Available online at http://www.journalijdr.com

IJDR

International Journal of
DEVELOPMENT RESEARCH

ISSN: 2230-9926

International Journal of Development Research
Vol. 06, Issue, 10, pp.9669-9677, October, 2016

## Full Length Research Article

# SEMI- ° -COMPACT SPACE IN A TOPOLOGICAL SPACE

*[1]Priyadarshini, M. and [2]Selvi, R.

[1]Department of Mathematics, Raja Doraisingam Govt. Arts College, Sivagangai, India
[2]Department of Mathematics, Sri Parasakthi College for Women, Courtallam, India

**ARTICLE INFO**

***Article History:***
Received 17th July, 2016
Received in revised form
29th August, 2016
Accepted 17th September, 2016
Published online 31st October, 2016

***Key Words:***
semi-L-compact,
semi-R-compact,
semi-L-locally compact,
semi-R-locally compact,
sequentially semi-L-compact,
sequentially semi-R-compact,
countably semi-L-compact,
countably semi-R-compact.

**ABSTRACT**

In this paper semi-L-compact, semi-R-compact, semi-L-locally compact, semi-R-locally compact, sequentially semi-L-compact, sequentially semi-R-compact, countably semi-L-compact, countably semi-R-compact are introduced and the relationship between these concepts are studied.



## INTRODUCTION

A.S.Mashhour, M.E Abd El.Monsef and S.N.El-Deeb [6] introduced a new class of semi-open sets in 1982. R.Selvi and M.Priyadarshini introduced a new class of semi-L-open sets in 2016(October). In this paper semi-L-compact, semi-R-compact,semi-L-locally compact, semi-R-locally compact, sequentially semi-L-compact, sequentially semi-R-compact, countably semi-L-compact, countably semi-R-compact are defined and their properties are investigated.

### 2. Preliminaries

Throughout this paper $f^{-1}(f(A))$ is denoted by $A^*$ and $f(f^{-1}(\text{B}))$ is denoted by $B^*$.

**Definition 2.1**

Let A be a subset of a topological space (X, 2 ).Then A is called semi-open if A $\subseteq$ cl(int(A)) and semi-closed if int(cl(A)) $\subseteq$ A; [1].

**Definition 2.2**

Let f: (X, 2 ) $\rightarrow$ (Y, ± ) be a function. Then f is semi-continuous if $f^{-1}$(B) is open in X for every semi-open set B in Y. [1]

***Corresponding author: Priyadarshini, M.***
*Department of Mathematics, Raja Doraisingam Govt. Arts College, Sivagangai, India*

**Definition: 2.3**

Let f: (X,²) →(Y,± ) be a function. Then f is semi-open (resp. semi-closed) if f(A) is semi-open(resp. semi-closed) in Y for every semi-open(resp. semi-closed) set A in X. [1]

**Definition: 2.4**

Let f: (X,²) →Y be a function. Then f is

- S-L-Continuous if $A^*$ is open in X for every semi-open set A in X.
- S-M-Continuous if $A^*$ is closed in X for every semi-closed set A in X. [2]

**Definition: 2.5**

Let f: X →(Y,± ) be a function. Then f is

- S-R-Continuous if $B^*$ is open in Y for every semi-open set B in Y.
- S-S-Continuous if $B^*$ is closed in Y for every semi-closed set B in Y. [2]

**Definition: 2.6**

Let f: (X,²) →(Y,± ) be a function, then f is said to be

- S-irresolute if $f^{-1}(V)$ is semi-open in X, whenever V is semi-open in Y.
- S-resolute if $f(V)$ is semi-open in Y, whenever V is semi-open in X. [4]

**Definition: 2.7**

Let (X,²) is said to be

- Finitely S-additive if finite union of semi-closed set is semi-closed.
- Countably S-additive if countable union of semi-closed set is semi-closed.
- S-additive if arbitrary union of semi-closed set is semi-closed. [6]

**Definition: 2.8**

Let (X,²) be a topological space and x $\in$ X .Every semi-open set containing x is said to be a S-neighbourhood of x.[3]

**Definition: 2.9**

Let A be a subset of X. A point x $\in$ X is said to be semi-limit point of A if every semi-neighbourhood of x contains a point of A other than x. [3]

**Definition: 2.10**

Let A be a subset of a topological space (X, ² ), semi-closure of A is defined to be the intersection of all semi-closed sets containing A. It is denoted by pcl(A).[2]

**Definition: 2.11**

Let A be a subset of X. A point x $\in$ X is said to be semi-limit point of A if everysemi-neighbourhood of x contains a point of A other than x. [5]

**Definition: 2.12**

A collection ² of subsets of X is said to have finite intersection property if for every sub collection {C1, C2...........Cn} of ² the intersection C1 $\cap$ C2 $\cap$.......... $\cap$ Cn is nonempty.[7]

**Definition: 2.13**

A collection {U∼ }∼ $\in \Delta$ of semi-open sets in X is said to be semi-open cover of X if X= $\cup_{\sim \in \Delta}$ U∼ . [11]

**Definition: 2.14**

A topological space (X, ² ) is said to be semi-compact if every semi-open covering of X contains finite sub collection that also cover X. A subset A of X is said to be semi-compact if every covering of A by semi-open sets in X contains a finite subcover[10]

**Definition: 2.15**

A subset A of a topological space (X, 2 ) is said to be countably semi-compact, if every countable semi-open covering of A has a finite subcover.[11]

**Example: 2.16**

Let (X, 2 ) be a countably infinite indiscrete topological space. In this space {{x}/ x $\in$ X } is a countable semi-open cover which has no finite subcover. Therefore it is not countably semi-compact.[11]

**Definition: 2.17**

A subset A of a topological space (X, 2 ) is said to be sequentially semi-compact if every sequence in A contains a subsequence which semi-converges to some point in A.[9]

**Definition: 2.18**

A topological space (X, 2 ) is said to be semi-locally compact if every point of X is contained in a semi-neighbourhood whose semi-closure is semi-compact.[9]

**Definition: 2.19**

Let f: (X,2 ) $\rightarrow$Y be a function and A be a subset of a topological space (X,2 ).Then A is called

- S-L-open if $A^* \subseteq cl(\text{int}(A^*))$
- S-M-closed if $A^* \supseteq \text{int}(\text{cl}(A^*))$ [7]

**Definition: 2.20**

Let f: X$\rightarrow$(Y,± ) be a function and B be a subset of a topological space (Y,± ). Then B is called

- S-R-open if $\text{B}^* \subseteq cl(\text{int}(\text{B}^*))$
- S-S-closed if $\text{B}^* \supseteq \text{int}(\text{cl}(\text{B}^*))$ [7]

**Example: 2.21**

Let X = {a, b, c} and Y = {1, 2, 3}. Let2 = { $\Phi$ ,X ,{a}, {b}, {a, b} }. Let f: (X,2 )$\rightarrow$Y defined by f(a)=2, f(b)=1, f(c)=3. Then f is S-L-open and S-M-Closed. [7]

**Example: 2.22**

Let X = {a, b, c} and Y = {1, 2, 3}. Let ± ={ $\Phi$ ,Y, {1},{2},{1,2} }.Let g : X$\rightarrow$(Y,± ) defined by g(a)=2, g(b)=2, g(c)=3. Then g is S-R-open and S-S-Closed. [7]

**Definition: 2.23**

Let f: (X,2 ) $\rightarrow$(Y,± ) be a function, then f is said to be

- S-L-irresolute if $f^{-1}(f(\text{A}))$ is semi-L-open in X, whenever A is semi-L-open in X.
- S-M-irresolute if $f^{-1}(f(\text{A}))$ is semi-M-closed in X, whenever A is semi-M-closed in X.
- S-R-resolute if $f(f^{-1}(\text{B}))$ is semi-R-open in Y, whenever B is semiz-R-open in Y.
- S-S-resolute if $f(f^{-1}(\text{B}))$ is semi-S-closed in Y, whenever B is semi-S-closed in Y.[7]

**Definition: 2.24**

Let $(X,2)$ is said to be

- Finitely S-M-additive if finite union of S-M-closed set is S-M-closed.
- Countably S-M-additive if countable union of semi-M-closed set is semi-M-closed.
- S-M-additive if arbitrary union of semi-M-closed set is semi-M-closed. [7]

**Definition: 2.25**

Let $(X,^2)$ be a topological space and x ∈ X .Every semi-L-open set containing x is said to be a S-L-neighbourhood of x.[7]

**Definition: 2.26**

Let A be a subset of X. A point x ∈ X is said to be semi-L-limit point of A if every semi-L-neighbourhood of x contains a point of A other than x.[7]

**3. Semi - ° -compact space**

**Definition: 3.1**

- A collection {U~ }~ ∈ Δ of semi-L-open sets in X is said to be semi-L-open cover of X if X= $\cup_{\sim\in\Delta}$ U~ .
- A collection {U~ }~ ∈ Δ of semi-R-open sets in X is said to be semi-R-open cover of X if X= $\cup_{\sim\in\Delta}$ U~ .

**Definition: 3.2**

õ A topological space $(X,^2)$ is said to be semi-L-compact if every semi-L-open covering of X contains finite sub collection that also cover X. A subset A of X is said to be semi-L-compact if every covering of A by semi-L-open sets in X contains a finite subcover.

õ A topological space $(X,^2)$ is said to be semi-R-compact if every semi-R-open covering of X contains finite sub collection that also cover X. A subset A of X is said to be semi-R-compact if every covering of A by semi-R-open sets in X contains a finite subcover.

**Theorem: 3.3**

A topological space $(X,^2)$ is

1) semi-L-compact ⇒ compact 2) Any finite topological space is semi-L-compact.

**Proof:**

- Let $\{A_\sim\}_{\sim\in\Omega}$ be an open cover for X. Then each $A_\sim$ is semi-L- open.Since X is semi-L-compact, this open cover has a finite subcover. Therefore $(X,^2)$ is compact.
- 2) Obvious since every semi-L-open cover is finite.

**Example: 3.4**

Let $(X,^2)$ be an infinite indiscrete topological space. In this space all subsets are semi-L-open. Obviously it is compact. But {x}x ∈ X is a semi-L-open cover which has no finite subcover. So it is not semi-L-compact. Hence compactness need not imply semi-L-compactness.

**Theorem: 3.5** A semi-M-closed subset of semi-L- compact space is semi –L-compact .

**Proof:**

Let A be a semi-M-closed subset of a semi-L-compact space $(X,^2)$ and {U~ }~ ∈ Δ be a semi –L-open cover for A , then {{U ~ }~ ∈ Δ , {X-A}} is a semi-L-open cover for X . Since X is semi-L-compact, there exists $\sim_1,\sim_2....\sim_n \in \Delta$ such that $X = U\sim_1 \cup U\sim_2 ...... \cup U\sim_n \cup (X-A)$ Therefore $A \subseteq U\sim_1 \cup U\sim_2 ...... \cup U\sim_n$ which proves A is semi-L-compact.

**Remark: 3.6**

The converse of the above theorem need not be true as seen in the following example(3.7).

**Example: 3.7**

Let X = {a, b, c, } and Y = {1, 2, 3, }. Let f: (X,²) →Y defined by f(a)=1, f(b)=2, f(c)=3. Let X={a,b,c} ² ={¤ ,{a},X}-open set, closed set-{ ¤ , X, {b, c}}. Here SLO(X) = {¤ , X, {a} {a,b},{a,c}} is semi-L-compact ,A={a,c} is Semi-L-compact but not semi-M-closed

**Theorem: 3.8**

A topological space $(X, ^2)$ is semi-L-compact if and only if for every collection $^2$ Of semi-M-closed sets in X having finite intersection property, $\bigcap_{c\in ^2} C$ of all elements of $^2$ is non empty.

**Proof:**

Let $(X, ^2)$ be semi-L-compact and $^2$ be a collection of semi-M-closed sets with finiteintersection property. Suppose $\bigcap_{c\in ^2} C$ = ¤ then $\bigcup_{c\in C}(X - C) = X$ . Therefore $\{X - C\}_{c\in C}$ is asemi-L-open cover for X. Then there exists $C_1$, C2,......Cn $\in ^2$ such that $\bigcup_{i=1}^{n}(X - C_i)$ =X

Therefore $\bigcap_{i=1}^{n} C_i$ =¤ which is a contradiction. Therefore $\bigcap_{c\in ^2} C \neq$ ¤

Conversly assume the hypothesis given in the statement .To prove X is semi-L-compact.

Let $\{U_\sim\}_{\sim \in \Delta}$ be a semi-L-open cover for X .then $\bigcup_{\sim\in\Delta} U_\sim = X \Rightarrow \bigcap_{\sim\in\Delta}(X - U_\sim) =$ ¤ By hypothesis $\sim_1, \sim_2 \ldots \sim_n$, there exists such that $\bigcap_{i=1}^{n}(X - U_{\sim_i}) =$ ¤ . Therefore $\bigcup_{i=1}^{n} U_{\sim_i} = X$ . Therefore X is semi-L-compact.

**Corollary: 3.9**

Let $(X, ^2)$ be a semi-L-compact space and let $C_1 \supseteq C_2 \supseteq \ldots\ldots \supseteq C_n \supseteq C_{n+1} \ldots$ be anested sequence of nonempty semi-M-closed sets in X. then $\bigcap_{n\in Z^+} C_n$ is nonempty.

**Proof:**

Obviously $\{C_n\}_{n\in Z^+}$ finite intersection property. By theorem (3.8) $\bigcap_{n\in Z^+} C_n$ is nonempty.

**Theorem: 3.10**

Let $(X, ^2)$, (Y,± ) be two topological space and f: (X,$^2$) $\rightarrow$(Y,± ) be a bijection then

- f is semi- continuous and X is semi –L-compact $\Rightarrow$ Y is compact.
- f is semi –L-irresolute and X is semi- L-compact $\Rightarrow$ Y is semi-L- compact.
- f is continuous and X is semi-L-compact $\Rightarrow$ Y is compact.
- f is strongly irresolute and X is compact $\Rightarrow$ Y is semi- L-compact.
- f is semi –L-open and Y is semi- L-compact $\Rightarrow$ X is compact.
- f is open and Y is semi-L- compact $\Rightarrow$ X is compact.
- f is pre- R-resolute and Y is semi-R-compact $\Rightarrow$ X is semi- R-compact.

**Proof:**

1)Let $\{U_\sim\}_{\sim \in \Delta}$ be a open cover for Y.

Therefore $Y = \cup U_\sim$ . Therefore $X = f^{-1}(Y) = \cup f^{-1}(U_\sim)$ .

Then $\{f^{-1}(U_\sim)\}_{\sim \in \Delta}$ is a semi-L- open cover for X .

Since X is semi-L- compact,there exists $\sim_1, \sim_2 \ldots \sim_n$ such that $X = \cup f^{-1}(U_{\sim_i})$ . Therefore $Y = f(X) = \cup(U_{\sim_i})$ .

Therefore Y is compact.

Proof of (2) to (4) are similar to the above.

5)Let $\{U_\sim\}_{\sim \in \Delta}$ be a open cover for X. then $\{f(U_\sim)\}$ is a semi-L-open cover for Y.

Since Y is semi-L-compact ,there exists $\sim_1, \sim_2 \ldots \sim_n$ such that $Y = \cup f(U_\sim)$

Therefore $X = f^{-1}(Y) = \cup_{\sim\in\Delta}(U_\sim)$ . Therefore X is compact.

Proof of (6) and (7) are similar.

**Remark:3.11**

From (3) and (6) it follows that " Semi-L- compactness" is a Semi-L- topological property.

**Theorem:3.12(Generalisation of Extreme Value theorem)**

Let f: X $\rightarrow$Y be semi-L-continuous where Y is an ordered set in the ordered topology. If X is semi-L-compact then there exists c and d in X such that f(c) $\leq$ f(x) $\leq$ f(d) for every x $\in$ X.

**Proof**

We know that semi-L-continuous image of a semi-L-compact space is compact Bytheorem(3.10). Therefore A=f(X) is compact. Suppose A has no largest element then $\{(-\infty, a) / a \in A\}$ form an open cover for A and it has a finite subcover.

Therefore $A \subseteq (-\infty, a_1) \cup (-\infty, a_2) \cup ..... \cup (-\infty, a_n)$ . Let $a = \max_i a_i$ .

Then $A \subseteq (-\infty, a)$ which is a contradiction to the fact that $a \in A$

Therefore A has a largest element M. Similarly it can be proved that it has the smallest element m.

Therefore $\exists$ c and d in X $\ni$f(c) = m, f(d) = M and f(c) $\leq$ f(x) $\leq$ f(d) $\forall$ x $\in$ X.

### 4. Countably semi - ° -compact space

**Definition: 4.1**

- õ A subset A of a topological space $(X,{}^{2})$ is said to be countably semi-L-compact, if every countable semi-L-open covering of A has a finite subcover.
- õ A subset A of a topological space $(X,{}^{2})$ is said to be countably semi-R-compact, if every countable semi-R-open covering of A has a finite subcover.

**Example: 4.2**

Let $(X,{}^{2})$ be a countably infinite indiscrete topological space.

In this space {{x}/ x $\in$ X} is a countable semi-L-open cover which has no finite subcover . Therefore it is not countably semi-L-compact.

**Remark: 4.3**

- Every semi-L-compact space is countably semi-L-compact.It is obvious from the definition.
- Every countably semi-L compact space is countably compact. It follows since open sets are semi-Lopen.

**Theorem: 4.4**

In a countably semi-L-compact topological space, every infinite subset has a semi-L-limit point.
**Proof:**

Let $(X,{}^{2})$ be countably semi-L-compact space. Suppose that there exists an infinite subset A which has no semi-L-limit point. Let $B = \{a_n / n \in N\}$ be a countable subset of A.

Since B has no semi-L-limit point of B, there exists a semi-L-neighbourhood $U_n$ of $a_n$ such that $B \bigcap U_n = \{a_n\}$. Now $\{U_n\}$ is a semi-L-open cover for B .Since $B^c$ is semi-L-open , $\{B^c, \{U_n\}_{n \in Z^+}\}$ is a countable semi-L-open cover for X. But it has no finite sub cover, which is a contradicition, since X is countably semi-L-compact .Therefore every infinite subset of X has a semi-L-limit point.

**Corollary: 4.5**

In a semi-L-compact topological space every infinite subset has a semi-L-limit point.

**Proof:**

It follows from the theorem (4.4), since every semi-L-compact space is countably semi-L-compact.

**Theorem: 4.6**

A semi-M-closed subset of countably semi-L-compact space is countably semi-L-compact.

**Proof:**

Let X be a semi-L-compact space and B be a semi-M-closed subsets of X
Let $\{A_i / i = 1, 2, 3, ...\infty\}$ be a countable semi-L-open cover for B. Then $\{\{A_i\}, X - B\}$
Where $i = 1, 2, 3, ....\infty$ is a semi-L-open cover for X. Since X is countably semi-L-compact, there exists $i_1, i_2, i_3.....i_n \ni (X - B) \bigcup_{k=1}^{n} A_{ik} = X$ .

Therefore $B = \bigcup_{k=1}^{n} A_{ik}$ and this implies B is countably semi-L-compact.

**Definition: 4.7**

In a topological space $(X, ²)$ a point $x \in X$ is said to be a semi-L-isolated point of A if there exists a semi-L-open set containing x which contains no point of A other than x.

**Theorem: 4.8**

A topological space $(X, ²)$ is countably semi-L-compact if and only if for everycountable collection ² of semi-L-closed sets in X having finite intersection property, $\bigcap_{c \in C} C$ of all elements of ² is nonempty.

**Proof:** It is similar to the proof of theorem(3.8).

**Corollary: 4.9**

X is countably semi-L-compact if and only if every nested sequence of semi-M-closednon empty sets $C1 \supset C2 \supset .....$.has a nonempty intersection.

**Proof:**

Obviously $\{C_n\}_{n \in Z^+}$ has finite intersection property. By theorem (4.8) $\bigcap_{n \in Z^+} C_n$ isnonempty.

**5. Sequentially semi-o L-compact space**

**Definition: 5.1**

- A subset A of a topological space $(X, ²)$ is said to be sequentially semi-L-compactif every sequence in A contains a subsequence which semi-L-converges to some point in A.
- A subset A of a topological space $(X, ²)$ is said to be sequentially semi-R-compactif every sequence in A contains a subsequence which semi-R-converges to some point in A.

**Theorem: 5.2**

Any finite topological space is sequentially semi-L-compact.

**Proof:**

Let $(X, ²)$ be a finite topological space and $\{x_n\}$ be a sequence in X. In this sequenceexcept finitely many terms all other terms are equal. Hence we get a constant subsequencewhich semi-L-converges to the same point .

**Theorem: 5.3**

Any infinite indiscrete topological space is not sequentially semi-L-compact.

**Proof:**

Let $(X, ²)$ be infinite indiscrete topological space and $\{x_n\}$ be a sequence in X. Let $x \in X$ be arbitrary.Then U={x} is semi-L-open and it contains no point of the sequence except x. Therefore $\{x_n\}$ has no subsequence which semi-L-converges to x. Since x is arbitrary, X is not sequentially semi-L-compact.

**Theorem: 5.4**

A finite subset A of a topological space $(X,{}^2)$ is sequentially semi-L-compact.

**Proof:**

Let $\{x_n\}$ be an arbitrary sequence in X. Since A is finite, at least one element of thesequence say $x_0$ must be repeated infinite number of times. So the constant subsequence $x_0, x_0 \ldots$.. must semi-L-converges to $x_0$.

**Remark: 5.5**

Sequentially semi-L-compactness implies sequentially compactness, since allopen sets are semi-L-open. But the inverse implication is not true as seen from(5.6).

**Example: 5.6**

Let $(X,{}^2)$ be an infinite indiscrete space is sequentially compact but notsequentially semi-L-compact.

**Theorem: 5.7**

Every sequentially semi-L-compact space is countably semi-compact.

**Proof:**

Let $(X,{}^2)$ be sequentially semi-L-compact. Suppose X is not countably semi-L-compact. Thenthere exists countable pre-open cover $\{U_n\}_{n\in Z^+}$ which has no finite sub cover .Then $X = \bigcup_{n\in Z^+} U_n$. Choose $X_1 \in U_1, X_2 \in U_2 - U_1, X_3 \in U_3 - \bigcup_{i=1,2} U_i \ldots . X_n \in U_n - \bigcup_{i=1}^{n} U_i$. This is possible since {Un} has no finite sub cover. Now $\{x_n\}$ is a sequence in X. Let x ∈ X bearbitrary .then x ∈ Uk for some K .By our choice of $\{x_n\}$, xi ∉ Uk for all i ≥ k. Hence there isno subsequence of $\{x_n\}$ which can semi-L-converge to x. Since x is arbitrary the sequence $\{x_n\}$ has no semi-L-convergent subsequence which is a contradiction. Therefore X is countablysemi-L-compact.

**Theorem: 5.8**

Let f: $(X,{}^2) \rightarrow (Y,\pm)$ be a bijection, then

1)f is semi-R-resolute and Y is sequentially semi -R-compact ⇒ X is sequentiallysemi -R-compact.
2)f is semi -L-irresolute and X is sequentially semi -compact ⇒ Y is sequentially semi -L-compact.
3)f is continuous and X is sequentially semi -L-compact ⇒ Y is sequentially semi -L-compact.
4)f is strongly semi -L-continous and X is sequentially semi -L-compact ⇒ Y is sequentially semi -L-compact.

**Proof:**

1) Let $\{x_n\}$ be a sequence in X .Then $\{f(x_{nk})\}$ is a sequence in Y. It has asemi –R-convergent subsequence $\{f(x_{nk})\}$ such that $\{f(x_{nk})\} \xrightarrow{pre} y_0$ in Y. Then there exists $x_0 \in$ X such that $f(x_0) = y_0$. Let U be semi -R -open set containing x0 then f(U) is a semi -R-open setcontaining y0 .Then there exists N such that f ∈ f(U) for all k ≥ N.

Therefore $f^{-1} \circ f(x_{nk}) \in f^{-1} \circ f(U)$. Therefore $x_{nk} \in U$ for all k ≥ N.

This proves that X is sequentiallysemi -R-compact. Proof for (2) to (4) is similar to the above.

**Remark: 5.9**

From theorem (5.8), (1) and (2) it follows that "Sequentially compactness" is a semi - ° -topological property.

## 6.Semi - ° -locally compact space

**Definition: 6.1**

A topological space $(X,{}^2)$ is said to be semi -L-locally compact if every point of X is contained in a semi -L-neighbourhood whose semi -L-closure is semi -L-compact.

**Theorem: 6.2**

Any semi -L-compact space is semi -L-locally compact.

**Proof:**

Let $(X,^{2})$ be semi -L-compact, Let x ∈ X then X is semi -L-neighbourhood of x and Scl(X)=X which is semi -L-compact.

**Remark: 6.3**

The converse need not be true as seen in the following example(6.4)

**Example: 6.4**

Let $(X,^{2})$ be an infinite indiscrete topological space. it is not semi -L-compact. But for every x ∈ X, {x} is a semi -L-neighbourhood and $\{\overline{x}\} = \{x\}$ is semi -L-compact.Therefore it is semi -L-locally compact.

## REFERENCES


Dube, K.K. and Panwar, O.S Indian, 1984. *J.Pure. Appl. Math.* 343-354, April (some properties of ‘S-connectedness between sets’, and ‘Set S-connected mappings’.

Fu-Gui-Shi, 2005. “*International Journal of Mathematical and Mathematical Science*”, 12(2005) page no: 1869-1878.

Hamlett, T.R.1977. Semi-continuous and irresolute functions, Texas Academy of science, vol.27.

James, R.Munkers,Topology.Ed.2.,PHI Learning Pvt .Ltd.,New Delhi.2010.

Kene Crossley, S. and Hildebrand, S.K. 1972. Semi-topological properties. *Fund. Math*. 74.

Levine, N. 1963. Semi-open sets and semi-continuity in Topological spaces, *Amer.Math.Monthly*, 70 (1963), 36-41.

Mahanta, J. and Das, D. 2014. “Semi-Compactness in Multiset Topology”,ar Xiv: 1403.5642v2[math.GM]. 21 Nov.

Popa, V.”Characterization of H-almost continuous functions” Glasnik Mat.

Selvi, R.and M. Priyadarshini, 2015. “on semi- ° -continuity where ° ∈ {L, M, R, S}”, *International Journal of Technical Research and Applications.* Volume 3, Issue 3, May-June.

Selvi, R.and Priyadarshini, M. 2016. “on S- ° -connected space in a Topological space”, *International Journal of Emerging Trend in Science and Technology*, Volume 3, Issue 8, August, page no 4498-4506.

Selvi, R. and Priyadarshini,M. 2016. “on P- ° -compact space in a Topological space”, *International Journal of Current Research*, Volume 8, Issue 09, September, page no 38649-38658.

Topology and Field Theories: page: 96 Google book Result, semi-additive(page:28).


*******