SUBDIVIDED SHELL FLOWER GRAPHS: ρ - LABELING

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Abstract: A ρ -labeling (or ρ - valuation) of a graph is an injection from the vertices of the graph with 'q' edges to the set $\{0, 1, 2, 3, ..., (2q - 1), 2q\}$, where if the edge labels induced by the absolute value of the difference of the vertex labels are $a_1, a_2, a_3, ..., a_{q-1}, a_q$ then $a_i = i$ or $a_i = (2q + 1 - i)$. A shell graph, $C(n; n - 3)$, is defined as a cycle C_n with (n - 3) chords sharing a common endpoint called the apex. In other words, a shell graph is the join of complete graph K_1 and P_m, the path with m vertices. A subdivided shell graph is obtained from the shell graph $G = P_m \vee K_1$ by subdividing the edges in the path P_m of the shell graph. A subdivided shell flower graph is defined as a one vertex union of k copies of the subdivided shell graph and k copies of the complete graph K_2. In this paper, we prove that subdivided shell flower graphs admit ρ -labeling.

Keywords and Phrases: Shell graph, subdivided shell graph, subdivided shell flower graph, ρ - labeling.

2010 Mathematics Subject Classification: 05C78.

1. Introduction

A graph labeling is an assignment of non negative integers to the vertices and edges of the graph subject to certain conditions. In 1967, Rosa [7] introduced four types of labelings which includes ρ - labeling. A ρ - labeling of a graph is an injection from the vertices of the graph with q edges to the set $\{0, 1, 2, 3, ..., (2q-1), 2q\}$, where if the edge labels induced by the absolute value of the difference of the vertex labels are $a_1, a_2, a_3, ..., a_{q-1}, a_q$ then $a_i = i$ or $a_i = (2q + 1 - i)$.