

SOME VARIATIONS OF PERFECT GRAPHS

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Abstract

We consider $(\psi_k - \gamma_{k-1})$ -perfect graphs, i.e., graphs G for which $\psi_k(H) = \gamma_{k-1}(H)$ for any induced subgraph H of G , where ψ_k and γ_{k-1} are the k -path vertex cover number and the distance $(k-1)$ -domination number, respectively. We study $(\psi_k - \gamma_{k-1})$ -perfect paths, cycles and complete graphs for $k \geq 2$. Moreover, we provide a complete characterisation of $(\psi_2 - \gamma_1)$ -perfect graphs describing the set of its forbidden induced subgraphs and providing the explicit characterisation of the structure of graphs belonging to this family.

Keywords: k -path vertex cover, distance k -domination number, perfect graphs.

2010 Mathematics Subject Classification: 05C69.

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Received 3 March 2015
Revised 23 September 2015
Accepted 9 October 2015