International J. of Math. Sci. & Engg. Appls. (IJMSEA)
ISSN 0973-9424, Vol. 4 No. III (August, 2010), pp. 277-283

ON GENERALIZED ϕ-DERIVATIONS OF PRIME RINGS

DEEPAK KUMAR, PADMESH TRIPATHI AND ANIL KUMAR SINGH

Abstract

Let R be an associative ring and φ be an endomorphism of R. An additive map $F : R \to R$ is called a generalized (I, φ) - derivation or simply generalized φ - derivation if there exists a derivation $d : R \to R$ such that $F(xy) = F(x)y + \varphi(x)d(y)$ for all x, y belonging to R. In this paper, we explore the commutativity of the ring R satisfying any one of the following conditions:

(i) $F(xy) \pm xy \in Z(R)$

(ii) $F(xy) \pm yx \in Z(R)$

(iii) $F(x)F(y) \pm xy \in Z(R)$

for all x, y in some appropriate subset of the ring R.

Key Words : *Prime rings, Derivation, Generalized - φ- derivation, Ideal, Centre and Commutativity.*

2000 Mathematics Subject Classification : 16 W25, 16 N60, 16 U80.