# Size multipartite Ramsey numbers for stripes versus small cycles 

Chula Jayawardene ${ }^{\text {a }}$, Edy Tri Baskoro ${ }^{\text {b }}$, Lilanthi Samarasekara ${ }^{\text {c }}$, Syafrizal Sy ${ }^{\text {d }}$<br>${ }^{a}$ Department of Mathematics, University of Colombo, Colombo, Sri Lanka<br>${ }^{b}$ Combinatorial Mathematics Research Group, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Indonesia<br>${ }^{c}$ Department of Mathematics, University of Colombo, Colombo, Sri Lanka<br>${ }^{d}$ Universitas Andalas, Padang, Indonesia<br>c_jayawardene@yahoo.com, ebaskoro@math.itb.ac.id, lilanthi@maths.cmb.ac.lk,syafrizalsy@gmail.com


#### Abstract

For simple graphs $G_{1}$ and $G_{2}$, the size Ramsey multipartite number $m_{j}\left(G_{1}, G_{2}\right)$ is defined as the smallest natural number $s$ such that any arbitrary two coloring of the graph $K_{j \times s}$ using the colors red and blue, contains a red $G_{1}$ or a blue $G_{2}$ as subgraphs. In this paper, we obtain the exact values of the size Ramsey numbers $m_{j}\left(n K_{2}, C_{m}\right)$ for $j \geq 2$ and $m \in\{3,4,5,6\}$.


Keywords: Graph theory, Ramsey Theory
Mathematics Subject Classification : 05C55, 05D10
DOI:10.5614/ejgta.2016.4.2.4

Received: 30 July 2015, Revised: 26 August 2016, Accepted: 4 September 2016.

