Star Intuitionistic Semi-Open Sets

S.Indira[1], R.Raja Rajeswari[2], N.Durga Devi[3]
Research Scholar, Manonmaniam Sundaranar University, Ttirunelveli, Tamilnadu ,India and
Department of mathematics , Sri parasakthi College for Women Courtallam, India
Head of the department (Rtd), Department of mathematics, Sri Parasakthi College for Women courtallam, India
Assistant Professor , Department of Mathematics ,Sri Parasakthi College for Women Courtallam, India

Abstract

The aim of this paper is to introduce star intuitionistic semi open sets and study some of thier properties

Keywords - *star intuitionisti semi open set, star intuitionistic interior,star intuitionistic closure,star intuitionistic topology.*

I. INTRODUCTION AND PRELIMINARIES

D.Coker [1,2,3] defined and studied intuitionistic topological space, intuitionistic open sets, intuitionistic closed sets and also defined the closure and interior operator in intuitionistic topological space. In this paper, we define and study the properties of a new class of star intuitionistic semi open sets, based on the star intuitionistic set defined by R.Raja Rajeswari.

Definition 1.1. [3] Let X be a non-empty fixed set.Then A = < X, A^1, A^2> , where A^1 and A^2 are subsets of X is called an intuitionistic set (IS) if $A^1 \cap A^2 = \emptyset$, where A^1 is called the set of members of A, A^2 is called the set of non- members of A.

Definition 1.2. [4] Let X be a non-empty fixed set and A = < X, A^1, A^2> , be an intuitionistic set. Then, the star intuitionistic set A^*(SIS for short) is defined as
A^* =< $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >,where A^1 and A^2 are the star intuitionistic subsets of X.

Definition 1.3. [4] A star intuitionistic topology (SIT for short)on a non-emptyset X is a family τ^* of star intuitionistic sets in X satisfying the following axioms:
(T_1) $\tilde{\emptyset}^*, \tilde{X}^* \in \tau^*$
(T_2) $G_1{}^* \cap G_2{}^* \in \tau^*$for any. $G_1{}^*$ *and* $G_2{}^* \in \tau^*$
$(T_3)$$\cup G_i{}^* \in \tau^*$for any arbitrary family $\{G_i{}^*: i \in J\} \subseteq \tau^*$.

Definition 1.4. [4] The complement $\overline{A^*}$ of a star intuitionistic open set A^* in a star intuitionistic topological space(X, τ^*), is called a star intuitionistic closed set X.

Definition 1.5. [4] Let X be a non-empty set and A^* =< $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >, and B^* =< $(B^2)^c$-$(B^1)^c$, $B^2 \cap (B^1)^c$ > respectively. Furthemore let $\{A_i{}^*: i \in J\}$ be an arbitrary family of star intuitionistic sets in X, where $A_i{}^*$= < X, $(A_i^1)^c - (A_i^2)^c$, $A_i^2 \cap (A_i^1)^c$> with A_i^1 *and* A_i^2 are star intuitionistic subset of X.
(a) $A^* \subseteq B^*$ if and only if $(A^2)^c$-$(A^1)^c \subseteq (B^2)^c$-$(B^1)^c$ and $B^2 \cap (B^1)^c \subseteq A^2 \cap (A^1)^c$.
(b) $A^* = B^*$ if and only if $A^* \subseteq B^*$ and $B^* \subseteq A^*$.
(c)$\cup A_i{}^*$=<X, $(\cap A_i^1)^c - (\cup A_i^2)^c$,$(\cap A_i^2) \cap (\cup A_i^1)^c$>.
(d)$\cap A_i{}^*$=<X, $(\cup A_i^1)^c - (\cap A_i^2)^c$,$(\cup A_i^2) \cap (\cap A_i^1)^c$>.
(e) $\overline{\tilde{\emptyset}^*} = \tilde{X}^*$ and $\overline{\tilde{X}^*} = \tilde{\emptyset}^*$.
(f) $\overline{A^*}$= < X, $A^2 \cap (A^1)^c$, $(A^2)^c$-$(A^1)^c$ >.
(g) $A^* - B^* = A^* \cap \overline{B^*}$
(h) [ ] A^* = < $(A^2)^c$-$(A^1)^c$, $((A^2)^c$-$(A^1)^c)^c$ >.
(i)<> A^* = < $A^2 \cap (A^1)^c$, $(A^2 \cap (A^1)^c)^c$ >.

Definition 1.6. [4] Let A^* =< $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > be a star intuitionistic set in X . Then int(A^*) = $\cup\{G^*$: G^* is star intuitionistic open set in X and $G^* \subseteq A^*\}$ and cl(A^*) = $\cap\{K^*$: K^* is star intuitionistic closed set in X and $A^* \subseteq K^*\}$.

It can be show that cl(A^*) is a star intuitiomistic closed set and int(A^*) is a star intuitionistic open set on X and A^* is a star intuitionistic closed set in X if and only if cl(A^*) = $A^*$and A^* is a star intuitionistic open et in X if and only if int(A^*) = A^*

Definition 1.7. [4] Let (X, τ^*) be a star intuitionistic topological space on X then

(a) $\tau_{0,1}{}^*$ = { [ ] G^*: $G_i{}^*$ ∈ τ^*} ,where [ ] $G^* = <X,\ (A^2)^c\text{-}(A^1)^c, ((A^2)^c\text{-}(A^1)^c)^c>$.
(b) $\tau_{0,2}{}^*$ = { <> G^*: $G_i{}^*$ ∈ τ^*} ,where <> $A^* = <X, A^2 \cap (A^1)^c, (A^2 \cap (A^1)^c)^c>$.

Definition 1.8. [5] A subset A = < X, A^1, A^2> of $\tilde{X}$ =< X, X, ϕ > is said to be an intuitionistic semi open (in short ISO)set in an intuitionistiuc topological space (X, τ) if there is a intuitionistic open set (IO set) G ≠ < X, ϕ , X > such that G ⊆ A⊆ cl(G).

Definition 1.9. [6] A set A is an intuitionistic topological space (X, τ) is said to be intuitionistic semi open if A⊆ $cl(intA)$ and intuitionistic semi closed set if int(cl(A)) ⊆ A.

II. STAR INTUITIONISTIC SEMI OPEN SET

Definition 2.1. A subset A^* as A^* =< $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > of $\tilde{X}^*$ = <X, ϕ^c-X^c , $\phi \cap X^c$ >,is said to be a star intuitionistic semi open (in short SISO)set in a star intuitionistiuc topological space (X, τ^*) if there is a star intuitionistic open set (SIO set) G^* ≠ <X, ϕ^c-X^c - ϕ^c, X ∩ ϕ^c > such that $G^* \subseteq A^* \subseteq$ cl(G^*).
The complement of every star intuitionistic semi open set is said to be a star intuitionisti semi closed (SISC) set.

Remark 2.2. Every star intuitionistic open set is star intuitionistic semi open set but the converse is not true and is show in the following example.

Example 2.3. Let X = {a,b,c} with the intuitionistic topology τ = { $\tilde{\emptyset}$, $\tilde{X}$, < X, ,∅,{c}>, <X, ∅, {b,c}>, <X, {a,b}, ∅>, <X,{a,b},{c}>}.Then $A^* =< X, \{c\}, \{b\} >$ is a star intuitionistic semi open set but not a star intuitionistic open set X.

Definition 2.4. A set A^* in a star intuitionistic topological space (X, τ^*) is said to be star intuitionistic semi open if $A^* \subseteq cl(intA^*)$ and intuitionistic semi closed set if int(cl(A^*)) ⊆ A^*. **Note 2.5.** The intersection of star intuitionistic semi open sets need not be a star intuitionistic semi open set.

Example 2.6. Let X = {a,b,c} with the intuitionistic topology τ = { $\tilde{\emptyset}$, $\tilde{X}$, < X, ,∅,{a,b}>, <X, ∅, {a,c}>, <X, ∅, {a}> }.Then $A^* =< X, \emptyset, \{b\} >$ and $B^* =< X, \emptyset, \{c\} >$ be two star intuitionistic semi open sets but the intersection is not a star intuitionistic semi open set X.

Remark 2.7. Each star intuitionistic closed set is star intuitionistic semi closed set but the converse need not be true .

Example 2.8. Let X = {a,b,c} with the intuitionistic topology τ = { $\tilde{\emptyset}$, $\tilde{X}$, ,< X, {b},{a}>, <X,{a},{b}>,
<X, ∅,{a,b}> , <X, {a,b}, ∅> }.Then $A^* =< X, \emptyset, \{a\} >$ be a star intuitionistic semi closed set but not a star intuitionistic closed set in X.

Proposition 2.9. Let A^* and $A_\propto{}^*$ be star intuitionistic subset of a intuitionistic topological space X. Then

1. ∪cl($A_\propto{}^*$) ⊆ cl(∪ $A_\propto{}^*$)
2. ∪ int($A_\propto{}^*$) ⊆ int(∪ $A_\propto{}^*$).

Theorem 2.10. A subset A^* in a star intuitionistic topological space (X, τ^*) is a star intuitionistic semi open if and only if A^* ⊆ cl(int A^*).
Proof: Suppose A^* be a star intuitionistic semi open, then there exists a star intuitionistic open set B^*such that $B^* \subseteq A^* \subseteq$ cl(B^*). But B^* ⊆ int(A^*) which implies cl(B^*) ⊆ cl(int(A^*)). Hence $A^* \subseteq$ cl(B^*) ⊆ cl(int(A^*)).

Conversely, let A^* ⊆ cl(int A^*). Also int(A^*) ⊆ A^*. Then int(A^*) ⊆ A^* ⊆ cl(int(A^*)). Take A^* is a star intuitionistic semi open.

Theorem 2.11. Let (X, τ^*) be a star intuitionistic topological space and $\{A_\propto{}^*/\propto \in I\}$

Be a family of star intuitionistic semi open sets. Then $\cup\{A_\propto{}^*/\propto\in I\}$ is astar intuitionistic semi open set.

Proof. For each $\propto$, let $A_\propto{}^*$ = <X, $(A_\propto{}^2)^c$-$(A_\propto{}^1)^c$, $A_\propto{}^2 \cap A_\propto{}^1)^c$ >is a star intuitionistic semi open set, then there exists a star intuitionistic open set $G_\propto{}^*$ such that $G_\propto{}^* \subseteq A_\propto{}^* \subseteq$ cl($G_\propto{}^*$). Which implies $\cup\, G_\propto{}^* \subseteq\cup\, A_\propto{}^* \subseteq\cup$ (cl($G_\propto{}^*$)). Since $G_\propto{}^* \subseteq\cup\, G_\propto{}^*$,cl($G_\propto{}^*$) $\subseteq$ cl($\cup\, G_\propto{}^*$). Also $\cup$ (cl($G_\propto{}^*$)) $\subseteq$ cl($\cup\, G_\propto{}^*$).Therefore $\cup\, G_\propto{}^* \subseteq\cup\, A_\propto{}^* \subseteq$ $\cup$ (cl($G_\propto{}^*$)) $\subseteq$ cl($\cup\, G_\propto{}^*$).Hence $\cup\, A_\propto{}^*$ is a star intuitionistic semi open.

Corollary.2.12. From the above theorem , we can say that any intersection of star intuitionistic semi closed sets is star intuitionistic semi closed.

Theorem 2.13. Let (X, τ^*) be a star intuitionistic topological space. If A* =< $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > is a star intuitionistic semi open set, then int(A^*) $\neq \widetilde{\emptyset}^*$.

Proof. Let A* = <X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > be a star intuitionistic semi open set, then there exists a non-empty star intuitionistic open set G^* such that $G^* \subseteq A^* \subseteq$ cl(G^*). If $G^* \subseteq A^*$, then $G^* = int(G^*) \subseteq$ int(A^*). Since $G^* \neq$<X, ϕ^c-X^c - ϕ^c, X $\cap\, \phi^c$ > $\neq \widetilde{\emptyset}^*$, int($A^*$) $\neq \widetilde{\emptyset}^*$.

Theorem 2.14. Let (X, τ^*) be a star intuitionistic topological space. If $A^* \subseteq B^* \subseteq$ cl(A^*) and A^* is a star intuitionistic semi open set then B^* is a star intuitionistic semi open set. In particular, if A^* is a star intuitionistic semi open set, then cl(A^*) is a star intuitionistic semi open set.
Proof. Let A* = <X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > be a star intuitionistic semi open set and $A^* \subseteq B^* \subseteq$ cl(A^*). Then that cl(B^*) = cl(A^*).
Since $A^* \subseteq B^*$,$cl(int(A^*)) \subseteq$ cl(int(B^*)). since A* is a star intuitionistic semi open set, $A^* \subset$ cl($int(B^*)$) and cl(B^*) = cl(A^*) $\subset$ cl($cl(B^*)$) = cl(B^*) which implies $B^* \subseteq$ cl(B^*). Hence B^* is a star intuitionistic semi open set.

Theorem 2.15. Let (X, τ^*) be a star intuitionistic topological space. If A^* is a star intuitionistic semi open set in τ^* then A^* is also is a star intuitionistic semi open set in (X, $\tau_{0,1}{}^*$).

Proof. Let A* = < $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > be a star intuitionistic semi open set in (X, τ^*). Then by definition , there exists a non-empty star intuitionistic open set G^* such that $G^* \subset A^* \subseteq$ cl(G^*). Tht is , <X, $(G^2)^c$-$(G^1)^c$, $G^2 \cap (G^1)^c$ > $\subset$ < $X,(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >$\subset$cl(<X, $(G^2)^c$-$(G^1)^c$, $G^2 \cap (G^1)^c$ >).By definition1.3(b), $(G^2)^c$-$(G^1)^c \subset (A^2)^c$-$(A^1)^c$ and $A^2 \cap (A^1)^c \subset G^2 \cap (G^1)^c$ and $((G^2)^c$-$(G^1)^c) \cap (G^2 \cap (G^1)^c)$ =$\widetilde{\emptyset}^*$ = $((A^2)^c$-$(A^1)^c) \cap (A^2 \cap (A^1)^c)$. which implies $(G^2 \cap (G^1)^c) \subset ((G^2)^c$-$(G^1)^c)^c$ *and* $(A^2 \cap (A^1)^c) \subset (G^2 \cap (G^1)^c)$. Hence , we have($A^2 \cap (A^1)^c) \subset (G^2 \cap (G^1)^c$) $\subset ((G^2)^c$-$(G^1)^c)^c$ *implies that* ($A^2 \cap (A^1)^c$) $\subset ((G^2)^c$-$(G^1)^c)^c$. Therefore <X, $(G^2)^c$-$(G^1)^c$, $((G^2)^c$-$(G^1)^c)^c$> =H^*(say) , is $\tau_{0,1}{}^*$ star intuitionistic open set which is a subset of A^*.
Next we prove that A^* is a star intuitionistic semi open . It is enough to prove $A^* \subset$ cl(H^*). SinceA^* is a star intuitionistic semi open , $A^* \subset$ cl(G^*).
That is <X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >$\subset$ cl(<X, $(G^2)^c$-$(G^1)^c$, $G^2 \cap (G^1)^c$ >) = $\cap\{K_\propto{}^*$ = <X, $(K_\propto{}^2)^c$-$(K_\propto{}^1)^c$, $K_\propto{}^2 \cap (K_\propto{}^1)^c$ > such that $K_\propto{}^*$
Is a star intuitionistic closed set in X and $H^* \subset K_\propto{}^*$ for every $\propto\}$ =$\{\cap\, K_\propto{}^*$ = <X, $\cap$ $((K_\propto{}^2)^c$-$(K_\propto{}^1)^c$), $\cup$ $(K_\propto{}^2 \cap (K_\propto{}^1)^c$)> such that $K_\propto{}^*$ is a star intuitionistic closed set in X and as each $G_\propto{}^*$ is a subset of τ^*closed set $K_\propto{}^*$, $((G^2)^c$-$(G^1)^c) \subset \cap$ $((K_\propto{}^2)^c$-$(K_\propto{}^1)^c)$, $\cup$ $(K_\propto{}^2 \cap (K_\propto{}^1)^c) \subset (G^2 \cap (G^1)^c$) for every $\propto\}$. Now, we have($(A^2)^c$-$(A^1)^c) \subset ((G^2)^c$-$(G^1)^c) \subset \cap$ $((K_\propto{}^2)c - (K_\propto{}^1)c$) and $\cup$ $(K_\propto{}^2 \cap K_\propto{}^1)^c \subset G^2 \cap (G^1)^c \subset ((G^2)^c$-$(G^1)^c)^c$. And so, <X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >$\subset$<X, $\cap$ $((K_\propto{}^2)^c$-$(K_\propto{}^1)^c$), $\cup$ $(K_\propto{}^2 \cap (K_\propto{}^1)^c$)> for every $\propto\}$.Since , $G^2 \cap (G^1)^c$ $\subset ((G^2)^c$-$(G^1)^c)^c$
<X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >=$\{\cap\, K_\propto{}^*$ = <X, $\cap$ $((K_\propto{}^2)^c$-$(K_\propto{}^1)^c$), $\cup$ $(K_\propto{}^2 \cap (K_\propto{}^1)^c$)> such that $K_\propto{}^*$ is a star intuitionistic closed set in X and $((G^2)^c$-$(G^1)^c) \subset \cap$ $((K_\propto{}^2)^c$-$(K_\propto{}^1)^c)$, $\cup$ $(K_\propto{}^2 \cap (K_\propto{}^1)^c) \subset ((G^2)^c$-$(G^1)^c)^c$ for every $\propto\}$ =$\cap\{K_\propto{}^*$ = <X, $(K_\propto{}^2)^c$-$(K_\propto{}^1)^c$, $(K_\propto{}^2 \cap (K_\propto{}^1)^c$)> such that $K_\propto{}^*$ is a star intuitionistic closed set in X and $((G^2)^c$-$(G^1)^c) \subset$ $(K_\propto{}^2)^c$-$(K_\propto{}^1)^c$, $(K_\propto{}^2 \cap (K_\propto{}^1)^c) \subset ((G^2)^c$-$(G^1)^c)^c$ for every $\propto\}$= cl(<X, $(G^2)^c$-$(G^1)^c$, $((G^2)^c$-$(G^1)^c)^c$>).
Hence ,<X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >$\subset$ cl(<X, $(G^2)^c$-$(G^1)^c$, $((G^2)^c$-$(G^1)^c)^c$ >).Therefore,
A^* is also is a star intuitionistic semi open set in (X, $\tau_{0,1}{}^*$).

Example 2.16. Let X = {a,b,c,d,e} with the intuitionistic topology τ = { $\widetilde{\emptyset}$, $\widetilde{X}$, $A_1, A_2, A_3, A_4\}$ where A_1 =< X, {a,b,c},{d}>, A_2 =<X,{c,d}, {e}>, A_3 =<X, {c}, {d,e}>,A_4 = < X, {a,b,c,d},$\emptyset$ > and , $\tau_{0,1}$

={ $\widetilde{\emptyset}$, X̃, $A_{11}, A_{12}, A_{13}, A_{14}$} , A_{11} =< X, {a,b,c},{d,e}>, A_{12} =<X,{c,d}, {a,b,e}>, A_{13} =<X, {c}, {a,b,d,e}>, A_{14} =< X, {a,b,c,d},{e} >} .Here, $A_{12}{}^*$ is a star intuitionistic open set in (X, $\tau_{0,1}{}^*$) which implies that $A_{12}{}^*$ is a star intuitionistic semi open set in (X, $\tau_{0,1}{}^*$), Since there is no star intuitionistic open set A^* in (X, τ) such that $A^* \subset A_{12}{}^* \subset cl(A^*)$, $A_{12}{}^*$ is not a star intuitionistic semi open set in (X, τ).

Theorem 2.17. Let (X, τ^*) be a star intuitionistic topological space. If A^* is a star intuitionistic semi open set in (X, $\tau_{0,2}{}^*$) then A^* is also is a star intuitionistic semi open set in (X, τ^*) .

Proof. Let A^* = < $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > be a star intuitionistic semi open set in (X, $\tau_{0,2}{}^*$). Then by definition , there exists a non-empty star intuitionistic open set G^* such that $G^* \subset A^* \subseteq$ cl(G^*). That is , < X, $(G^2 \cap (G^1)^c)^c$, $G^2 \cap (G^1)^c$ > ⊂ < $X, (A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >⊂cl(<X, $(G^2 \cap (G^1)^c)^c$, $G^2 \cap (G^1)^c$ >). Now $G^* \subset A^*$ *in* (X, $\tau_{0,2}{}^*$) and By definition 1.4(b), $(G^2 \cap (G^1)^c)^c \subset (A^2)^c$-$(A^1)^c$ and $A^2 \cap (A^1)^c \subset G^2 \cap (G^1)^c$ .Also since $(G^2)^c$-$(G^1)^c$⊂ $(G^2 \cap (G^1)^c)^c$, <X, $(G^2)^c$-$(G^1)^c$, $(G^2 \cap (G^1)^c$>⊂ < $X, (A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > .Now, to prove $G^* \subset A^*$ in (X, τ^*) ,that is to prove <X, $(G^2)^c$-$(G^1)^c$, $(G^2 \cap (G^1)^c)^c$ >⊂ < $X, (A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ > for some $((G^2)^c$-$(G^1)^c) \cap (G^2 \cap (G^1)^c)$ =$\widetilde{\emptyset}^*$ = $((A^2)^c$-$(A^1)^c) \cap (A^2 \cap (A^1)^c)$.

Next we prove that <X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >⊂ cl(<X, $(G^2)^c$-$(G^1)^c$, $G^2 \cap (G^1)^c$ >) .we have $A^* \subset$ cl(G^*) in (X, $\tau_{0,2}{}^*$) that implies <X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >⊂ cl(<X, $(G^2 \cap (G^1)^c)^c$, $G^2 \cap (G^1)^c$ >). Since $((G^2)^c$-$(G^1)^c) \cap (G^2 \cap (G^1)^c)$ =$\widetilde{\emptyset}^*$,$(G^2)^c$-$(G^1)^c$⊂ $G^2 \cap (G^1)^c$ implies <X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >⊂ cl(<X, $(G^2)^c$-$(G^1)^c$, $G^2 \cap (G^1)^c$ >) = ∩{$H_\propto{}^*$ = <X, $(H_\propto{}^2)^c$-$(H_\propto{}^1)^c$, $H_\propto{}^2 \cap (H_\propto{}^1)^c$ > such that $H_\propto{}^*$ is a star intuitionistic closed set in X and $G^* \subset H_\propto{}^*$ for every ∝} ={∩ $H_\propto{}^*$ = <X, ∩ $((H_\propto{}^2)^c$-$(H_\propto{}^1)^c$), ∪ $(H_\propto{}^2 \cap (H_\propto{}^1)^c$)> such that $H_\propto{}^*$ is a star intuitionistic closed set in X and ($G^2 \cap (G^1)^c)^c$ ⊂ ∩ $((H_\propto{}^2)^c$-$(H_\propto{}^1)^c)$, ∪ $(H_\propto{}^2 \cap (H_\propto{}^1)^c) \subset (G^2 \cap (G^1)^c$) for every ∝} = {∩ $H_\propto{}^*$ = <X, ∩ $((H_\propto{}^2)^c$-$(H_\propto{}^1)^c$), ∪ $(H_\propto{}^2 \cap (H_\propto{}^1)^c$)> such that $H_\propto{}^*$ is a star intuitionistic closed set in X and $(G^2)^c$-$(G^1) \subset$ ∩ $((H_\propto{}^2)^c$-$(H_\propto{}^1)^c)$, ∪ $(H_\propto{}^2 \cap (H_\propto{}^1)^c) \subset (G^2 \cap (G^1)^c$) for every ∝} = ∩{$H_\propto{}^*$ = <X, $(H_\propto{}^2)^c$-$(H_\propto{}^1)^c$, $(H_\propto{}^2 \cap (H_\propto{}^1)^c$)> such that $H_\propto{}^*$ is a star intuitionistic closed set in X and $(G^2)^c$-$(G^1) \subset$ $((H_\propto{}^2)^c$-$(H_\propto{}^1)^c)$, $(H_\propto{}^2 \cap (H_\propto{}^1)^c) \subset$ $(G^2 \cap (G^1)^c$) for every ∝}= cl(<X, $(G^2)^c$-$(G^1)^c$, $((G^2)^c$-$(G^1)^c)^c$>).

Hence ,<X, $(A^2)^c$-$(A^1)^c$, $A^2 \cap (A^1)^c$ >⊂ cl(<X, $(G^2)^c$-$(G^1)^c$,$(G^2 \cap (G^1)^c$ >).Therefore,

A^* is also is a star intuitionistic semi open set in (X, τ^*)

Example 2.18. Let X = {a,b,c,d,e} with the intuitionistic topology τ = { $\widetilde{\emptyset}$, X̃, A_1, A_2, A_3, A_4} where A_1 =< X, {a,b,c},{d}>, A_2 =<X,{c,d}, {e}>, A_3 =<X, {c}, {d,e}>,A_4 = < X, {a,b,c,d},∅ > and , $\tau_{0,2}$ ={ $\widetilde{\emptyset}$, X̃, $A_{11}, A_{12}, A_{13}, A_{14}$} , A_{11} =< X, {a, b, c, e},{d}>, A_{12} =<X,{a, b, c, d}, {e}>, A_{13} =<X, {a, b, c}, {d, e}>, A_{14} =< X, {a,b,c,d,e}, ∅ >} .Here, $A_3{}^*$ is a star intuitionistic open set in (X, τ^*) which implies that $A_3{}^*$ is a star intuitionistic semi open set in (X, τ^*). Since there is no star intuitionistic open set A^* in (X, $\tau_{0,2}{}^*$) such that $A^* \subset A_3{}^* \subset cl(A^*)$, $cl(A^*)$ is the closure of A^* *in* (X, $\tau_{0,2}{}^*$) . Therefore , $A_3{}^*$ is not a star intuitionistic semi open set in (X, $\tau_{0,2}{}^*$).

III. CONCLUSION

We conclude that the emergence of topology and its new results in the construction of some star intuitionistic semi open sets concepts will help to get rich results that yields a lot of hidden relations. The topological operators will play an essential role in data bases. In this paper, we give specially an overview of several results on star intuitionistic semi open sets.The future application of this work be useful in many fields.

REFERENCES

[1] Coker.D, A Note On Intuitionistic Sets and Intuitionistic points, Tr.J.math, 20(1996), 343-351.

[2] Coker.D , An introduction to fuzzy topological space , fuzzy sets and systems, 88-1(1997),81-89.

[3] Coker.D, An introduction to intuitionistic topological spaces, Busefal, 81, 51-56(2000).

[4] S.Indira, R.Rajarajeswari, A study of star intuitionistic sets,IJMSI, (2014),51-63.

[5] S.Sasikala, M.Navaneetha Krishnan,A study on intuitionistic semi opensets,IOAR-JM, (2016),79-84..

[6] Girija,S and GnanambalIllango., Some more results on intuitionistic semi open sets, Int.Journal of Engineering Research and Applications.,(2014),70-74.