

SOME NEW RESULTS ON THE JOIN GRAPH  
OF GIVEN GROUPS

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**Abstract.** Recently, H. Ahmadi et al. defined the join graph associated to a finite group. They studied this graph not only on graph theoretic points, but also on group theoretic cases. They classified finite groups with planar complete join graph and with domination number 1. Moreover, some graph theoretical properties, such as its regularity, clique, chromatic number, bounds for its diameter and girth, was discussed in their research. In this paper, we approach to this graph in the other cases. For instance, the eccentric connectivity, total eccentricity, Wiener index, hyper Wiener index, first, second and third Zagreb index, domination and Hosoya polynomial are computed for the join graph of the class of the groups  $\mathbb{Z}_{p^2} \times \mathbb{Z}_p$  and  $\mathbb{Z}_{2^n} \times \mathbb{Z}_2$ , where  $p$  is a prime number and  $n$  is a positive integer.

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**Key words.** Join graph, topological index, polynomials associated to a graph.

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