

## DESIGNS ASSOCIATED WITH MINIMUM TOTAL DOMINATING SETS IN A GRAPH

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### Abstract

In this paper we establish that every minimum total dominating set of a Petersen graph induces  $K_{1,3}$  and every minimum total dominating set of Clebsch graph induces  $C_4$ . Further we determine that these classes of minimum total dominating sets forms a partially balanced incomplete block designs ( $PBIBD$ ) with parameters  $(10, 10, 4, 4, 1, 2)$  and  $(16, 40, 10, 4, 1, 4)$  respectively.

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Key Words :  $PBIBD$ , *Minimum Total Dominating Set*, *Total Domination Number*.

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