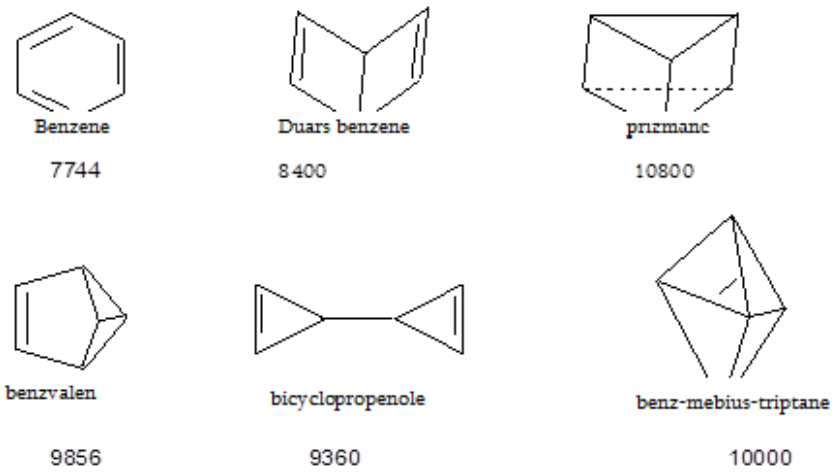
Algebraic Character of valence Isomers within the Scope of ANB-matrices Method

M. Gverdtsiteli[a], *T. Lobzhanidze*[b],
e-mail: tea.lobzhanidze@tsu.ge
[a,b] Department of Chemistry, Faculty of Exact and Natural science,
Iv. Javakhishvili Tbilisi State University,
3, Chavchavadze Ave.

The valence isomers differ from each other by disposition of the chemical bonds, (they are sometimes cockled bonds isomers). Benzene has six valence isomers:



These isomers can be algebraically characterized within the scope of ANB-matrices method. ANB-matrix is modified type of contiguity matrix. Its diagonal elements are the atomic numbers of the chemical elements (which the molecule contains); non diagonal ones-the multiplicities of the chemical bonds. For XYV triatomic molecule ANB-matrix hos the form:

$$\begin{Vmatrix} 2X & \Delta xy & \Delta xv \\ \Delta xy & 2y & \Delta yv \\ \Delta xv & \Delta yv & 2v \end{Vmatrix}$$

Calculations show, that the values of the determinants of the corresponding ANB-matrices differs (thus values are represented below valence isomers), thus troy can be considered as algebraic characters of the valence isomers.