

Bi-cycle Extendable Through a Given Set in Balanced Bipartite Graphs

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Abstract

Let $G = (X, Y, E)$ be a balanced bipartite graph of order $2n$. The *path cover number* $pc(H)$ of a graph H is the minimum number of vertex-disjoint paths that use up all the vertices of H . $S \subseteq V(G)$ is a balanced set of G if $|S \cap X| = |S \cap Y|$. In this paper, we will give some sufficient conditions for a balanced bipartite graph G satisfying that for every balanced set S , there is a bi-cycle of every length from $|S| + 2pc(\langle S \rangle)$ up to $2n$ through S .

Keywords: balanced bipartite graph; bi-cycle extendable; balanced set.