CONSTRUCTION OF COSPECTRAL INTEGRAL
REGULAR GRAPHS

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Abstract

Graphs $G$ and $H$ are called cospectral if they have the same characteristic polynomial. If eigenvalues are integral, then corresponding graphs are called integral graph. In this article we introduce a construction to produce pairs of cospectral integral regular graphs. Generalizing the construction of $G_4(a, b)$ and $G_5(a, b)$ due to Wang and Sun, we define graphs $G_4(G, H)$ and $G_5(G, H)$ and show that they are cospectral integral regular when $G$ is an integral $q$-regular graph of order $m$ and $H$ is an integral $q$-regular graph of order $(b - 2)m$ for some integer $b \geq 3$.

Keywords: eigenvalue, cospectral graphs, adjacency matrix, integral graphs.

2010 Mathematics Subject Classification: 05C50.

References

1This author acknowledges support from JC Bose Fellowship awarded by the Department of Science and Technology, Government of India.

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Received 28 December 2015
Revised 27 May 2016
Accepted 27 May 2016