ENERGI GRAF KINCIR *Wd*(3,*m*)

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Abstract

The characteristic polynomial of a graph G with n vertices is defined as $\phi(G : \lambda) = det(\lambda I - A(G))$, where $A(G)$ is the adjacency matrix of G and I is the unit matrix. The roots of the characteristic equation $\phi(G : \lambda) = 0$, denoted by $\lambda_1, \lambda_2, \ldots, \lambda_n$ are the eigenvalues of G. The energy $E = E(G)$ of a graph G is defined as.

$$E(G) = \sum_{i=1}^{n} |\lambda_i| .$$

If $E(G) \le 2(n-1)$ then G is called a nonhyperenergetic graph. In this article, we show that the windmill graph $Wd(3,m)$ is the nonhyperenergetic graph, where the windmill graph $Wd(k,m)$ is a graph constructed for $k \ge 2$ and $n \ge 2$ by joining m copies of the complete graph K_k at a shared vertex.

Keywords: adjacency matrix, characteristic polynomial, eigenvalues, energy of graph, windmill graph.