Summary and Conclusion

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The theory of fuzzy numbers and fuzzy number matrices has become an important area of research in different disciplines such as Engineering, Medical Science, Social Science, Physics, Statistics, Graph Theory, Artificial Intelligence, Signal Processing, Multiagent Systems, Pattern Recognition, Computer Networks, Expert Systems, Decision Making, Automata Theory and so on.

There have been numerous investigations into the theory of fuzzy numbers and fuzzy number matrices.

In this thesis, Triangular Fuzzy Numbers, Trapezoidal Fuzzy Numbers Matrices, Interval Fuzzy Numbers, Triangular Fuzzy Number Matrices, Trapezoidal Fuzzy Number Matrices, Interval Fuzzy Number Matrices, Circulant Triangular Fuzzy Number Matrices and Circulant Trapezoidal Fuzzy Number Matrices are studied in detail. Some new operators on triangular fuzzy numbers, triangular fuzzy number matrices, interval fuzzy number and interval fuzzy number matrices are introduced and studied. α-cuts of Triangular Fuzzy Numbers and Triangular Fuzzy Number Matrices are also introduced and analysed.

Basic Definitions and properties with interesting examples regarding Triangular Fuzzy Numbers and Triangular Fuzzy Number Matrices, Trapezoidal Fuzzy Numbers and Trapezoidal Fuzzy Number Matrices, Interval Fuzzy Numbers and Interval Fuzzy Number Matrices are studied respectively in chapters I, II and III.

Circulant triangular fuzzy number matrices (Circulant TFNMs) and circulant trapezoidal fuzzy number matrices (Circulant TRFNMs) are studied respectively in chapters IV and V.

In chapter VI, some new elementary operators on Triangular Fuzzy Numbers and Triangular Fuzzy Number Matrices are introduced with interesting examples.

In chapter VII, some new elementary operators on Interval Fuzzy Numbers and Interval Fuzzy Number Matrices are introduced and studied.

Chapter VIII deals with α-cuts of Triangular Fuzzy Numbers and α-cuts of Triangular Fuzzy Number Matrices.

Applications of Triangular Fuzzy Numbers in solving Fuzzy Linear programming problem is illustrated in chapter IX.

As an application of interval fuzzy number matrices an attempt has been made to analyse the factors contributing high score in the higher secondary examination and also to identify the prime factor by collecting the data from students, academicians and parents. The details are given in the tenth chapter.

For further research one can study various real life problems by applying different forms of fuzzy numbers and fuzzy number matrices.