

## HAMMING DISTANCES AND GENERALIZED HAMMING GRAPH

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**Abstract:** In this paper we first highlight applications of Hamming distance in allied areas and further keeping applications of Hamming distance in mind we introduce the notion of Generalized Hamming graph which is generalization of the notion of Hamming graph in sense of Hamming distances. Besides this, we have studied the concept of labeling in the realm of embedding of arbitrary graph into generalized Hamming graph. Several new problems for further research are also indicated.

**Keywords and Phrases:** Graph labeling, Code, Hamming graph, Hamming distance, String.

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### 1. Introduction

Throughout the paper the considered graph are simple. We assume that the reader is familiar with basic notions of graph theory which can be found in any standard text books for notations no longer especially noted or described here we refer the reader to the textbook [6]. Similarly, we assume familiarity with the basic concepts of linear algebra but perhaps not as much as graph theory. This work is basically relay on the blending of both above mentioned area's.