In this study, flow estimation models have been developed with artificial neural networks (ANN) method which is one of the artificial intelligence techniques. The various ANN models are developed by using different input combinations consisting of flow data of Soğutluhan (1535), Yamula (1501) and Bulakbası (1539) stations and compared with measured monthly flow. The coefficient of determination ($R^2$) and root mean square error (RMSE) are used as performance criteria to compare results. According to these criteria, the model which has flow values in t-1 time of 1501, 1539 and 1535 stations, and in t time of 1501 and 1539 stations has the highest $R^2$ of 0.98 and 0.97 for training and testing set, respectively.