

The Binding Number of Two Product Graphs*

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Let G be a graph, $F = \{X \mid \emptyset \neq X \subseteq V(G) \text{ and } \Gamma(X) \neq V(G)\}$.The binding number of G , $\text{bind}(G)$, is defined to be $\text{bind}(G) = \min \left\{ \frac{|\Gamma(X)|}{|X|} \mid X \in F \right\}$

(See[2]). In [1] some binding numbers of product graphs were obtained. We give two others here:

$$\text{bind}(K_{a,b} \times L_n) = \begin{cases} 1 & \text{if } a=b \text{ or } n=2m \\ \frac{m(a+b)+a}{m(a+b)+b} & \text{if } a < b \text{ and } n=2m+1. \end{cases}$$

$$\text{bind}(K_{a,b} \times C_n) = \begin{cases} 1 & \text{if } n \text{ is even} \\ \frac{n(a+b)-1}{n(a+b)-(b+2)} & \text{if } n \text{ is odd, } a \geq b. \end{cases}$$

Reference

- [1] Kane, V. G., Mohanty S. P., and Hale, R. S., Product graphs and binding number, ARS Combinatoria Vol 11 (1981), 201—224.
- [2] Woodall, D. R., The binding number of a graph and its Anderson number, J. Combinatorial Theory Ser B 15 (1973), 225—255.

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