Chapter 6

Conclusion and future scope

In our thesis work, we mainly introduced a control function 2.2. Recently, Fang [39] introduced a new class of φ-contraction which generalizes several other existing results in literature [26, 53]. We have given an example 2.1 to demonstrate that it is actually independent of the function given by Fang[39] and hence independent of other control function introduced by several authors in literature (see, [26, 39, 53, 111]). We established a fixed point theorem in G-complete Menger space which is weaker version of complete Menger space with arbitrary continuous triangular norm and another result is established in complete metric spaces with minimum t-norm. The proof of the Theorem 2.6 and 2.8 is accomplished by applications of four lemmas given in Chapter 2. Extension of results of 2 is given in Chapter 3. Another result 3.10 is also proved in Chapter 3. To illustrate the obtained results, examples are also given in both the Chapters 2 and 3. The same methodology may be applied to some other problems of fuzzy and probabilistic fixed point theorems and problems related to it. By using another type of control functions defined in [92], we prove fixed point results in Menger and fuzzy metric space for weak contraction.

Incidentally, we may also mention that there is no unique way of defining probabilistic metric or fuzzy metric. This flexibility makes it possible to suitably orient the definition to fulfill specific purposes as, for instance, in [109], the definition of probabilistic metric has been tailored to describe a nuclear fusion related problem. In particular, fixed point related studies have required considerations of t-norm, the different choices of which radically alter the characteristics of the space. It may be seen in future work how our result presented in Chapter 5 is varied with different choices of t-norms.

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