SMARANDACHE IDEMPOTENTS
IN FINITE RING \( \mathbb{Z}_n \)
AND IN THE GROUP RING \( \mathbb{Z}_nG \)

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In this paper we analyse and study the Smarandache idempotents (S-idempotents) in the ring \( \mathbb{Z}_n \) and in the group ring \( \mathbb{Z}_nG \) of a finite group \( G \) over a finite ring \( \mathbb{Z}_n \). We have shown the existence of Smarandache idempotents in the ring \( \mathbb{Z}_n \) when \( n = 2mp \) or \( 3p \), where \( p \) is an odd prime greater than three. Also we have shown the existence of Smarandache idempotents in the group rings \( \mathbb{Z}_2G \) and \( \mathbb{Z}_2Sn \) where \( n = 2mp \) where \( p \) is a prime of the form \( 2m+1 \). We have proved over ten theorems in this paper. Further we propose some number theoretic problems.