Quasi-permutation representation of finite groups

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Abstract: For a finite group G, we denote by $\mu(G)$, and $c(G)$, the minimal degree of faithful permutation representation of G, and the minimal degree of faithful representation of G by quasi-permutation matrices over the complex field $\mathbb{C}$, respectively. We study $\mu(G)$ and $c(G)$ for various classes of p-groups. For VZ p-groups and Camina p-groups, we prove that the minimal degrees heavily depend on the minimal degrees of the center. We obtain bounds of minimal degrees for various classes of non-abelian p-groups.