1114-05-65 **M M Jaradat*** (`mmjst4@qu.edu.qa`), Department of Mathematics, P.O.Box 2713, Doha, Qatar.
On the basis number of the Wreath product of graphs and some related problem.

For a given graph G, the set $\mathcal{E}$ of all subsets of $E(G)$ forms an $|E(G)|$-dimensional vector space over Z_2 with vector addition $X \oplus Y = (X\backslash Y) \cup (Y\backslash X)$ and scalar multiplication $1.X = X$ and $0.X = \emptyset$ for all $X, Y \in \mathcal{E}$. The cycle space, $\mathcal{C}(G)$, of a graph G is the vector subspace of $(\mathcal{E}, \oplus, .)$ spanned by the cycles of G. Traditionally there have been two notions of minimalls among bases of $\mathcal{C}(G)$. The *basis number*, $b(G)$, of G is the least non-negative integer d such that each edge of G appears in at most d edges of the basis. Second, a basis $\mathcal{B}$ is called *a minimum cycle basis* if its total length is minimum among all bases of $\mathcal{C}(G)$.

The Wreath product $G\rho H$ has the vertex set is$V(G) \times V(H)$ and the edge set is $\{(u_1, v_1)(u_2, v_2)|u_1 = u_2$ and $v_1v_2 \in E(H)$, or $u_1u_2 \in E(G)$ and *there is* $\alpha \in Aut(H)$ *such that* $\alpha(v_1) = v_2\}$. In this work, we investigate the basis number for the wreath product of some graphs. Moreover, in a related problem, we construct a minimum cycle bases of the wreath product of the same. (Received August 06, 2015)