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Review of the research papers related to Combinatorial Labeling of Graphs

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Review of a Research Paper entitled "Combinatorial Labelings of Graphs"

Concise Summary:

Authors: S. M. Hegde, S. Shetty

Published in: Applied Mathematics E - Notes, Vol.6 (2006), 251 - 258. ISSN : 1607 - 2510.

In this paper, the authors have introduced new labelings namely permutation and combination, which play an important role in combinatorial problems. According to the authors, as labelling of graphs is a strong communication between Number Theory and Structure of Graphs, they studied and introduced combinatorial labelings of graphs.

Evaluation of Paper:

I. Positive Sides:

- (1) The whole paper have been written in easy language, which helps reader and researchers to go for the further research in the relevant concept.
- (2) The authors were able to prove Tree to be a permutation graph up to 15 vertices.
- (3) They indicated that since the edge values in the permutation labelings are very large numbers and so investigation of proper constraints to control over edge values would be a scope of further study.
- (4) Necessary diagrams are drawn in sufficient adequate.

II. Negative Sides:

- (1) Neither sufficient number of results were proved for permutation labeling nor any general condition for a graph to be a permutation was investigated.
- (2) The discussion of sufficient condition for theorem no. 3 was not presented, only necessary part of this theorem is discussed and investigated.

III. Unclear Points:

No such unclear points are found in this paper.

Further Comments:

(1) The results investigated here lead the researchers to find several new graphs and families of graphs.

Review of a Research Paper entitled " On Combination Graphs''

Concise Summary:

Authors: M. A. Seoud and M. N. Al-Harere. Published in: International Mathematical Forum

In this paper, the authors have derived and investigated some new families of combination graphs

Evaluation of Paper:

I. Positive Sides:

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- (1) The language which has been used to explain the proof is quite comfortable for readers.
- (2) Authors have proved two important theorems for a graph not to be a combination graph.
- (3) Authors have also added several new families of combination graphs, which helps the researchers to invent new results related to combination graphs.

II. Negative Sides:

In introduction part of this paper, authors have used the reference of Hegde and Shetty(indicated in my review paper no. 1) initially, in which the authors have introduced the combinatorial labeling by taking the vertex labeling function bijective, whereas in this paper authors have considered the vertex labeling function injective.

III. Unclear Points:

The injectivity for each edge labeling were not shown or proved separately in the proof of theorem. Furthermore whether to take the vertex labeling function injective or bijective should be precise.

Further Comments:

(1) The authors in this paper should take the vertex labeling function to be bijective which was originally defined previously by Hegde and Shetty.

Review of a Research Paper entitled "Some Non-Combination Graphs"

Concise Summary:

Authors: M. A. Seoud, M. N. Al-Harere

Published in: Applied Mathematical Sciences, Vol. 6, 2012, no. 131, 6515 - 6520

In this paper, the authors have given some generalized results about some non- combination graphs.

Evaluation of Paper:

(I) **Positive Sides:** .

- (1) The authors have observed and proved that if any graph with n vertices has more than one vertex of degree n 1, then the graph is non combination.
- (2) The authors have proved that composition of several graphs are non combination.
- (3) The authors have also proved that splitting graph of K_n is non combination for n > 2.

(II) Negative Sides:

- (1) In theorem 1.8, the authors have only investigated upto Kn e and Kn 3e, they could extend their results upto Kn ne, for n is odd.
- (2) Theorem 1.6 was written in complex language and tough to understand.

(III) Unclear Points:

The authors have not given a regular proof of theorem 1.2, in which they mentioned $G_1 + G_2$ is non combination graphs.

Further Comments:

- (1) The authors should have put or discussed application part.
- (2) Further scope of study from this paper should have been discussed.