde{x}_\lambda)=\tilde{v}_\lambda$,

$$\|(g,\varphi)\ (f,\varphi)(h,\varphi)\ (\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)\ \ (\tilde{v}_\lambda)\|$$
$$\leq \mu\max(\frac{\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(\tilde{z}_\lambda)\|\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(\tilde{v}_\lambda)\|+\|(\tilde{z}_\lambda)-(g,\varphi)(h,\varphi)(f,\varphi)\ \ (\tilde{v}_\lambda)\|\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(\tilde{z}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|},$$
$$\frac{\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)(h,\varphi)(\tilde{z}_\lambda)\|\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(\tilde{v}_\lambda)\|+\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(\tilde{v}_\lambda)\|\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(\tilde{z}_\lambda)\|}{\|(f,\varphi)(\tilde{x}_\lambda)-(f,\varphi)(\tilde{y}_\lambda)\|}\}$$
$$+\rho\,\{\|(\tilde{z}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(\tilde{z}_\lambda))\|+\|(\tilde{v}_\lambda)-(g,\varphi)(f,\varphi)\ (h,\varphi)(\tilde{v}_\lambda)\|\}$$

$+\omega\|(\tilde{z}_\lambda)-(\tilde{v}_\lambda)\|$

We have $[(g,\varphi)(f,\varphi)(h,\varphi)]^2 = I$ and $\mu+\omega+\rho < 2$. We infer that $(g,\varphi)(f,\varphi)(h,\varphi)$ has at least one soft point, say $\tilde{x}_\lambda^o$ in here exist at least one soft point $in\ \tilde{K}$ such that

(3.3.4)

$$(g,\varphi)(f,\varphi)(h,\varphi)(\tilde{x}_\lambda^o)=(\tilde{x}_\lambda^o) \quad \text{and}$$

$$(f,\varphi)(h,\varphi)(f,\varphi)\,(g,\varphi)(h,\varphi)(\tilde{x}_\lambda^o) = (f,\varphi)(h,\varphi)(\tilde{x}_\lambda^o)$$

(3.3.5)

$$(g,\varphi)(\tilde{x}_\lambda^o) = (f,\varphi)(h,\varphi)(\tilde{x}_\lambda^o)$$

also

$$(h,\varphi)[(f,\varphi)\,(g,\varphi)(h,\varphi)(\tilde{x}_\lambda^o)] = (h,\varphi)(\tilde{x}_\lambda^o) \quad \text{and there for}$$

(3.3.6)

$$(h,\varphi)(f,\varphi)\,(\tilde{x}_\lambda^o) = (h,\varphi)(\tilde{x}_\lambda^o)$$

Now by using (3.3.1),(3.3.2),(3.3.3) and (3.3.4),(3.3.5),(3.3.6) we have

$$\|(h,\varphi)\,(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\| = \|(g,\varphi)\,(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)^2(\tilde{x}_\lambda^o)\| = \|(g,\varphi)\,(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)\,(g,\varphi)(\tilde{x}_\lambda^o)\|$$

$$\leq \mu\max\Big\{\frac{\|(f,\varphi)(h,\varphi)(f,\varphi)\,(\tilde{x}_\lambda^o)-(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)\|+\|(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)\|}{\|(f,\varphi)(\tilde{x}_\lambda^o)-(f,\varphi)(\tilde{x}_\lambda^o)\|},$$

$$\frac{\|(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)\|\|(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)\|+\|(f,\varphi(h,\varphi)(g,\varphi))(\tilde{x}_\lambda^o)-(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)\|\|(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)\|}{\|(f,\varphi)(\tilde{x}_\lambda^o)-(f,\varphi)(\tilde{x}_\lambda^o)\|}\Big\}$$

$$+\rho\,\{\|(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)\|+\|(f,\varphi)(h,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(f,\varphi)(\tilde{x}_\lambda^o)\|\}$$

$$+\omega\|(f,\varphi)(\tilde{x}_\lambda^o)-(f,\varphi)(\tilde{x}_\lambda^o)\|$$

$$\leq \mu\ max\ \frac{\{\|(h,\varphi)(\tilde{x}_\lambda^o)-(h,\varphi)(\tilde{x}_\lambda^o)\|\|(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|+\|(h,\varphi)(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|\|(\tilde{x}_\lambda^o)-(h,\varphi)(\tilde{x}_\lambda^o)\|}{\|(h,\varphi)(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|},$$

$$\frac{\|(h,\varphi)(\tilde{x}_\lambda^o)-(h,\varphi)(\tilde{x}_\lambda^o)\|\|(h,\varphi)(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|+\|(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|\|(\tilde{x}_\lambda^o)-(h,\varphi)(\tilde{x}_\lambda^o)\|}{\|(h,\varphi)(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|}\}$$

$$+\rho\,\{\|(h,\varphi)(\tilde{x}_\lambda^o)-(h,\varphi)(\tilde{x}_\lambda^o)\|+\|(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|\}+\omega\|(h,\varphi)(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|$$

$$\leq \mu\ max\ \{\|(\tilde{x}_\lambda^o)-(h,\varphi)(\tilde{x}_\lambda^o)\|,0\}+\rho(0)+\omega\|(h,\varphi)(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|$$

$$\leq (\mu+\omega)\|(h,\varphi)(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\|$$

Since $\mu+\omega+\rho < 1$.it follows that

$$(h,\varphi)(\tilde{x}_\lambda^o) = (\tilde{x}_\lambda^o)$$

i.e. $\tilde{x}_\lambda^o$ is the soft point of (h,φ). Thus we have from (3.3.5)

$$(f,\varphi)(\tilde{x}_\lambda^o) = (g,\varphi)(\tilde{x}_\lambda^o)$$

Again

$$\|(g,\varphi)(g,\varphi)\,(\tilde{x}_\lambda^o)-(\tilde{x}_\lambda^o)\| = \|(g,\varphi)\,(\tilde{x}_\lambda^o)-(g,\varphi)^2(\tilde{x}_\lambda^o)\| = \|(g,\varphi)\,(\tilde{x}_\lambda^o)-(g,\varphi)\,(g,\varphi)(\tilde{x}_\lambda^o)\|$$

$$\leq \mu\max\Big\{\frac{\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(\tilde{x}_\lambda^o)\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)\|+\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)-(g,\varphi)(\tilde{x}_\lambda^o)\|}{\|(f,\varphi)(h,\varphi)(\tilde{x}_\lambda^o)-(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}_\lambda^o)\|},$$

$$\|(f,\varphi)(h,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|\|(f,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|+$$
$$\frac{\|(f,\varphi(h,\varphi)(g,\varphi))(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|}{\|(f,\varphi)(h,\varphi)(\tilde{x}^{o}_{\lambda})-(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|}\}$$

$$+\rho\{\|(f,\varphi)(h,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|+\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|\}$$
$$+\omega\|(f,\varphi)(h,\varphi)(\tilde{x}^{o}_{\lambda})-(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|$$

$$\leq \mu\, max\ \frac{\{\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|\|(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|+\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|\|(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|}{\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|},$$
$$\frac{\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|+\|(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|\|(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|}{\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|}\}$$
$$+\rho\{\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|+\|(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|\}+\omega\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|$$

$$\leq \mu\, max\ \{\|(\tilde{x}^{o}_{\lambda})-(g,\varphi)(\tilde{x}^{o}_{\lambda})\|,0\}+\rho(0)+\omega\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|$$
$$\leq(\mu+\omega)\|(g,\varphi)(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|$$

Which is contradiction.

Since $\mu+\omega+\rho<1$. Hence it follows that

$$(g,\varphi)(\tilde{x}^{o}_{\lambda})=(\tilde{x}^{o}_{\lambda})$$
$$(g,\varphi)(\tilde{x}^{o}_{\lambda})=(f,\varphi)(\tilde{x}^{o}_{\lambda})$$

There for $(g,\varphi)(\tilde{x}^{o}_{\lambda})=(f,\varphi)(\tilde{x}^{o}_{\lambda})=(h,\varphi)(\tilde{x}^{o}_{\lambda})=(\tilde{x}^{o}_{\lambda})$

i.e. $\tilde{x}^{o}_{\lambda}$ is the common soft point of (g,φ) (f,φ) and (h,φ).

Now to confirm the uniqueness of $\tilde{x}^{o}_{\lambda}$ .Let $\tilde{y}^{o}_{\lambda}$ be another common soft point of (g,φ) (f,φ) and (h,φ).

By (3.3.1),(3.3.2),(3.3.3) and (3.3.4),(3.3.5),(3.3.6)

$$\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|=\|(g,\varphi)^2(\tilde{x}^{o}_{\lambda})-(g,\varphi)^2(\tilde{x}^{o}_{\lambda})\|=$$
$$\|(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|$$

$$\leq \mu\, max$$
$$\frac{\{\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})\|+\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|}{\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(f,\varphi)(h,\varphi)(fg,\varphi)(\tilde{y}^{o}_{\lambda})\|},$$

$$\frac{\|(f,\varphi)(h,\varphi)(g,\varphi))(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})\|+\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})\|\|(f,\varphi)(f,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|}{\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(f,\varphi)(h,\varphi)(fg,\varphi)(\tilde{y}^{o}_{\lambda})\|}\}$$

$$+\rho\{\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})\|+\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})-(g,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})\|\}$$
$$+\omega\|(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{x}^{o}_{\lambda})-(f,\varphi)(h,\varphi)(g,\varphi)(\tilde{y}^{o}_{\lambda})\|$$

$$\leq \mu\, max\ \frac{\{\|(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|\|(\tilde{y}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|+\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|\|(\tilde{y}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|}{\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|},$$
$$\frac{\|(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|+\|(\tilde{y}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|\|(\tilde{y}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|}{\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|}\}$$
$$+\rho\{\|(\tilde{x}^{o}_{\lambda})-(\tilde{x}^{o}_{\lambda})\|+\|(\tilde{y}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|\}+\omega\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|$$
$$\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|\leq(\mu+\omega)\|(\tilde{x}^{o}_{\lambda})-(\tilde{y}^{o}_{\lambda})\|$$

Which is contradiction.

Since $\mu + \omega + \rho < 1$. Hence it follows that

$$(\tilde{x}_{\lambda}^{\rho}) = (\tilde{y}_{\lambda}^{\rho})$$

Proving the uniqueness of $\tilde{x}_{\lambda}^{\rho}$.

This complete of the proof of the theorem.

References

[1] Aktas H. Cogman N :- "Soft set and soft groups." Inf. sci. 177 (13) 2726 - 2735

[2] Chen. D. the "the parameterization reduction of soft sets and its applications" *Comput. Math. Appl. 49, 757 – 763 (2010)*

[3] Das. S. Samanta, S.K. "on soft metric space," *J. Fuzzy Math. 21(2013) 707-734*

[4] Das. S. Samanta, S.K. Soft metric, Ann. Fuzzy Math. *In form 6 (2013) 77 – 94*

[5] Das. S. Samanta, S.K. Soft real set, soft real Number and there properties. *J. Fuzzy Math. 20 (2012) 551 – 576.*

[6] Gunduz, C. (Aras), Sonmez, A. Cakalli, H. On soft mapping, arxiv : *1305. 4545 V1 (Math, GM) 16 may 2013.*

[7] Hussain, S. Ahmad, B. Some Properties of soft topological space, *Comput. Math. Apple. 62 (2016) 4058- 4067.*

[8] Moji, P.K. Roy, A.R., Bisbas, R. An application of soft sets in a decision making problem, *Comput. Math. Appl. 44 (2002) 1077 – 1083.*

[9] Moji, P.K. Roy, A.R., Bisbas, R. Soft set theory, *Comput. Math. Appl. 45 (2003) 555 – 562.*

[10] Majumdar, P. and Samanta, S.K. On soft mapping *Comput. Math. Appl. 60 (2010) 2666- 2672.*

[11] Molodtsov, D. Soft –theory-first result, *Comput. Math. Appl. 37 (1999) 19-31.*

[12] Rhoades, B.E. A comparison of various definition of contractive mappings, *Trans. Amer. Math. Soc. 266 (1977) 257 – 290.*

[13] Rhoades, B.E. Some theorems on weakly contractive maps. Nonlinear Analysis, *47. (2001), 2683 – 2693.*

[14] Shabir, M. and Naz, M. On soft topological space, Comput. *Math. Appl. 61 (2011) 1786- 1799.*

[15] Balaji R. Wadkar, Ramakant Bhardwaj, Basant Singh, "Coupled fixed point theorems with monotone property in soft metric and soft b-metric space" *International journal of Mathematical Analysis*, Vol. 11, No. 1, pp 363-375, 2017.

[16] B. R. Wadkar, R. Bhardwaj, V. N. Mishra, B. Singh, "Coupled fixed point theorems in soft metric and b- soft metric space" *Scientific publication of the state university of Novi Pozar, Ser. A: Appl. Math. Inform. And Mech*. Vol. 9, No. 1, pp 59-73, 2017.

[17] Balaji Raghunath Wadkar, Ramakant Bhardwaj, Vishnu Narayan Mishra, Basant Singh, "Fixed point results related to soft sets" *Australian Journal of Basic and Applied Sciences*, Vol. 10, No. 16, Pages: 128-137, 2016.

[18] Balaji R. Wadkar, Ramakant Bhardwaj, Vishnu Narayan Mishra, Basant Singh, "Fixed point theorems in dislocated Soft metric space" *Open Journal of Discrete Mathematics,* Vol. 7, No. 3, pp108-133, 2017.

[19] Yazar M, Bayramol, Gunduz Cigdem :- "Fixed Point theorem of soft Contractive mapping," Filomat 30:2 (2016), 269 – 279.