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ON NEUTROSOPHIC ϒ- OPEN SETS IN NEUTROSOPHIC TOPOLOGICAL SPACES

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Abstract: We present a novel concept of neutrosophic sets namely neutrosophic ϒ-open and neutrosophic ϒ-closed sets in neutrosophic topological spaces. We also study in detail the properties of neutrosophic ϒ-open sets and its relation with other neutrosophic sets. In addition, we define and examine the attributes of neutrosophic ϒ-interior and neutrosophic ϒ-closure operators.

Keywords and Phrases: Neutrosophic ϒ-open, neutrosophic ϒ-closed, neutrosophic ϒ-interior, neutrosophic ϒ-closure.

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1. Introduction

Uncertainty is an essential and extensive factor in the real world which is too complicated to handle. Numerous theories evolved as mathematical approaches to deal with uncertainties. Zadeh [25] proposed the concept of fuzzy set in 1965 with the idea that each element has a degree of membership. Later, Atanassov [3] in 1986 introduced intuitionistic fuzzy sets as a generalization of fuzzy sets including the degree of non-membership with a restriction that the sum of these two grades is less than or equal to unity. Smarandache [21] in 1998 initiated the concepts of neutrosophic sets which is characterized by a truth membership function, an indeterminacy membership function and falsity membership function. This theory is highly significant in many application domains since indeterminacy is ubiquitous