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Notice for the PhD Viva Voce Examination

Ms Javeria Amreen (Registration Number: 1840087), PhD scholar at the School of Sciences, CHRIST (Deemed to be University), Bengaluru will defend her PhD thesis at the public viva-voce examination on Saturday, 10 December, 2022 at 10.00 am in the Syndicate Room (Room No. 802), Ground Floor, Auditorium Block, CHRIST (Deemed to be University), Bengaluru – 560029.

Title of the Thesis : **Study on Graphs Associated with Groups**

Discipline : **Mathematics**

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The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva.

Registrar

Place: Bengaluru
Date: 03 December 2022

ABSTRACT

In this dissertation, the notions of non-inverse graphs, order sum graphs and coset component graphs associated with groups are introduced.

These graphs are simple graphs whose vertices are the elements of the group and the adjacency between the vertices depends on certain properties of the group concerned. Vertices belonging to non-inverse graphs are adjacent if they are not inverses of each other in the group. The vertices in order sum graphs are adjacent if the sum of their orders is strictly greater than the order of the group. The vertices belonging to the coset component graphs are adjacent if their left cosets or right cosets of the subgroups of groups are equal.

These algebraic graphs are studied in detail in terms of their structural characteristics, parametric properties and spectral properties. Various characterisations of these graphs are obtained in the study concerned. These notions are further extended to the concept of signed graphs and domination. Properties of signed graphs such as balance, clusterability, consistency, sign-compatibility and so on are investigated for these algebraic signed graphs. The relations between various types of domination are obtained for non-inverse graphs, order sum graphs, complement and line graphs of order sum graphs.

Keywords: *Algebraic graphs, non-inverse graphs, order sum graphs, coset component graphs, non-inverse signed graphs, order sum signed graphs, coset component signed graphs*.