

Maximizing general first Zagreb and sum-connectivity indices for unicyclic graphs with given independence number

Ioan Tomescu

*Faculty of Mathematics and Computer Science, University of Bucharest,
Str. Academiei, 14, 010014 Bucharest, Romania*

Received 27 November 2017, accepted 15 May 2018, published online 8 August 2018

Abstract

In this paper it is shown that in the class of unicyclic graphs of order n and independence number s , the spider graph $S_{\Delta}(n, s)$ is the unique graph maximizing general first Zagreb index ${}^0R_{\alpha}(G)$ for $\alpha > 1$ and general sum-connectivity index $\chi_{\alpha}(G)$ for $\alpha \geq 1$.

Keywords: Unicyclic graph, independence number, general first Zagreb index, general sum-connectivity number, spider graph, Jensen inequality.

Math. Subj. Class.: 05C35, 05C69



Maksimiziranje splošnega prvega zagrebškega indeksa in indeksa vsote povezanosti za enociklične grafe z danim neodvisnostnim številom

Ioan Tomescu

*Faculty of Mathematics and Computer Science, University of Bucharest,
Str. Academiei, 14, 010014 Bucharest, Romania*

Prejeto 27. novembra 2017, sprejeto 15. maja 2018, objavljeno na spletu 8. avgusta 2018

Povzetek

V tem članku pokažemo, da je pajkov graf $S_{\Delta}(n, s)$ edini graf v razredu enocikličnih grafov reda n z neodvisnostnim številom s , ki maksimizira splošni prvi zagrebški indeks ${}^0R_{\alpha}(G)$ za $\alpha > 1$ in splošni indeks vsote povezanosti $\chi_{\alpha}(G)$ za $\alpha \geq 1$.

Ključne besede: Enociklični graf, neodvisnostno število, splošni prvi zagrebški indeks, splošni indeks vsote povezanosti, pajkov graf, Jensenova neenakost.

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