

Let $G = (V, E)$ be a graph, and let $f : V \rightarrow \mathbb{N}$ be a mapping of its vertices. Show that G admits an orientation D with $d^+(v) \leq f(v)$ for all $v \in V$ if and only if $e(F) \leq \sum_{v \in X} f(v)$ for all induced subgraphs $F = G[X]$. (S.L. HAKIMI)