Mathematica Pannonica
17/1 (2006), 131–138

ON NEARRINGS WITH DERIVATION

M. A. **Khan**

Department of Mathematics, Eritrea-Institute of Technology, Mainefhi, P.O. Box 10373, Asmara, Eritrea

M. S. **Khan**

Department of Mathematics and Statistics, Sultan Qaboos University, P.O. Box 36, P C 123, Al-Khodh, Muscat, Sultanate of Oman

Received: June 2005

MSC 2000: 16 W 20, 16 N 60, 16 Y 30

Keywords: Nearring, near-field, prime nearring, derivation, commutativity.

Abstract: In the present paper, it is shown that the multiplicative or additive commutativity of nearring N if N admits a non-zero derivation F or G such that $[F(x), G(x)] = [x, y]$ for all $x, y \in B$, where N is a nearring and $B \subseteq N$. Further, we investigate under appropriate non-zero ideals of a nearring must be a commutative ring. Finally, we provide a counterexample in connection with the extension of semiprime nearring.

1. Introduction

Throughout the paper, N will denote a zero-symmetric left nearring with multiplicative center Z. For any $x, y \in N$, the symbol $[x, y]$ will denote the commutator $xy - yx$, while the symbol (x, y) will denote the additive-group commutator $x + y - x - y$. A nearring N is distributively generated $(d - g)$ if it contains a multiplicative subsemigroup of distributive elements which generates the additive group $(N, +)$ (for references see [8]).

E-mail addresses: moharram_a@yahoo.com, mohammad@squ.edu.om