International Journal of Applied Mathematics
Volume 32 No. 1 2019, 51-58
ISSN: 1311-1728 (printed version); ISSN: 1314-8060 (on-line version)
doi: http://dx.doi.org/10.12732/ijam.v32i1.5

CHARACTERIZATION OF SPAN OF BASE $\mathcal{B}$-INDUCED 1-UNIFORM DCSL GRAPHS

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Abstract: A distance compatible set labeling (dcsl) of a connected graph G is an injective set assignment $f : V(G) \to 2^X$, X being a non empty ground set, such that the corresponding induced function $f^{\oplus} : E(G) \to 2^X \setminus \{\phi\}$ given by $f^{\oplus}(uv) = f(u) \oplus f(v)$ satisfies $|f^{\oplus}(uv)| = k^f_{(u,v)} d_G(u,v)$ for every pair of distinct vertices $u, v \in V(G)$, where $d_G(u,v)$ denotes the path distance between u and v and $k^f_{(u,v)}$ is a constant, not necessarily an integer, depending on the pair of vertices u, v chosen. A dcsl f of G is k-uniform if all the constants of proportionality with respect to f are equal to k, and if G admits such a dcsl then G is called a k-uniform dcsl graph. Let $\mathcal{F}$ be a family of subsets of a set X. A tight path between two distinct sets P and Q in $\mathcal{F}$ is a sequence $P_0 = P, P_1, P_2 \ldots P_n = Q$ in $\mathcal{F}$ such that $d(P,Q) =\mid P \triangle Q \mid= n$ and $d(P_i, P_{i+1}) = 1$ for $0 \leq i \leq n-1$. The family $\mathcal{F}$ is well-graded family, if there is a tight path between any two of its distinct sets. In this paper we characterize problem of determining those $\mathcal{F}$-induced graph $G_{\mathcal{F}}$ in which the base $\mathcal{B}$-induced graph is 1-uniform dcsl.

AMS Subject Classification: 05C07, 05C38, 05C75, 05C85
Key Words: dcsl graphs, 1-uniform dcsl graphs, wg-family of sets

Received: August 15, 2018
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