ABSTRACT

In the thesis the concept of energy of a fuzzy graph is extended to the energy of an intuitionistic fuzzy graph. The lower and upper bound for the energy of an intuitionistic fuzzy graph are derived. Moreover, virus spread of an intuitionistic fuzzy graph is discussed and the infection rate, curing rate and the sharp epidemic threshold of the virus spread are defined and these concepts are illustrated with real time examples. Max-Min intuitionistic fuzzy matrix of an intuitionistic fuzzy graph is defined and the extreme energy of the such graph is calculated. Also the explicit expressions for the coefficients of the characteristic equation are given. In addition, virus spread of the extreme energy is discussed. Dominating intuitionistic fuzzy graph is defined and the energy of such graph is calculated. The upper and lower bounds for the energy of dominating intuitionistic fuzzy graph are derived. Also virus spread is discussed on the energy of the dominating intuitionistic fuzzy graph. Laplacian energy of an intuitionistic fuzzy graph and the virus spread on the Laplacian energy of an intuitionistic fuzzy graph are discussed. Spreading rate of virus between incoming and outgoing links of a website through an intuitionistic fuzzy graph is analyzed. Numerical examples are illustrated in all such graphs.