On the Radio Number for Corona of Paths and Cycles

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Radio k-coloring of graphs is one of the variations of Frequency Assignment Problem. For a simple connected graph G and a positive integer $k \leqslant diam(G)$, a radio k-coloring is an assignment f of positive integers (colors) to the vertices of G such that for every pair u and v of G, the difference between their colors is at least $1 + k - d(u, v)$. The maximum color assigned by f is called its span, denoted by $rc_k(f)$. The radio k-chromatic number $rc_k(G)$ is $\min\{rc_k(f)\colon f$ is a $radio$ $k-coloring$ of $G\}$. If d is the diameter of G, then a radio d-coloring is referred as a radio coloring and the radio d-chromatic number as the radio number, denoted by $rn(G)$, of G. The corona $G \circ H$ of two graphs G and H is the graph obtained by taking one copy of G and $|V(G)|$ copies of H, and joining each and every vertex of the ith copy of H with the ith vertex of G by an edge. In this paper, for path P_n and cycle C_m, $m \geq 5$, we determine $rn(P_n \circ C_m)$, n even, and give an upper bound for the same when n is odd.