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## On characterizations of graphs having large geodetic numbers\*

C. Lumduanhom and V. Khemmani<sup>†</sup>

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**Abstract.** Let  $G$  be a nontrivial connected graph. For two vertices  $u$  and  $v$  of a graph  $G$ , the interval of  $u$  and  $v$  denoted by  $I(u, v)$  is the set containing all vertices lying on some  $u - v$  geodesic in  $G$ . Here a  $u - v$  geodesic is a path of length  $d(u, v)$ . If  $S$  is a set of vertices of  $G$ , then  $I(S)$  is the union of all sets  $I(u, v)$  for vertices  $u$  and  $v$  in  $S$ .

Now, if  $I(S) = V(G)$  then  $S$  is called a geodetic set of  $G$  and the geodetic number  $g(G)$  is the minimum cardinality among the geodetic sets of a graph  $G$ .

In this research, we determine the geodetic number of complete multipartite graphs, wheels and cycles with one chord. Moreover, we characterize all connected graphs of order  $n$  having geodetic number  $n - 1$ .

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**Keywords:** Geodesic, geodetic set, geodetic number

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<sup>†</sup>Corresponding author