SOME IDENTITIES ON PRIME NEAR RINGS WITH GENERALIZED DERIVATION

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As a generalization of derivation the notion of generalized derivation in near ring $N$ was introduced by Özbur Gölbaşı [2]. An additive mapping $F: N \rightarrow N$ is said to be a right generalized (resp., left generalized) derivation with associated derivation $d$ on $N$ if $F(xy) = F(x)y + xd(y)$ (resp., $F(xy) = d(x)y + xF(y)$) for all $x, y \in N$. A mapping $F: N \rightarrow N$ is said to be a generalized derivation with associated derivation $d$ on $N$. The purpose of the present paper is to obtain the commutativity of a prime near ring $N$ with a generalized derivation $F$ associated with a nonzero derivation $d$ satisfying one of the conditions:

1. $[F(x), y] = \pm y^p(x \circ y)y^q$,
2. $[x, F(y)] = \pm x^p(x \circ y)x^q$,
3. $F(x) \circ y = \pm y^p[x, y]y^q$,
4. $x \circ F(y) = \pm x^p[x, y]x^q$,
5. $F(x) \circ y = \pm y^p(x \circ y)y^q$,
6. $[x, F(y)] = \pm x^p[x, y]x^q$,
7. $[F(x), y] = \pm y^p[x, y]y^q$ and
8. $x \circ F(y) = \pm x^p(x \circ y)x^q$ for all $x, y \in N$

and $p \geq 0$, $q \geq 0$ are non-negative integers.