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The Gracefulness of the Merging Graph N ** C_4

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Abstract: *There are many graceful graph from standers path, circuit, wheel etc .In this paper a new class of graceful graphs related to c_4 [circuits with 4 vertices] is obtained .*

Keyword: ** *- path limit, 'n' - copies of c_4*

I. Introduction:

Most graph labeling methods trace their origin to one introduced by Rosa [2] or one given Graham and Sloane [1]. Rosa defined a function f, a β-valuation of a graph with q edges if f is an injective map from the vertices of G to the set {0, 1, 2 ,…,q} such that when each edge xy is assigned the label $|f(x)-f(y)|$, the resulting edge labels are distinct. A. Solairaju and K. Chitra [3] first introduced the concept of edge-odd graceful labeling of graphs, and edge-odd graceful graphs. A. Solairaju and others [5,6,7,8,9] proved the results that(1) the Gracefulness of a spanning tree of the graph of Cartesian product of P_m and C_n,was obtained (2) the Gracefulness of a spanning tree of the graph of cartesian product of S_m and S_n, was obtained (3) edge-odd Gracefulness of a spanning tree of Cartesian product of P_2 and C_n was obtained (4) Even -edge Gracefulness of the Graphs was obtained (5) ladder P_2 x P_n is even-edge graceful, and (6) the even-edge gracefulness of P_n o nC_5 is obtained.(8) Gracefulness of Tp-tree with five levels obtained by java programming,(9) Gracefulness of $^nc_4$ Merging with paths,(10) A new class of gracefull trees and (11) Gracefull ness of $P_K \circ 2_{c_k}$, is obtained.

II. Section : Preliminaries

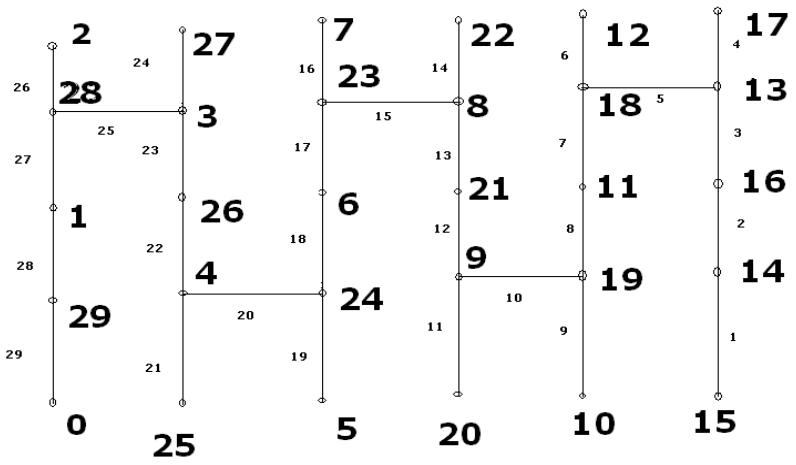
Definition 2.1:

Let G = (V,E) be a simple graph with p vertices and q edges. A map f :V(G) → {0,1,2,…,q} is called a graceful labeling if

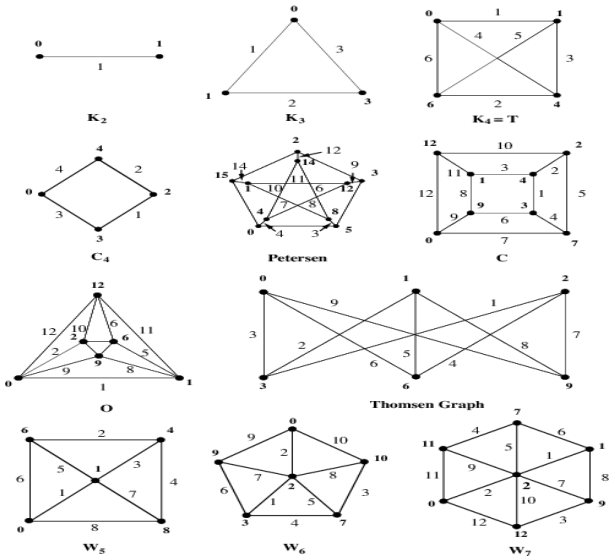
(i) f is one – to – one

(ii) The edges receive all the labels (numbers) from 1 to q where the label of an edge is the absolute value of the difference between the vertex labels at its ends. A graph having a graceful labeling is called a graceful graph.

Example 2.1: The graph 6 Δ P_5 is a graceful graph.



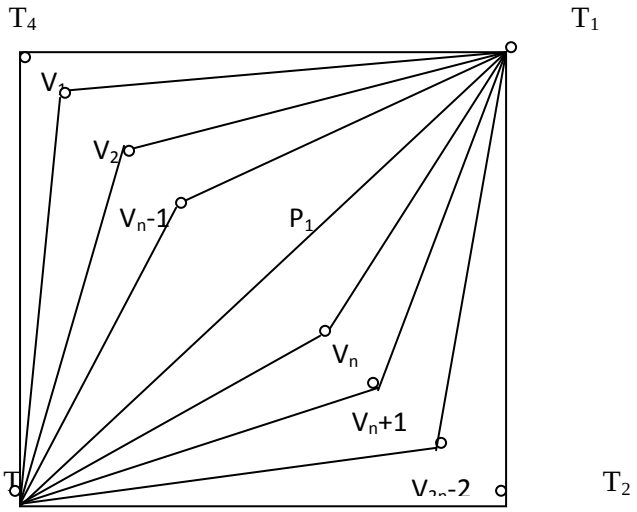
Example 2.2: The circuit C_4 is a graceful graph as follows:



SECTION – III: Theorem

The gracefulness of the merging graph n ⁎⁎ c_4 generalization:

Type equation here.



P_1 = Path of length 1,
N = Number of square.
C_4 = Cycle of 4 vertices
q = Number of edges
f (T_1) = 0,
f (T_2) = q,

f (T_3) = 1,

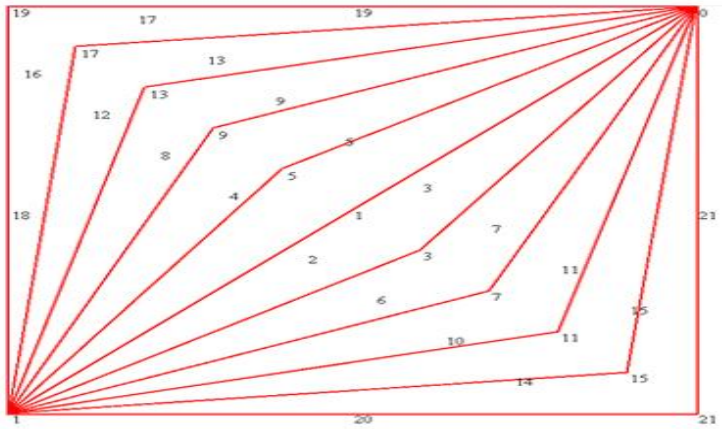
f (T_4) = q-2

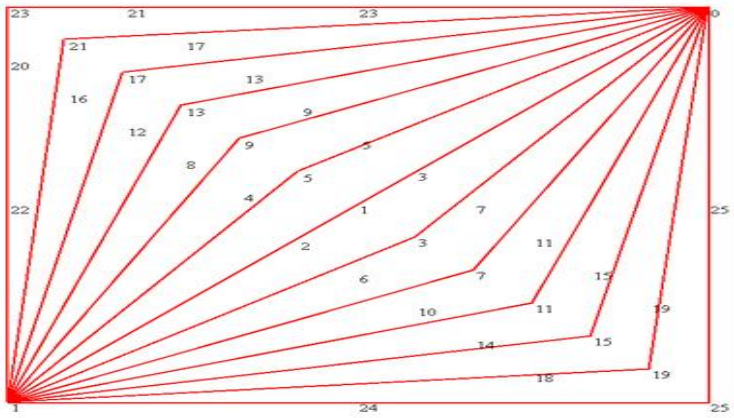
f (v_1) = q - 4

f (v_n) = 3.

$$f(v_i) = \begin{cases} f(vi-1)-4, & for \quad i = 2,3,\ldots\ldots(n-1), \\ f(vi-1)+4, & for \quad i = n+1, n+2, \ldots 2(n-1) \end{cases}$$

Example 3.1 : n is Even (n=6) :





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