Contributor: Soumyajit Paul, M.Sc C.S.

1. Show that in a rooted tree with internal nodes (non-leaf nodes) having at least two children, the number of leaves is greater than the number of internal nodes .

2. Prove or disprove the following.

   i) The union of two dominions of a player is also a dominion of that player .

   ii) The intersection of two dominions of a players is also a dominion of that player .

3. Design a family of games $\mathcal{G}_n$ with n vertices such that there are no dominions of size at most $\sqrt{2n}$ in $\mathcal{G}_n$.