Bull. Cal. Math. Soc., **111,** (3) 283–308 (2019)

$f\breve{g}p$-CLOSED SET AND $f\breve{g}p$-CONTINUOUS FUNCTION

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(*Received 24 May 2018*)

Abstract. This paper deals with different types of closed sets and their interrelation between them. Afterwards, we introduce and study $f\breve{g}p$-continuous function and $f\breve{g}p$-open function. Some applications of these functions are shown in Section 6 and have found the mutual relation of these functions with fg-continuous function (Bhattacharyya, 2013)

1. Introduction and Preliminaries. In (Balasubramanian and Sundaram, 1997 and Bhattacharyya, 2013), fuzzy generalized closed set is introduced and studied. Afterwards, many mathematicians have engaged themselves to introduce different types of generalized version of fuzzy closed sets. In this context we have to mention (Bhattacharyya, 2016, 2017).

Throughout this paper (X, τ) or simply by X we shall mean a fuzzy topological space (fts, for short) in the sense of Chang (Chang, 1968). A fuzzy set (Zadeh, 1965) A in an fts X, denoted by $A \in I^X$, is defined to be a mapping from a non-empty set X into the closed interval $I = [0, 1]$. The support (Zadeh, 1965) of a fuzzy set A, denoted by $suppA$ and is defined by $suppA = \{x \in X : A(x) \neq 0\}$. The fuzzy set with the singleton support $\{x\} \subseteq X$ and the value t $(0 < t \leq 1)$ will be denoted by x_t. 0_X and 1_X are the constant fuzzy sets taking values 0 and 1 respectively in X. The complement (Zadeh, 1965) of a fuzzy set A in X is denoted by $1_X \setminus A$ and is defined by $(1_X \setminus A)(x) = 1 - A(x)$, for each $x \in X$. For any two fuzzy sets A, B in X, $A \leq B$ means $A(x) \leq B(x)$, for all $x \in X$ (Zadeh, 1965) while AqB means A is quasi-coincident (q-coincident, for short) (Pu and Liu, 1980) with B, i.e., there exists $x \in X$ such that $A(x) + B(x) > 1$. The negation of these two statements will be denoted by $A \not\leq B$ and $A \not{q} B$ respectively. For a fuzzy point x_t and a fuzzy set A, $x_t \in A$ means $A(x) \geq t$, i.e., $x_t \leq A$. For a fuzzy set A, clA and $intA$ will stand for fuzzy closure (Chang, 1968) and fuzzy interior (Chang, 1968) respectively. A fuzzy set A in X is called fuzzy regular open (Azad, 1981) (resp., fuzzy semiopen (Azad, 1981), fuzzy preopen (Nanda, 1991), fuzzy β-open (Fath Alla, 1984)) if $A = int(clA)$ (resp., $A \leq cl(intA)$, $A \leq int(clA)$, $A \leq cl(int(clA))$). The complement of a fuzzy regular open (resp., fuzzy semiopen, fuzzy preopen, fuzzy β-open) set is called fuzzy fuzzy regular closed (Azad, 1981)

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