

## HAMILTONIAN AND PANCYCLIC GRAPHS IN THE CLASS OF SELF-CENTERED GRAPHS WITH RADIUS TWO

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### Abstract

The paper deals with Hamiltonian and pancyclic graphs in the class of all self-centered graphs of radius 2. For both of the two considered classes of graphs we have done the following. For a given number  $n$  of vertices, we have found an upper bound of the minimum size of such graphs. For  $n \leq 12$  we have found the exact values of the minimum size. On the other hand, the exact value of the maximum size has been found for every  $n$ . Moreover, we have shown that such a graph (of order  $n$  and) of size  $m$  exists for every  $m$  between the minimum and the maximum size. For  $n \leq 10$  we have found all nonisomorphic graphs of the minimum size, and for  $n = 11$  only for Hamiltonian graphs.

**Keywords:** self-centered graph with radius 2, Hamiltonian graph, pancyclic graph, size of graph.

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