

## CLIQUE GRAPH OF CYCLIC SUBGROUP GRAPH ON DIHEDRAL GROUP

**S. Ragha, R. Rajeswari and N. Meenakumari**

PG and Research Department of Mathematics,  
A. P. C. Mahalaxmi College for Women,  
Tuticorin - 628002, Tamil Nadu, INDIA

E-mail : raghasankar810@gmail.com, rajimuthuram@gmail.com,  
meenakumari.n123@gmail.com

(Received: May 18, 2022 Accepted: Jun. 20, 2022 Published: Aug. 30, 2022)

### Special Issue

### Proceedings of International Virtual Conference on “Mathematical Sciences and Applications, ICMSA - 2022”

**Abstract:** The prime motive of this paper is to examine an idea on clique graph of cyclic subgroup graph for dihedral group. In addition, we investigate some properties such as planarity, geodesic number and monophonic number for clique graph of cyclic subgroup graph on dihedral group.

**Keywords and Phrases:** Cyclic subgroup graph, Clique graph, Dihedral group.

**2020 Mathematics Subject Classification:** 05C25.

### 1. Introduction and Preliminaries

Algebraic graph theory is a branch of mathematics in which graphs are constructed from the algebraic structures such as groups, rings etc. The concept of Clique graphs were analysed at the minimum as early as 1968 by Hamelink & Ronald. C. After that, Roberts and Spencer have given the concept of A Characterization of Clique Graphs [2] in 1971. J. John Arul Singh and S. Devi have introduced the notion of Cyclic Subgroup graph for a finite group [3]. By constructing these graphs from groups whose vertices are the group elements to itself and constructing edges for assuming some properties of pair of elements. After the