3.3.1-48

Available online at http://scik.org

J. Math. Comput. Sci. 10 (2020), No. 5, 1360-1374

https://doi.org/10.28919/jmcs/4622

ISSN: 1927-5307

$L(1,1,1)$-LABELING OF PATH, BOUQUET OF CYCLES AND SUN GRAPH

NASREEN KHAN*

Department of Mathematics, Santal Bidroha Sardha Satabarshiki Mahavidyalaya, Goaltore, Paschim Medinipur-721128, West Bengal, India

Abstract: For a given graph $G(V,E)$, L(1,1,1)-labeling problem is an assignment from vertex set V to the set of non negative integers. If Z^+ be the non negative integers then L(1,1,1)-labeling is a function $f: V \to Z^+$ such that for any two vertices x and y, $|f(x) - f(y)| \geq 1$, when $d(x,y) = 1$; $|f(x) - f(y)| \geq 1$, when $d(x,y) = 2$; and $|f(x)f(y)| \geq 1$, when $d(x,y) = 3$. The L(1,1,1)-chromatic number $\lambda_{1,1,1}$ is the smallest positive integer such that G has an L(1,1,1)-labeling with $\lambda_{1,1,1}$ as the maximum label. In this paper we determine the L(1,1,1)-chromatic number for a path, a cycle, bouquet of cycles joining at a vertex (all are of finite lengths) and sun graph. We also present a lower and upper bounds for $\lambda_{1,1,1}$ in terms of the maximum degree of G.

Keywords: distance labeling; radio labeling; graph colouring; λ-labeling; L(h, k)-labeling; L(d, 1,1)-labeling; L(d, 2,1)-labeling.

2010 AMS Subject Classification: 05C12.

1. INTRODUCTION

In 1980 Hale introduced channel assignment problem, which is nothing but an assignment to

*Corresponding author

E-mail address: nasreen.khan10@gmail.com

Received April 14, 2020