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On partially ordered semi convex set under the transformation

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Abstract
The object of this work is to obtain a result on the transformation of Semi Convex Set of Semi Convex Set. In the present present paper, we have paid the total attention to introduce the notion of semi convex set by imposing a specific condition on the concept of convex set. Efforts have also been made to establish some of the results for semi convex set analogous to that of the results for convex set.

Keywords: Transformation, semi convex set

Introduction
The notion of convex set plays a vital and effective role in the study of Banach and Hilbert Spaces. A good number of results are obtained using the notion of convex set. An Account of all these can be found in Rudin [2] and Simmons [3] books.

Definition: For definitions of linear space, convex set, partially ordered wet we refer to Jha [1] and Rudin [2]. However, we give below some of the definition, to serve as ready reference using the notion of which we shall establish some of the result in next section.

Semi Convex Set: Let C be a non empty subset of a linear space E. for x, y Є C and $\alpha, \beta \geq 0$, C covered a semi convex set whenever $\alpha x + \beta y$ is in C for $\alpha + \beta \leq 1$. Clearly every semi convex set is a convex set. The converse may or may not be true in general.

Partially Ordered Semi Convex Set: Let E = {Ai}I be a family of semi convex sets. We now define a binary relation '≤' by setting

Then	(i)	$S_i \leq S_i$	$S_j \leq S_j$	for every i,j I
	(ii)	$S_i \leq S_j$	$S_j \leq S_i$	$S_i = S_j$
	(iii)	$S_i \leq S_j$	$S_j \leq S_k$	$S_i \leq S_k$

Then the inclusion relation '≤' is a partially ordered relation and hence the pair (E, ≤) is a partially ordered set.

Linear Ordered Sets: If every pair of elements of a partially ordered set (X, ≤) are comparable in the sense that for every a, b Є X either a ≤ b or b ≤ a holds, then (X, ≤) is called a totally ordered set or a linearly ordered set or a chain.

Lattice: A partially ordered set (L, ≤) id called a lattice if each pair set {a, b} of elements of L has least upper bound and a greatest lower bound in L.

Complete Lattice: A lattice (L, ≤) is said to be complete if every non – empty subset (finite or infinite) of L has least upper bound and a greatest lower bound in L.

Corollary: A partially ordered semi convex set E in necessarily a totally ordered semi convex set or a chain.

Observation: Let (E, ≤) is a partially ordered family of semi convex sets. Let Li and Sj be in E = {Ai}i, then Li ≤ Sj for i ≤ j.
Thus (E, ≤) is a totally ordered semi convex set.
Hence, the observation.

Theorem: Let (E, ≤) be partially ordered semi convex set, then it is
(i) Lattice (II) Compete Lattice

Proof: (I) Let Si and Sj be any two elements of E, then SiSj and SiSj are the least upper bounded and the greatest lower bounded of the pair set {Si, Sj}. Then, as Si and Sj are semi convex sets, so are Si ≤ Sj and Si ≤ Sj. Hence, Si ≤ Sj and Si ≤ Sj are in E. This proves that E is a Lattice.
(ii) Let L be a non empty subset of the Lattice E such that L = Aiα. Then, UAiα is the least upper bound of L and Aiα is the lowest greatest bound of L. Also, UAiα and Aiα are in E. Thus, E is also a complete lattice.

References

1. Jha KK. Lattice Theory, Navbharat Publishing House, Delhi-6, Patna-4.
2. Rudin W. Functional Analysis, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1974.
3. Simmons GF. Introduction to topology and Modern Analysis, McGraw Hill Book Company, Inc., New York, 1963.
4. Udin Walter R. Functional Analysis, Tata McGraw Hill (India).