Finally we mention that all rings considered are commutative with 1.

3. Contents . In Chapter 1, we prove that the answer to the above question is in the affirmative. And from this arises the concept of a Generalized Unique Factorization Domain (GUFD). We show that a GUFD is a generalized Krull domain (GKD) where a GKD is an integral domain satisfying $K_1, K_3$ of the definition of a Krull domain along with:

($K_2'$). for every minimal prime P, $R_P$ is a rank one valuation domain. We also show that an HCF-GKD is a GUFD.

In Chapter 2, we consider the properties of a non unit $x \neq 0$ satisfying

(R). for every pair of factors h,k of x ; $h|k$ or $k|h$.

Elements satisfying (R) are already known and are called <u>rigid</u> elements (cf [ 6 ] page 129). We restrict our study of rigid elements to those in HCF domains and show that if in an HCF domain R an element x is expressible as the product of a finite number of mutually co-prime non unit rigid elements i.e.

$$x = r_1 r_2 \ldots r_n \; ; \; r_i \text{ rigid and } (r_i, r_j) \neq 1 \text{ for } i \neq j$$

then this expression is unique up to associates of and up to a permutation of $r_i$. We shall call an HCF domain R a <u>Semirigid Domain</u> if each non zero non unit of R is expressible as a product of a finite number of mutually co-prime rigid non units. We also show that if R is a Semirigid Domain then there exists a family $F = \{ P_\alpha \} \alpha \in I$ of prime ideals of R such that

$S_1$. every non zero non unit of R is contained in only a finite number of elements of $F$ .

$S_2$. $P_\alpha \cap P_\beta$ ($\alpha \neq \beta$) does not contain a non zero prime ideal, $\alpha, \beta \in I$

$S_3$. $R_{P_\alpha}$ is a valuation domain for each $\alpha \in I$