General vertex-distinguishing total colorings of complete bipartite graphs

Xiang'en Chen

College of Mathematics and Information Science, Northwest Normal University

Abstract

Let G be a simple graph. A general total coloring f of G refers to a coloring of the vertices and edges of G. Let $C(x)$ be the set of colors of vertex x and edges incident with x under f. For a general total coloring f of G using k colors, if $C(u) \neq C(v)$ for any two different vertices u and v in $V(G)$, then f is called a k-general vertex-distinguishing total-coloring of G, or a k-GVDTC of G for short. The minimum number of colors required for a GVDTC of G is denoted by $\chi_{gvt}(G)$, and is called general vertex-distinguishing total chromatic number or the GVDT chromatic number of G for short. GVDTC's of complete bipartite graphs are studied in this paper.

Keywords: general total coloring; color-set; general vertex-distinguishing total coloring; general vertex-distinguishing total chromatic number; complete bipartite graph

E-mail address: chenxe@nwnu.edu.cn