Graph Theory: Lecture No. 7

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A set $S \subseteq V(G)$ is a dominating set if every vertex not in S has a neighbour in S. The domination number $\gamma(G)$ is the minimum size of a dominating set in G.

If there are no isolated vertices in G, then $\gamma(G) \leq \beta(G)$.

Every n vertex graph with minimum degree k has a dominating set of cardinality at most $n\frac{1+\ln(k+1)}{k+1}$

A set of vertices in a graph is an independent dominating set if and only if it is a maximal independent set.

Every claw free graph has an independent dominating set of size $\gamma(G)$.

A path cover of a directed graph G is a set of disjoint paths in G which together contain all the vertices of G.

Every directed graph G has a path cover $\mathcal{P}$ and independent set $\{v_P : P \in \mathcal{P}\}$ of vertices such that $v_P \in P$ for every $P \in \mathcal{P}$.

In every finite partially ordered set $(P, \leq)$, the minimum number of chains with union P is equal to the maximum cardinality of an antichain in P.