

ON SUPER (a, d) - H -ANTIMAGIC TOTAL COVERING OF STAR RELATED GRAPHS

KM. KATHIRESAN

*Centre for Research and Post Graduate Studies in Mathematics
Ayya Nadar Janaki Ammal College (Autonomous)
Sivakasi-626 124, Tamil Nadu, INDIA*

e-mail: kathir2esan@yahoo.com

AND

S. DAVID LAURENCE¹

*Department of Mathematics
Rajapalayam Rajus' College
Rajapalayam-626 117, Tamil Nadu, INDIA*

e-mail: danipravin@yahoo.co.in

Abstract

Let $G = (V(G), E(G))$ be a simple graph and H be a subgraph of G . G admits an H -covering, if every edge in $E(G)$ belongs to at least one subgraph of G that is isomorphic to H . An (a, d) - H -antimagic total labeling of G is a bijection $\lambda : V(G) \cup E(G) \rightarrow \{1, 2, 3, \dots, |V(G)| + |E(G)|\}$ such that for all subgraphs H' isomorphic to H , the H' weights

$$wt(H') = \sum_{v \in V(H')} \lambda(v) + \sum_{e \in E(H')} \lambda(e)$$

constitute an arithmetic progression $a, a + d, a + 2d, \dots, a + (n - 1)d$ where a and d are positive integers and n is the number of subgraphs of G isomorphic to H . Additionally, the labeling λ is called a super (a, d) - H -antimagic total labeling if $\lambda(V(G)) = \{1, 2, 3, \dots, |V(G)|\}$.

In this paper we study super (a, d) - H -antimagic total labelings of star related graphs $G_u[S_n]$ and caterpillars.

Keywords: super (a, d) - H -antimagic total labeling, star.

2010 Mathematics Subject Classification: 05C78.

¹This research was supported by Universty Grants Commission (UGC) with an aid to Minor Research Project (MRP-5271/14) (SERO/UGC).

REFERENCES

- [1] A. Gutierrez and A. Lladó, *Magic coverings*, J. Combin. Math. Combin. Comput. **55** (2005) 43–56.
- [2] N. Inayah, A.N.M. Solmankl and R. Simanjuntak, *On (a, d) - H -antimagic coverings of graphs*, J. Combin. Math. Combin. Comput. **71** (2009) 273–281.
- [3] N. Inayah, A. Llado and J. Moragas, *Magic and antimagic H -decompositions*, Discrete Math. **312** (2012) 1367–1371.
doi:10.1016/j.disc.2011.11.041
- [4] N. Inayah, R. Simanjuntak and A.N.M. Salman, *Super (a, d) - H -antimagic total labelings for shackles of a connected graph H* , Australas. J. Combin. **57** (2013) 127–138.
- [5] A. Kotzig and A. Rosa, *Magic valuations of finite graph*, Canad. Math. Bull. **13** (1970) 451–461.
doi:10.4153/CMB-1970-084-1
- [6] A. Llado and J. Moragas, *Cycle-magic graphs*, Discrete Math. **307** (2007) 2925–2933.
doi:10.1016/j.disc.2007.03.007
- [7] T.K. Maryati, E.T. Baskoro and A.N.M. Salman, *P_h -supermagic labelings some trees*, J. Combin. Math. Combin. Comput. **65** (2008) 197–204.
- [8] M. Roswitha and E.T. Baskoro, *H -magic covering on some classes of graphs*, AIP Conf. Proc. **1450** (2012) 135–138.
doi:10.1063/1.4724129

Received 10 March 2014
Revised 27 February 2015
Accepted 27 February 2015